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POPULATION DYNAMICS IN THE SHADOW OF THE LAW:
A NEW APPROACH TO LAW IN POPULATION STUDIES

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Dedicated to A.S.& B.S., for teaching me discipline.

And to D.S. & C.P., for teaching me creativity.

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ABSTRACT

Does the Law influence population dynamics such as fertility and family time use patterns? If so, why, and how does this happen? These are the main questions this dissertation tackles. In doing so, a new wholistic approach to the use of Law in population studies is introduced, "Law and Demography", contributing both theoretical and empirical elements to this scholarly sub-field. A theoretical contribution is made by embedding legal scholarship and theory of legal change into current demographic theory, thereby creating a new analytical space for Law in population studies. An empirical contribution is made by introducing the importance of context into the study of Law and populations. To fully understand the influence of a law, *The Law* must be considered in its correct topical and spatial context. The topical context is necessary as Law is a patchwork of interlinking edicts that are created and adjusted in relation to each other. Spatial context is crucial, as Law is heavily influenced by its surrounding environment, on the micro (e.g., local regulation), meso (e.g., State Law), and macro levels (e.g., National Constitutions). Three distinct empirical studies employ a different and unique combination of original legal data and socioeconomic measures. Chapter 1 explores the association between State-Level Family Law in the U.S. and later changes to county-level General Fertility Rates; Chapter 2 interrogates the association between Constitutional Law and later changes to country-level Total Fertility Rates; and Chapter 3 studies the association between grandparents' visitation rights, and time grandparents spend with grandchildren. A solid foundation of evidence is provided by all three studies to demonstrate that Law is linked to population dynamics, as expected by the theoretical framework introduced, affirming a new role for Law in population dynamics, as set out by the "Law and Demography" agenda.

1 INTRODUCTION: LAW AND DEMOGRAPHY RESEARCH IN POPULATION STUDIES

Some weeks ago, my wife and I decided to begin the process of issuing a passport for our second daughter, barley six months old at the time. As administration and logistics fall squarely outside my jurisdiction in the household, I naturally assumed that I could sit this task out and focus on completing my dissertation. When issuing a passport, one must schedule ahead of time with the post office and complete an impressive battery of paperwork; this also includes the taking of a photo that must satisfy more technical requirements than the blueprints for a European Soccer Stadium. On the morning of our scheduled appointment, I was approached by my furious wife 15 minutes prior to departure, still sat in my pajamas, keyboard clacking.

Angry wife: "Why aren't you ready yet?!"

Laboring graduate student: "Ready for what? *Both* of us have to go to the post office?"

Angry wife: "Really? You of all people don't get it?"

The Law has a direct influence on our lives. When and how we file taxes, the insurance we purchase, what we do when we are sick, how we are compensated for our labor, and many choices we decide not to make because they are prohibited by Law. In other words, our decision making process, whether consciously or not, takes the Law into account. These can be important decisions we make only a handful of times in our lives, such as purchasing a new home, relocating to a new state, or settling the estate of a deceased loved one. Law also touches upon the more intimate aspects of our lives and shapes the way we think about marriage, divorce, and even children. Sometimes the Law is incredibly impactful, for example when divorce becomes unilateral and highly accessible, and sometimes, it is something as mundane as Illinois becoming

a signatory to an international treaty against child kidnapping so that both parents have to show up to the post office to issue their child a passport.

This dissertation explores how individuals and communities internalize Law such that it can alter their behaviors and norms, particularly with respect to fertility and family time use patterns. The core argument was laid out long ago by sociologists of the Law such as Weber (1954), Durkheim (2014 [1893]), and Simmel (1964), explaining that Law is like a rule book for society and social interaction, and as such it casts a shadow over our daily lives. These same insights are later echoed by Parsons in his discussion on functionalism, as Law necessarily encloses society within well-defined boundaries (Parsons 1968). Admittedly, it is easier to see how the Law may be more influential in matters such as Criminal Law (Bibas 2004) or Corporate Law (Biasi 2018), compared to Family Law; nevertheless this dissertation will endeavor to show why and how even intimate undertakings such as reproduction and spending time with relatives are, in part, influenced by the Law. In doing so, this work aims to recast theoretical and empirical links between Law and Demography, thereby expanding its potential applications, and creating a new interdisciplinary research agenda.

Demographers and Legalists have separately contemplated the theoretical link between the two fields. This is true of early demographers such as Malthus (1888) and Quetelet (1842), both of whom have theorized on the role of Law in population development, as it is true of early legalist such as Jhering (1879) and Holmes (1897), who understood that while the Law seeks to regulate social life, it is very much subject to its pressures. Later on, 20th century demographers and legalists began to contribute more substance to the link between Law and Demography. Notestein (1945), identifies Law as a step in the development of a population, while Hauser (1959) expands on the various interactions between population studies and other disciplines. In

the 1970s and 80s, legal scholars trained in demography recognized the importance of demography in legal change, and vice versa, establishing a subfield of "Population Law" (Lee 1974; Lee and Gardiner 1971; Lee et al. 1976; Barnett 1982). More recently, a wave of empirical work has provided quantitative evidence of the link between Law and population dynamics such as fertility (Bailey 2010; Halla 2013; Grossbard and Vernon 2017), marriage (Grossbard and Vernon 2014; Grossbard 2016; Alshaikhmubarak, Geddes, and Grossbard 2019), and divorce (Furtado, Marcén, and Sevilla 2013; Bonnet, Garbinti, and Solaz 2022; Bell et al. 2022; Schaubert 2023).

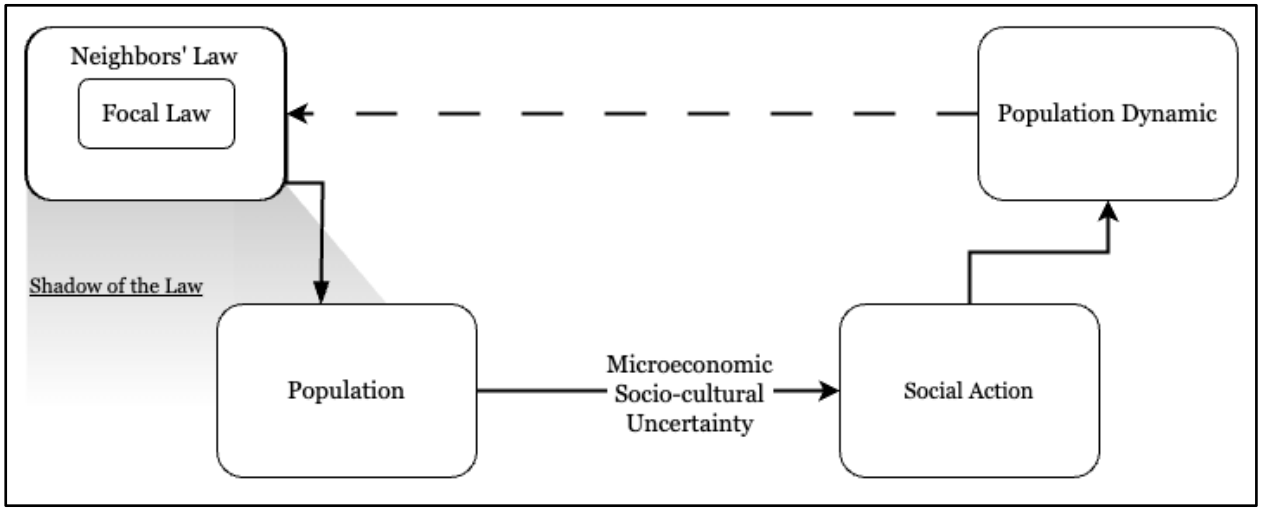
This dissertation departs from previous accounts of Law and Demography in that it utilizes a broader conceptualization of Law, and places it in its correct and necessary context. A broad conceptualization of Law means that theory on legal change and development are combined with current theories in population studies to better understand why and how the Law is associated with population trends such as a fertility decline. This is particularly important in light of the close tie between legal and social change (Calavita 2016), as the Law both drives social change (Sunstein 1996; McAdams 2015), and reflects it (Barnett 2006; Rosenberg 2008). In bridging between the two disciplines, this work answers the call to make demographic theory more pluralistic (Hauser 1959; Gutman 1960; McNicoll 1992), by introducing new "high-level" theory (Vance 1952).

Placing Law in its correct and necessary context means that the influence of any provision or subset of Laws must be considered in tandem with other salient Laws in the legal subfield. This is because Law is a patchwork of mutually interacting and entangled decrees (Pollet 2010), created and amended in relation to each other (MacDonald and Kong 2006). For instance, interrogation of a particular legal provision such as "no-fault divorce" must also

appreciate other grounds for divorce, requirements and limitations to divorce, and alternatives such as conciliation. In other words, using a single Law as a binary indicator is insufficient to fully appreciate its influence, and loses a great deal of the nuance and variation in Law. This also necessitates differentiation between Law and policy, as the former is a clear and direct edict with variance and nuance, while the latter is typically black boxed into a binary designation with the aim of exploring the effect of a particular policy. Further discussion on the difference between Law and policy is included in each chapter, as is relevant to the focus of that chapter.

A second way in which context is created – and a second way in which this dissertation departs from previous work in the field – is by giving the spatial dynamic of Law its due place. Social action and interaction are inherently spatial dynamics (Abbott 1997). All things are related to some degree, but closer things more so than others (Tobler 1970). Law is no exception, as it exhibits strong spatial dynamics via mechanisms such as diffusion, transplantation, and global or regional pressure (Hartog 2002; Crowley 2012; Ginsburg, Chernykh, and Elkins 2008; Stone 2017). By placing Law in its correct and necessary topical and spatial context, the signal can be better isolated from the noise.

Figure 1.1: Law and Demography Theoretical Framework



This new approach to the research of Law and Demography is based on the theoretical framework presented in Figure 1.1, constructed in the spirit of Coleman's theory of social action (Coleman 1990). This framework suggests that populations – individuals and communities – operate in the shadow of the Law, such that decision-making and community norms are embedded within the legal system and shaped by it. These are changes that are best understood via existing theoretical approaches to population dynamics. The microeconomic approach (Becker 1991; Becker and Posner 1993; Becker 2004) provides guidance on how Law can change costs associated with marriage and divorce; the socio-cultural approach (Coale and Watkins 1986; Cleland and Wilson 1987; Goldscheider and Waite 1991; Bongaarts and Watkins 1996) is utilized to explain how Law might shape attitudes and norms regarding population dynamics; and uncertainty demography (Trinitapoli 2023) is a key component in understanding the ramifications of legal change and the uncertainty it generates. As such, Law and Demography is supplementary rather than substitutive in nature; it adds and builds on existing knowledge.

The Law and Demography theoretical framework takes advantage of the naturally overlapping spheres of family life and Law regulating family life on the national and sub-national levels. Simply put, numerous determinants of fertility (Bongaarts 1978) or family time use patterns (Coall and Hertwig 2010) are regulated directly by Law. For example, marital status, contraception, abortion, and access to grandchildren are all regulated by Law (Hartog 2002; Stone 2017; Koenig 2022), and are at least plausibly, if not likely, linked to population dynamics (Barnett 1982; Barnett and Reed 1985). This follows the intuition set out by McNicoll: "*by virtue of its mere existence, the state cannot not influence fertility*." (2001, 139).

However, this raises two equally important questions: for the Law to cast a shadow, is knowledge of Law required? And if so, what knowledge do people have of the Law? The short

answers are: no, and terrible. People have been shown to have an inaccurate knowledge of Law generally (Franklin and Kosaki 1995; Gibson and Caldeira 2009; Van Rooij 2021), and of Family Law in particular (Saunders 1975; Baker and Emery 1993; Pleasence and Balmer 2012). However, an accurate knowledge of Law is not required for it to cast its shadow, as even an "imagined" version of the Law can be influential in shaping attitudes and behaviors (Perry-Hazan and Birnhack 2016), including norms regarding marriage and divorce (Baker and Emery 1993). Furthermore, gaps in individuals' legal knowledge are replaced with social norms created in their community (Van Rooij 2021), reinforcing the link between Law and community norms.

The basic tenets of the Law and Demography approach can be distilled as such:

- Law casts a shadow over individual and communities, and can shape individual level behavior, as well as community norms and attitudes.
- Within the shadow, there is a clear theoretical link, as Law directly regulates social determinants of population dynamics such as fertility and family time use patterns.
- Knowledge of the Law is not required for it to cast a shadow, as even an imagined version of the Law can be influential.
- To fully understand the influence of a law, *The Law* must be considered in its correct topical and spatial context.
- The Law attaches to well-established mechanisms known to associate with population dynamics such as costs and utility maximization, social norms that incentivize or chill behaviors related to family life, and creation or alleviation of uncertainty via legal and institutional change.

- As a result, changes to population dynamics can be observed on the population level.

Chapter 2 examines how Family Law is associated with a later change in general fertility rates (GFR) on the county-level in the U.S., 1969-2007, a particularly turbulent time for American Family Law. Leveraging the rich diversity of this legal field on the state level (Hartog 2002; Grossman and Friedman 2011), an original longitudinal survey tracking the "state" of Family Law for the lower 48 U.S. states and the District of Columbia (120,276 county-years) is utilized to explore how unique and oft-overlooked provisions within the sub-topics of marriage, divorce, alimony, child custody, and child support are associated with later changes to GFR. These data are merged with various socio-economic measures to isolate the signal of Law from other confounding variables such as income and employment, ethnicity and race, marital status, political orientation, and mortality. Additionally, spatial lags are constructed to allow for the control of the confounding effects of neighboring counties' demographic and legal profiles.

Chapter 2 begins by providing an encompassing theoretical background to the interrelations between Law and population dynamics. The theoretical framework presented in Figure 1.1 is elaborated upon starting with the history and background of the shadow of the Law, and its more recent developments and applications to Family Law. In this segment, policy and Law are differentiated based on the disparate pressures to which each is subject, highlighting the advantages of treating Law as such (rather than policy). The question of *HOW* the Law casts its shadow and how people learn about the Law and legal change is explained using three different diffusion mechanisms (Montgomery and Casterline 1996): News/Media, Social Networks, and Role Modeling. Finally, three existing approaches to fertility – microeconomic, sociocultural, and uncertainty – are explained and linked to Law and legal change to demonstrate how through

them, Law can influence individual and community level fertility. This segment advances the notion of "legal embeddedness", whereby choices and norms pertaining to fertility are embedded within the legal system. This is a view that is complimentary to existing knowledge, seeking to intervene in current theory on fertility by adding the Law and Demography approach.

Chapter 2 then provides some background on the various Family Law provisions tested, and forms expectations for the manner in which they will be associated with GFR based on a combination of demographic and legal theory. In doing so, some necessary historical background and context is provided as well. In total, 13 legal provisions are tested, however for the sake of brevity, an encompassing background is provided only for five (information on the remaining eight appears in the appendix).

The results obtained via fixed effects spatial regression set out a strong foundation of evidence to suggest that Family Law, when taken in the correct context, is significantly associated with later changes to GFR, as expected. For instance, legal provisions raising the cost of marriage (e.g., premarital health requirements) are associated with a later decrease in GFR, as access to marriage – the premier childbearing institution – is obstructed. The evidence amassed in the results make a strong case for the plausibility of Law and Demography.

Chapter 3 applies a similar research design, by interrogating the association between national constitutions and total fertility rates (TFR) on the country-level.[1] Data from the

[1] While Chapter 2 uses GFR as the dependent variable to measure fertility, Chapter 3 uses TFR. This choice is largely driven by the availability of data, though both serve well to capture fertility on the county- and country-level, for Chapters 2 and 3, respectively. GFR is a measure of the number of live births per 1,000 women, 15-44, in a given administrative unit (in chapter 2, U.S. counties), offering a more exacting measure of fertility compared to Crude Birth Rates (which is a measure of live births per 1,000 persons in an administrative unit). TFR is a sum of all age-specific birth rates for women, typically measured in 5-year intervals. The TFR represents the mean number of children born to a woman who lived through her reproductive age window (15-44, or 50), having been "exposed" to the age-specific fertility rates in each 5-year age interval. A TFR above 2 will indicate that a population is above "replacement level", i.e., that couples are on average producing 2 or more children to replace themselves; when TFR is consistently above replacement, a population will increase in size, whereas a TFR under replacement (lower than 2) will indicate a population that is diminishing in size (Preston, Heuveline, and Guillot 2001).

Comparative Constitutional Project (Zachary Elkins and Ginsburg 2021), the Correlates of War (Palmer et al. 2022), historical data on the Demographic Transition (Delventhal, Fernández-Villaverde, and Guner 2021), and country-level socioeconomic measures from the UN Population Division, are combined to create a semi-original dataset including 13,632 country-years for 193 countries, 1950-2020.

Chapter 3 opens by explaining the unique position of national constitutions in the legal hierarchy, and how they differ markedly from population policies. Historical background and context are provided to demonstrate that constitutions are actually a relatively recent development, and how the world largely adopted constitutionalization of Law only after World War 2 (Z. Elkins, Ginsburg, and Melton 2009). Furthermore, constitutions have increasingly penetrated the social realm by including more rights over time (Law and Versteeg 2010). The Law and Demography framework is applied to suggest that national constitutions are associated with country-level TFR via two mechanisms: (a) constitutional content, i.e., the character and intensity of the rights included and (b) constitutional form, i.e., the manner in which the document itself is designed, whether it is long or short, flexible or rigid.

Four specific constitutional predictors are identified for the purpose of testing their association with later changes in TFR. Constitutional content is proxied by the constitutional right to marriage and a constitutional provision for child support. Constitutional form is proxied by the flexibility of a constitution (i.e., how easy it is to amend) and the length (in words) of the section pertaining to rights. Expectations regarding the association with TFR are set out based on how these constitutional predictors interact with microeconomic, sociocultural, and uncertainty theories on fertility, based on the region of interest.

To isolate signal from noise, spatial lags are constructed so that regional and subregional influences on a nation's constitution can be controlled. Similarly, socioeconomic measures include sex ratios at birth, life expectancy at birth, mortality, religiosity, GDP per capita, indicators for turmoil (war and economic crisis), and various measures for the type of governance in-force in a country, including judicial and executive independence, and mentions of democracy, free market, and socialism. Spatial lags are constructed for the socioeconomic and governance measures as well.

Due to a high degree of economic, cultural, and legal dissimilarly among global regions, spatial fixed effects analyses were performed on the regional, rather than the global level. In doing so, Law is placed in its correct and necessary context. Results provide evidence to suggest that constitutions are significantly associated with later changes to TFR, via both constitutional content and form. Moreover, regional context is shown to be imperative, as the same right, e.g., the right to marriage, is associated negatively with TFR in more developed regions, yet positively associated with TFR in less developed regions. Results further affirm that constitutions increasingly penetrate the social realm by introducing more rights overtime. These results are robust to the strength of, or respect for, the of rule of law in a region or country, as well as to the form of governance enacted (e.g., dictatorship vs. democracy).

Chapter 4 replaces fertility for a different dependent variable: time grandparents spend with their grandchildren in the U.S. Original data are used to construct a longitudinal dataset of grandparents' visitation rights for 49 U.S. jurisdictions (lower 48 States and District of Columbia), 1960-2019. These data are merged with the American Time Use Survey (ATUS) (Flood et al. 2023) to study the association between legal norms and grandparental investment operationalized as grandparents' visitation rights and time grandparents spend with

grandchildren, respectively. Data are aggregated on the county-level, for a total of 4,467 county-years, 2003-2019. This time period is unique in that it follows the Supreme Court's decision to limit grandparental rights in *Troxel v. Granville (2000)*, in opposition to prevailing population dynamics rendering grandparents more central to their grandchildren's' lives.

Aside from the dependent variable, this chapter differs in some key respects from the two above. First, while American Family Law and national constitutions were highly dynamic in the period studied, grandparents' rights stagnated (Koenig 2022). Furthermore, while American Family Law and national constitutions adapted and embraced changing population dynamics (Cott 2002; Grossman and Friedman 2011; Z. Elkins, Ginsburg, and Melton 2009), grandparents' rights did the opposite as the Supreme Court in the aforementioned case of *Troxel*, ruled in favor of parents' rights rather than grandparents' rights, despite explicitly recognizing the growing need and growing role of grandparents vis-à-vis their grandchildren (Buss 2000; Gilles 2001).

Chapter 4 approaches theory on grandparental investment via the Law and Demography lens. One of the determinants of grandparental investment is legal norms and institutions (Coall and Hertwig 2010), again lucidly demonstrating the overlap between family life and the regulation thereof. In lieu of identifying certain provisions within the subset of grandparents' visitation rights, an index is created to represent the degree to which a state is welcoming of these rights; in other words, the index of grandparents' rights provides a good indication for how a state balances between the rights of parents and grandparents with respect to grandchildren.

Due to the intricate coding scheme employed by the ATUS, the dependent variable – time grandparents spend with grandchildren – can be categorized into leisure activities and aid activities (fun vs. help). Formal hypotheses are set out to identify whether (a) grandparents' visitation rights did in fact stagnate following the Supreme Court case *Troxel*; (b) whether

grandparents' visitation rights are significantly associated with a later change in the time grandparents spend with grandchildren; and (c) whether results differed by the type of time spent (fun or help).

Results obtained via fixed effects regression with Driscoll and Kraay standard errors indicate that grandparents' visitation rights did in fact stagnate in the time sampled (2003-3019), and that they are significantly associated with time spent, even when controlling for neighbor counties' state of Law. As was expected, counties within states with laws more welcoming of grandparents' visitation rights did exhibit a positive association with the amount of time spent, such that on average, the inclusion of an additional grandparental visitation right associated with a later increase of 2 daily minutes spent between grandparent and grandchild. Furthermore, results were significant only with respect to fun time spent, however, when the sample was culled to include only counties in which multi-generational households are above the national mean, significant results were obtained for help time as well. Lastly, results demonstrate how interstate variation remains pronounced so that the benefits of increased grandparental investment are not distributed randomly, but according to the state of grandparents' visitation rights, when all else is controlled.

The final chapter of the dissertation will present some concluding thoughts on the role of Law and Demography research in population studies and legal scholarship, as well as a number of limitations. An unofficial cost-benefit analysis will show that Law and Demography gives more than it takes, and that it is widely applicable to topics within population studies and legal scholarship.

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2 FERTILITY IN THE SHADOW OF AMERICAN FAMILY LAW

Abstract: Does The Law shape key demographic trends such as fertility? While Law is employed in population studies, it has not been considered comprehensively as a complimentary system of determinants to fertility. As The Law directly regulates multiple determinants of fertility such as marriage, divorce, contraception, and abortion, it merits greater attention. Therefore, this paper advances the argument that in addition to well-established economic and sociocultural determinants, fertility and reproduction are also shaped by Law. Employed herein are original data constructing the 'state' of American Family Law for each of the contiguous 49 U.S. jurisdictions (48 states and the District of Columbia), including multiple legal provisions pertaining to Marriage, Divorce, Alimony, Child Custody, and Child Support. These legal data are complimented by numerous county-level demographic and economic measures from the ICPSR, NHGIS, BEA, and Library of Congress, for a total of 120,276 county-years ranging from 1969-2007. Relying on three theoretical approaches to fertility (microeconomic, sociocultural, and uncertainty), expectations are set out to explain how various legal provisions will associate with general fertility rates (GFR). Spatial regression employing time and space lags tests associations between 12 legal provisions and county GFR, showing that these legal provisions, most never before interrogated in the literature, significantly associate with later changes in GFR. Ample evidence is provided to establish the plausibility of the argument that fertility and reproduction are embedded in Family Law, opening the door to new Law & Demography inquiries.

2.1 Introduction

Social action is embedded in social context (Parsons 1968); it happens within identifiable systems of determinants such as networks and institutional structures (Burt 2005; Coleman 1990; Granovetter 1985), and varies in time and space (Abbott 1997). These systems of determinants have been found to apply at both the individual (Akerlof 1970) and community levels (Jepperson and Meyer 2011; Meyer and Jepperson 2000), exerting pressure on different levels of analysis to shape social action. Within population studies, these insights are often applied to study how fertility rates and reproductive decision-making are influenced by determinants such as social organization (Axinn and Yabiku 2001), institutional features (Blake 1994), western influence (Thornton 2013; Freedman 1979), social change (Ruggles 2015; Hayford 2005; Cherlin 2016), and utility maximization (Becker 2004; Becker and Posner 1993).

This work aims to establish the Law as a complimentary system of determinants, thus giving it a more prominent role in population studies. Law is not alien to the field – it has been contemplated to have an impact by the modern fore parents of demography (Notestein 1945), and has been employed empirically in population studies (Schaubert 2023; Alshaikhmubarak, Geddes, and Grossbard 2019; Grossbard and Vernon 2017; 2014). Recent works have specifically tied fertility to legal provisions such as obscenity (M. J. Bailey 2010), joint custody (Halla 2013), and child support (Huang 2002), though the lion's share of investigations typically focus on the shift to no-fault divorce. This project views Law more broadly, as a system of determinants within which reproductive decisions are made. Put differently, social action regarding fertility occurs in the shadow of law. This work focuses on American Family Law in the second half of the 20th century to theoretically and empirically establish the plausibility of this argument.

A note of clarification is in order: Law is not interchangeable with Policy. While population policies are a major component of studies in fertility (Solinger and Nakachi 2016; May 2012; Connelly 2008), this project does not view Family Law as such. While policy is a vague concept, Law is more definite and narrowly defined (Berger and Carlson 2020; Kay 2007). Policy can contain Law, or be contained by it (Opeskin and Nwauche 2013; Breslin 2009). Family Law is mostly contained by policy, in that a group of legal provisions can be grouped into a particular policy, such as child or family welfare (Bogenschneider and Corbett 2010; Cott 2002).

A major distinction between Law and Policy can be drawn based on the process in which each was created and the legislative vs. political pressures to which each is subject (Kay 2007). As such, policy is typically more fluid, is not always legally binding, and can be formed by governmental as well as non-governmental organizations. While family and population policies often seek broader societal impact, aiming to shape demographic trends (May 2012; Bogenschneider and Corbett 2010; McNicoll 2001), Family Law is typically concerned with regulating ties between family members (Kessler 2020; Bix 2013; Mather 1993). This work argues that in regulating family life, Family Law also has broader societal impact and can influence fertility by shaping individual preferences and community norms.

This broader view of Law – or legal embeddedness – entails theoretical and empirical components that are often absent in the literature linking Law to population dynamics. First, Law and legal change are inherently linked to social change (Calavita 2016), whether by promoting it (Sunstein 1996; McAdams 2015), or reflecting it (Rosenberg 2008; Barnett 2006). As such, the rich theory underlying legal change and the shadow of the Law can be utilized in population studies; a better understanding of how Law changes and why it casts a shadow is highly relevant

to the history and development of population trends, particularly so with Family Law (Cott 2002; Hartog 2002). Therefore, this work joins the endeavor to make demographic theory more pluralistic (Hauser 1959; Gutman 1960; McNicoll 1992),[1] by incorporating both legal history and legal theory into a framework that seeks to complement rather than supplant extant theories of fertility.

Legal embeddedness adds an empirical component to population studies in that it places Law within its necessary context. As Law is a patchwork of interlinking edicts (Pollet 2010), context is not only helpful but crucial. To provide legal context, legal embeddedness introduces new inputs to population studies, such as features of the legal system and nuanced legal provisions employed alongside intertwined provisions from the same sub-topic that are theoretically salient. For instance, in assessing the influence of child custody, child support should be considered, as one is balanced against the other in obtaining the eventual outcome (Dinner 2015). In the international context this may include the type of legal system (Common Law vs. Civil Law) or the degree of judicial and legislative independence. In the American context, this might include an indicator for legal coverture (Cott 2002).[2]

Rarely is legal context fully considered. Halla (2013) controls for no-fault divorce in exploring the effects of joint custody on fertility, while González-Val and Marcén (2012) consider the effects of joint custody when determining the impact of no-fault on divorce rates. However, the approach advocated herein inserts more nuance by qualitatively coding legal provisions (e.g., no-fault divorce is not binary but ordinal), while considering the effects of other

[1] In describing other systems of knowledge that can contribute to population studies, Hauser fails to mention Law: "geographers, geneticists, ecologists, anthropologists, public health experts, psychologists, historians, economists, man-power specialists, and students of other disciplines, as well as sociologists" (1959, 170). Conversely, McNicol is more explicit about the role of Law: "Institutional arrangements relevant to demographic outcomes might include, say, rules of family and household formation, labor market practices, and aspects of the national legal and administrative systems that intrude on and constrain individual behavior." (1992, 410).
[2] See FN19 for background on coverture.

legal provisions linked to the provision tested (e.g., legal barriers to divorce considered together). Furthermore, the storied spatial dynamic of Law, marked by a rich history of diffusion and transplantation (Stone 2017; Bix 2013; Hartog 2002), necessitates that the Law of neighbor states be considered as well.

The plausibility of legal embeddedness is established by introducing these theoretical and empirical contributions to the literature. First, a theoretical framework culminating in a modified version of Coleman's theory of Social Action (1990) is presented to demonstrate how Law fits in to existing knowledge on what shapes fertility and reproduction. This framework elaborates on the theoretical foundations of the 'shadow of the Law' (Weber 1954; Simmel 1964; Durkheim 2014; Mnookin and Kornhauser 1979; Sunstein 1996; McAdams 2015), as well as on the pragmatic mechanics through which it operates, i.e., how, and why individuals and communities are influenced by the Law. Focus will be placed on three mutually linked, interactive streams though which people and communities learn of, and become influenced by, the Law: social networks (Bernardi and Klaerner 2014; Keim, Klärner, and Bernardi 2009; Montgomery and Casterline 1998), news/media (Barber and Axinn 2004; Wildeman, Schrijner, and Smits 2023; Blakemore et al. 2020), and role modeling (Montgomery and Casterline 1996; Brewer 2009; Melnikas 2018). For the Law to cast its shadow, however, accurate knowledge is not required, as an imagined version of Law is found to be influential as well (Perry-Hazan and Birnhack 2016; Van Rooij 2021). This framework is intended to delineate Law as an additional system of fertility determinants.

Second, the proposed framework is empirically tested using a novel combination of data and methods to explore county-level general fertility rates (GFR) between 1969 and 2007. The second half of the 20th century was a particularly turbulent time in American Family Law (Bix

2013; Grossman and Friedman 2011), a legal subfield made famous for its rich interstate variation (Stone 2017; Hartog 2002). This makes Family Law incredibly appealing for the study of fertility trends, especially as it is directly linked to established determinants of fertility (Bongaarts 1978) such as marital status and gender roles.

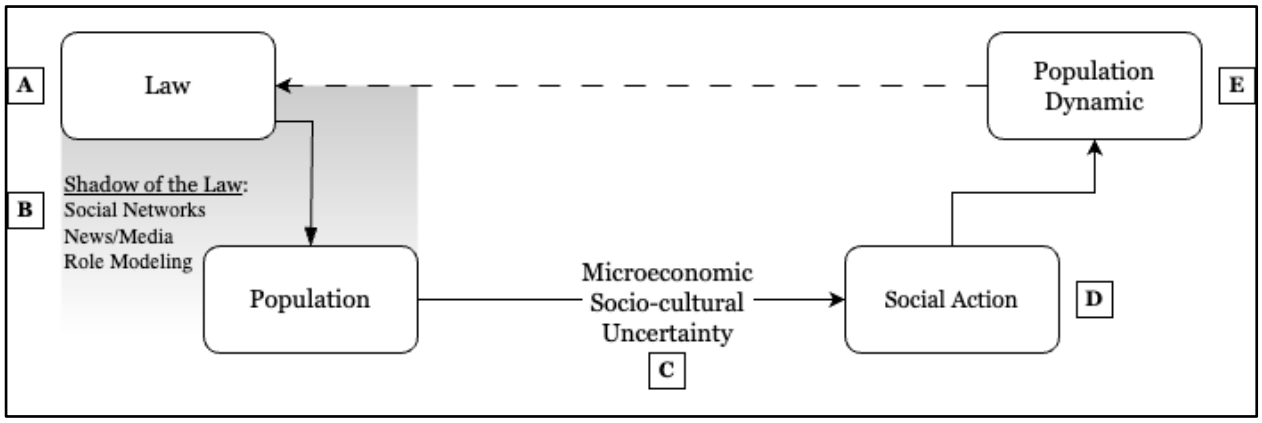
An original survey of American Family Law, 1950-2019, was constructed for the lower 48 contiguous states and the District of Columbia. By tracking and coding legal changes published in the Session Laws of each jurisdiction (publications detailing every legal change made during the year prior), the survey constructs the 'state' of Family Law for five topics of interest: marriage, divorce, alimony, child custody, and child support, as well as general features of the legal system such as legal change, legal reform, and the gender neutrality of Law. These data are merged with county-level demographic and economic measures. Due to the limitations of missing data, the final dataset ranges from 1969-2007, totaling 120,276 county-years.

The case for legal embeddedness is presented by analyzing the association between 12 legal provisions (10 Family Law provisions and 2 general features of the legal system) and fertility rates. These provisions were selected on the basis of theory- and data-driven justifications detailed in the Methods segment. No single finding, number, or estimate will serve as a 'smoking gun' to prove that fertility and reproduction are embedded within a legal environment, but the hope is that this comprehensive report will provide the evidence necessary to strongly support the claim.

The legal provisions explored herein can be placed in one of three groupings. Group (a) includes legal provisions that have been employed in studies of marriage & divorce, but not fertility – for example premarital health requirements (Doroshow 2019; Buckles, Guldi, and Price 2011); Group (b) consists of legal provisions that have been used in the study of fertility in

the U.S., including child custody and child support (Halla 2013; Huang 2002); and Group (c) is composed of novel provisions that do not have a presence in the literature (e.g., Cool Off & Conciliation requirements).

Figure 2.1: Legal Embeddedness, Abstracted



An *a priori* belief for the expected association of provisions (and neighbor state's Law) will be set out as informal hypotheses. In doing so, three well-established theoretical frameworks explaining reproductive decisions are employed: microeconomic (Becker 1991; Becker and Posner 1993), the pluralistic sociocultural approach (Coale and Watkins 1986; Cleland and Wilson 1987; Goldscheider and Waite 1991; Bongaarts and Watkins 1996; Thornton, Axinn, and Xie 2007), and Uncertainty in Demography (J. A. Trinitapoli 2023). Based on these three theoretical approaches, suggested mechanisms are constructed to explain why a legal provision will be negatively or positively associated with GFR. These individual- and community-level mechanisms are not directly observed and remain suggestive to emphasize how Law is complementary to current understandings on what is associated with observed fertility rates. An abstracted version of the legal-embeddedness framework is presented in Figure 2.1. While all of steps A through E are explained, only A and E are observed.[3]

[3] The oft discussed arrow leading from E→A (Jepperson and Meyer 2011) is outside the scope of this project, though it presents an important avenue for future research (e.g., legal change in the shadow of population dynamics).

The association between legal provisions and county-level GFR is tested using spatial regression (Anselin and Rey 2014; Anselin 2022). Spatial regression is particularly apt for the data employed, and for the underlying space-time dynamic present in social action, fertility, and Family Law (Abbott 1997; Thornton 2013; Stone 2017). In other words, GFR is influenced by the past, by neighbors, and by past neighbors. Spatial regression facilitates the creation and analysis of such space, time, and space-time lags. The use of county-level data injects an untold wealth of variance into the analyses, to better proxy community or ecological influence (Kim and Potter 2020; Cohen, Kelley, and Bell 2015; Lesthaeghe and Neidert 2006), as states are a poor proxy due to their high internal diversity. Family Law resides mostly in the province of State Law (Hasday 2014), so that the "treatment effect" (legal provisions) varies by state and not by county. However, the data include meso-level or community demographic and economic measures – which vary wildly – given the same treatment across 49 units.

Spatial regression does well to isolate signal from noise. Spatial lags control for the influence of neighbor states' laws on a focal unit and when coupled with a time component, the influence of past neighbors is controlled as well. This also enables an interrogation of the association between a neighbor state's law and a focal county's GFR, a test for a 'second order' shadow of the Law. Time lags create chronological separation to show how legal provisions will associate with a later change in GFR, and how this relationship changes over time.

2.2 Theoretical Background & Framework

This segment will expand on the different ways in which Law may influence fertility. The question to be answered is why and how fertility and reproduction are determined, in part, by the Law. First, a theoretical background explains *why* any individual or community might be

influenced by Law, followed by a review of *how* Law exerts it influence. Second, theories explaining fertility and reproduction will be covered by focusing on the "common levers" they share with Family Law. Third, a brief discussion of Law as mediator in the causal sequence is presented. Finally, a framework built on the foundation of Coleman's boat (1990, 702) illustrates the process through which state-level Family Law associates with county-level fertility.

2.2.1 The Shadow of Law

Early sociologists and legalists had a clear view on the role of Law: it directs behavior and coordinates social interactions; social action takes place in the shadow of the Law. The very letter of the Law serves as powerful motivator (or prohibitor) to perform certain social actions (O. Holmes 1897). The Law can influence individual preferences on the micro level, but it also shapes community norms on the meso- and macro-levels (McAdams 2015; Sunstein 1996). There are two ways to think about how this happens.

The first approach is sanctioned based. Weber (1954) suggests that actors adhere to Law due to its legitimacy, a sense of duty, and fear of penalty for violation. Durkheim (2014) adds that the Law in fact separates between society and outcasts, as the predominant mode of punishment in modern society is exclusion from society (via prison), such that the minimum requirement demanded of every member of society is legal compliance (Deflem 2008). Compliance via deterrence is well established in the literature (van Rooij and Sokol 2021).

The second approach is based in the expressive power of the Law (McAdams 2015): its power to create and modify social norms that will be respected even in the absence of sanctions. Law not only proscribes certain behavior (e.g., Criminal Law), it also prescribes certain behaviors as well (e.g., public health) (Claes, Devroe, and Keirsbilck 2009), actively seeking to prescribe behavior it holds to be normatively attractive to shape social action, population change

included.[4] But betwixt what is forbidden and what is required, there is a range of human autonomy, thought to be regulated by morality and informal social norms (read: "social forces") (Osiel 2019). And even within that wide range of autonomy, Law still directs behavior.

Simmel (1964) contemplates the legal conflict: as the Law is known to members of society, it will influence their behavior *a priori*, and may encourage unity, i.e., Law regulates not only the legal conflict itself, but also individuals' behavior prior to (or during) the interaction that may result in legal conflict. This insight was later masterfully operationalized and applied to Family Law. Mnookin and Kornhauser (1979) conceptualized the notion of "*Bargaining in the Shadow of the Law*". This intuition states that upon negotiating a settlement during divorce, litigants are constrained by their expectations of what the Law dictates and how the judge will adjudicate the conflict. Therefore, one step removed from the Law, parties are nevertheless orienting their decisions in its shadow. This intuition has since been applied to other areas such as Criminal Law (Bibas 2004), Antitrust Law (Biasi 2018), Privacy (Perry-Hazan and Birnhack 2016), and obtaining legal services (Gilson and Mnookin 1994; Cornwell, Poppe, and Bea 2017).

Note that for Law to actually cast a shadow, basic knowledge of the Law is required. Regrettably, individuals' knowledge of the legal system is less than stellar (Franklin and Kosaki 1995; Gibson and Caldeira 2009; Van Rooij 2021); this applies to Family Law as well (Saunders 1975; Baker and Emery 1993; Pleasence and Balmer 2012). However, accurate knowledge of the Law is not required for it to take its effects, for even an "imagined" version of the law bears on decisions (Perry-Hazan and Birnhack 2016; McAdams 2015), and serves as the basis for creation of attitudes and behaviors regarding marriage and divorce (Baker and Emery 1993).

[4] There is no better example for the power of Law to effect change at the population level than the one provided by Foucault (2003) in his discussion on "bio-power". Admittedly, the Third Reich is not a typical case, but it is an ideal case which demonstrates how effectively Law can shape particular demographic outcomes on the population level (e.g., higher Crude Birth Rates, see: (Rabinbach and Gilman 2013)).

Furthermore, in the absence of perfect knowledge, people believe the (imagined) Law to be a reflection of their own values; importantly, individuals' lacunae regarding legal knowledge (or even an overtly incorrect rather that inaccurate understanding of the Law) are replaced with social norms created in their community (Van Rooij 2021). However, save for special cases (Osiel 2019), a community norm will not be dramatically different from the Law, such that the Law still anchors peoples' imagined version (Pleasence and Balmer 2012). The question then becomes not how well the Law is known, but rather how is it discovered. This will be answered below in detail.

Law conveys information; it signals a new position set out by actors enacting and enforcing the Law, causing relevant stakeholders to update their own position based on the new information gleaned, which will then subsequently drive behavioral change (McAdams 2015: 136). There are three different types of positions or signals that are conveyed by Law (McAdams 2015: 155): (1) attitudinal signaling; (2) risk signaling; and (3) violation signaling. Each signal creates a gravitational pull towards a certain position consequently driving change in the position of the regulated population. The signal sent is not received in equal strength by the entirety of the population: legal change that is more visible, local, and frequent will send a stronger signal (McAdams 2015). There is also a component of relevancy, meaning that a sub-population for which a law is more impactful, will be more likely to receive the expressive signal (McAdams 2015), e.g., married couples are more likely to hear of and internalize legal changes to Divorce Law, and couples with children are more likely to learn of changes to Child Custody Law.

An empirical link between the expressive effects of Law and changing community attitudes has been established in the field of behavioral economics. Law can shape attitudes regarding acceptance (or rejection) of minorities based on their ethnic background (Barak-

Corren, Feldman, and Gidron 2018) or sexual orientation (Aksoy et al. 2020). Or Law can influence attitudes regarding the necessity of healthcare (Yörük 2023). Importantly, changes in Law do not need be tied to sanctions or costs for them to influence social norms (Hoffmann 2021; Larcom, Panzone, and Swanson 2019; Rees-Jones and Rozema 2018). Moreover, the Law has been shown to have a causal effect, such that it actively shapes individual preferences and social norms (Lane, Nosenzo, and Sonderegger 2023).

Demographers have been explicit in recognizing Law as a potential determinant of population dynamics, recognizing both the expressive and penal powers of the Law. McNicoll (1992) advocates for the pluralistic approach to population studies and is very clear on the question of legal influence: "*Institutional arrangements relevant to demographic outcomes might include, say, rules of family and household formation, labor market practices, and aspects of the national legal and administrative systems that intrude on and constrain individual behavior*." (1992: 410). McNicoll later doubles-down on this position, arguing that "*by virtue of its mere existence, the state cannot not influence fertility*." (2001: 139). In doing so, McNicoll echoes Blake's sentiments regarding the constraining power of institutional features as they pertain to voluntarism in decisions regarding fertility (Blake 1994). Importantly, Family Law is one of the many tools the State employs to influence fertility – intentionally, or not (McNicoll 2001: 137). A similar sentiment was voiced by other scholars as well, whereby any major intervention in fertility via family planning policies, must include a legal component and changes to Family Law (Heckel 1986; McDonald 2002; Lawson and Mace 2011; May 2012).

These insights have been integrated into population studies, as recent work has provided highly sophisticated empirical accounts of the Law shaping population dynamics, often using the wealth of historical legal and demographic data available in the U.S., while taking advantage of

the high degree of variance in Family Law. In these works, several legal provisions employed in Family Law are found to significantly associate with population dynamics.[5] This work aims to leverage the many insights contributed by scholars studying Law and population dynamics, with the hope of constructing a comprehensive theory of legal embeddedness.

Returning to the question of how the Law exerts its influence on reproductive decision making, the answer can be found in diffusion theories of fertility (Montgomery and Casterline 1996), though with a twist.[6] That is, knowledge regarding the Law piggybacks on streams of diffusion identified in the literature. In particular, three diffusion streams have been identified as conducive to the conveyance of information on Family Law: News/Media, Social Networks, and Role Modeling, though there are likely more. Each serves to magnify the effect of the others.

The impact of news and mass media on decisions regarding fertility have been well documented. Barber and Axinn (2004) examine the influence of mass media within the unique context of a rapidly changing Chitwan Valley, to find that various exposures to mediums such as radio, movies, TV, or newspapers associated with fertility limiting behavior. Other recent examples of fertility limiting behavior induced by mass media include messaging about risk

[5] For instance, a very popular research topic is the shift to a no-fault divorce regime and the social ripples it left in its wake (Jacob 1988). Bailey (2010) takes advantage of the great diversity in state Comstock Acts, showing that states in which Obscenity Law was more restrictive had fertility rates that were on average 8% higher than less restrictive states. Bailey's illuminating work is unique in that it dives into the bowels of a particular law, exploiting variance in the wording to examine the ensuing effect, independent of other forces. Alshaikhmubarak, Geddes, and Grossbard (2019) track the decay of coverture from the early 20th century, finding, among others, that its decline resulted in fewer births to single mothers (extra-marital fertility). The institution of Common Law Marriage received special attention from Grossbard and Vernon who provide detailed accounts of how it has changed over time, examining particular outcomes as they relate to teen births (2017) and union formation (2014). Grossbard (2016) explores the pros and cons of Common Law Marriage, adding an important new voice to this normative debate (compare with: (Bowman 1996; Grossman and Friedman 2011). Other authors examine the effects of an entire legal regime, rather than focus on a particular Law. For instance, Roth (2021) links the Tort regime and medical malpractice laws to outputs such as maternity care, and ultimately, demographic outputs such as infant mortality and fertility, while He (2021) examines the Family Court system in China to show how outcomes are gendered in various facets of the system, such as custody and division of assets.

[6] While tempting, this debate will not intervene in the question of 'adjustment' vs. 'innovation' (Carlsson 1966), though the introduction of Law and Family Law into the discussion can be fruitful. This is better served as a research avenue to pursue in the future.

(Marshall et al. 2021), economic narratives regarding the state of the economy (Guetto et al. 2023), and information on contraception (Cheng 2011). These findings remain consistent when extended to social media (Wildeman, Schrijner, and Smits 2023; Blakemore et al. 2020). Law is often conveyed via media and news, making consumers more knowledgeable, though an accurate portrayal of the Law is not obtained (Proctor, Badzinski, and Johnson 2002; Hans and Dee 1991).[7] Therefore, people construct an imagined version of Law via news and mass media exposure. Furthermore, people will actively seek out information when it is more relevant to them (McAdams 2015); for instance, a married couple is likely to pay more attention to publications regarding marriage, divorce, or custody, or a couple contemplating marriage may be more attentive to publications regarding new marriage laws.

People adopt fertility attitudes and behaviors matching their role models. While this often includes family members, it may also include individuals wholly outside one's social life (Montgomery and Casterline 1996). Indeed, empirical evidence indicates that people are influenced in their reproductive choices by celebrities (Melnikas 2018; Grol-Prokopczyk 2018; Brewer 2009), and particular wide-spread popular content such as *telenovelas* (Ferrara, Chong, and Duryea 2012; Basten 2010). Information regarding celebrities' and fictional characters' marriage, divorce, and new births are highly visible, serving as another path through which Law – even if inaccurate – can be learned.[8]

[7] For recent examples of Family Law in the news: https://apnews.com/article/pregnancy-divorce-legislation-missouri-texas-b623499bf2145f82ff46d91773d45fec (Missouri Law Barring divorce if women is pregnant, March 2024); https://news.wfsu.org/state-news/2023-07-02/a-new-law-puts-an-end-to-permanent-alimony-in-florida (ending permanent alimony in Florida, July 2023); https://www.reuters.com/legal/litigation/impact-addiction-family-law-cases-2024-03-11/ (on child custody and addiction, March 2024); https://www.wbir.com/article/news/state/tennessee-laws-going-into-effect-on-january-1-2024/51-8ad8ec67-b981-4eeb-a876-edf4feca8128 (requiring that judges determining custody undergo further training, January 2024).

[8] For an account of celebrity marriage and divorce rates, see: (Azim and Benson 2012). Historically, celebrity divorce has had a marked impact on the shaping of Family Law as well, as is exemplified by the case of actor Lee Marvin, who during a separation with his cohabiting partner (Marvin v. Marvin, 134 Cal. Rptr. 815 (1976), was held liable for "Palimony" – a new tool implemented in Family Law to provide non-marital partners with a form of

Social Networks play a special role in creating and informing reproductive attitudes and behaviors (Bernardi and Klaerner 2014; Keim, Klärner, and Bernardi 2009; Montgomery and Casterline 1998). Gossip concerning fertility is an effective mechanism (Watkins and Danzi 1995), especially as non-conforming behavior is costly (McAdams 2015; Montgomery and Casterline 1996). Stories of heartwarming romance, acerbic divorces, and brutal custody battles make for good gossip, and given their relatively common occurrence (perhaps only the latter two), are likely to travel far and wide accompanied by certain insight regarding Family Law.[9]

To briefly recap: the Law casts a shadow via its penal and expressive power; the signal is conveyed, *inter alia*, through news and media, role modeling, and social networks (often working together). Once the signal is received, individuals and communities will begin orienting towards the Law. This is not a substitute for extant theories explaining fertility behavior, but rather a complimentary view.

2.2.2 Theories on Fertility

It is helpful to begin by introducing the concept of "common levers". This is based on the notion of "policy levers" (May 2012: 55), a pre-identified group of demographic variables that present potential for intervention when constructing population policy (or shaping local legislation). This work takes advantage of the unique overlap between Family Law and Population Studies to highlight a pre-identified group of variables that are common to both

alimony payments (Myricks 1980). Fictional portrayal of marriage and divorce influences attitudes and beliefs as well (Asimow 2000); one well studied example is the movie 'Kramer v. Kramer', based on the 1976 novel (Corman 1977), which even received scholarly attention (Elkins 2006; Papke 1995); indeed Kramer v. Kramer had a powerful effect and was debated widely, even spurring calls to legislate joint custody in some jurisdictions (Weinrib 2023).

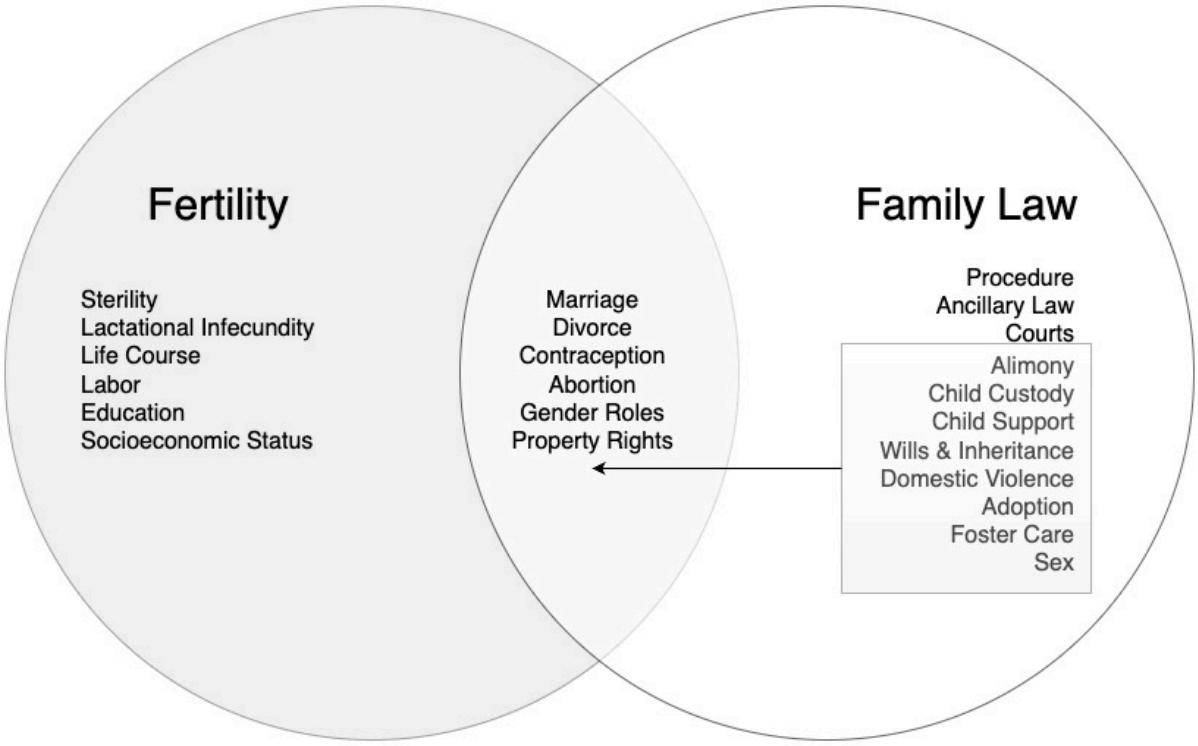
[9] While information propagated via networks experiences a great deal of decay (Burt 2005), the accuracy of the information is less consequential than the fact that it is conveyed and thus contributes to the creation of an imagined version of Family Law.

fields. The pool of potential variables within each field is identified using the framework lucidly set out by Bongaarts (1978),[10] and the broad approach to Family Law (Huntington 2022).

In Figure 2.2 a non-exhaustive pool of variables is presented. Each of Family Law and Demography include variables unique to their own domain (though this is debatable). The overlap includes variables that have been employed by researchers in both fields to study fertility, directly or indirectly. The additional group of variables within Family Law includes variables that have not traditionally been used outside of Family Law (with exceptions), but nevertheless theoretically implicate fertility for their secondary link to marriage and divorce as well as multi-generational transfers. This work focuses on a number of these common levers, namely: marriage, divorce, alimony, child custody, child support, and gender roles. These and other common levers have been identified in the legal literature, particularly with respect to population dynamics and fertility (Barnett and Reed 1985; Barnett 1982).

[10] Bongaarts' determinants of fertility include: (a) proximate determinants – those factors that have immediate influence on fertility levels (including biological and behavioral factors such as breast feeding, sterility, marital status and availability of contraception and abortion); (b) intermediate variables – those factors that can influence the proximate determinants (including educational attainment, socioeconomic status, and gender inequality); and (c) contextual aspects – within which the intermediate variables are embedded (including social norms, infrastructure, and communication channels). Family Law plays a role in each of these three levels of determinants. The legal system and its constitution bear heavily on social norms, administration, and bureaucratic operation (infrastructure); likewise, it is associated with socioeconomic status and stratification. The Law also clearly plays a role in shaping proximate determinants such as marital status, contraception, and abortion.

Figure 2.2: Common Levers – Family Law and Demography



The literature includes compelling theories to explain fertility and reproduction, each backed by considerable empirical evidence, though none are exhaustive (Mason 1997). Attention is given here to three theoretical approaches: the microeconomic (Becker 1991), the sociocultural (Thornton, Axinn, and Xie 2007; Bongaarts and Watkins 1996; Cleland and Wilson 1987), and uncertainty in demography (J. A. Trinitapoli 2023). Each will be briefly described in turn, as well as its application to Family Law.

The microeconomic rational choice model is applied by Becker to the family (1991). In addition to a wealth of insight applied to family dynamics such as the division of labor (Chapter 2) and divorce (Chapter 11), Becker also addresses reproductive decisions and the demand for children. From a rational choice perspective, couples seek to attain an efficient equilibrium, to maximize their utility functions (Becker 1991, 137). This suggests that decisions regarding

division of labor, as well as childbearing (among others) must consider the cost-benefit of available alternatives (Easterlin and Crimmins 1985).

Within the microeconomic approach, marriage and divorce serve as common levers in determining fertility levels. As marriage is the premier institution for childbearing,[11] entry into and exit out of marriage become especially relevant. When marriage and divorce are modified to increase marriage duration (easier to marry and/or harder to divorce) fertility is expected to rise as both spouses are incentivized to invest additional relationship-specific capital (Waite and Gallagher 2000), which includes children (Becker 1991: 355).

However, there are other costs associated with divorce that need be considered as well: alimony, child custody, and child support. This argument suggests that married couples, and to a lesser extent, unmarried couples,[12] consider the costs of divorce and exit when contemplating reproduction. This is because action in the shadow of the law is not always conscious but is rather ascribed to an *as-if* modality of decision making (Birks 2012; Cooter, Marks, and Mnookin 1982; Mnookin and Kornhauser 1979), or it can even be irrational and involve very personal preferences, yet still subject to the Law (Mnookin 2021). More importantly, the

[11] While the number of births to unwed mothers has been on a steady rise – especially for the time period covered herein (Curtin 2014), the main venue for childbearing remains marriage, which is a proximate determinant of fertility (Bongaarts 1978). As such, marriage and divorce become control valves for fertility, though perhaps the measure of control has loosened over time (Cherlin 2004; Pagnini and Rindfuss 1993). The Law still views marriage as an institution for procreation (Rempe 2022; Brank 2019; Jernow and Rafiq 2011); a unique indication for this can be found in laws prohibiting incestuous marriage, where some states will permit marriage between first cousins if they are older than the age of procreation (typically 55), see: Act of March 8, 1996, Ch. 83, U.T. Laws, 294; Act of May 9, 1977, Ch. 8, W.I. Laws, 8; Act of July 1, 1997, Ch. 1, I.N. Laws, 1. Nevertheless, births to unwed mothers are an important component in fertility. Unfortunately, these data exhibited too much missingness on the county-level and cannot be used. To attenuate this concern, a number of factors were considered: (a) non marital births seem to be dependent largely on the time period, ethnicity, and age of mother (Cherlin 2016; Curtin 2014; Halla 2013; Ventura 2009) – the former two are controlled in the data; and (b) Family Law may still cast its shadow over unmarried women: Grey et al (2006) show that law influences non-martial birth through marriage rather than independently, meaning that regulation of marriage and divorce (contemplated here) is still influential, and Gibson-Davis (2011) shows that a large portion of unmarried mothers eventually transition into marriage, and though this portion has diminished overtime, the potential for transitioning into marriage (Edin and Kefalas 2005) would strongly suggest that marriage remains relevant and thus still casts its shadow.

[12] See above, FN11.

empirical link between exit costs and marital bargaining has been established for each of alimony (Schaubert 2023; Fahn, Rees, and Wuppermann 2016), child custody (Altindag, Nunley, and Seals 2017; Halla 2013; Rasul 2006), and child support (K. G. Anderson 2011; Aizer and McLanahan 2006; Huang 2002). Alimony, custody, and support are however, more than a binary construct as they each include multiple legal provisions. Specific legal provisions within each topic and their expected interaction with GFR will be detailed below.

The microeconomic approach promotes methodological individualism, whereby individual preferences are inferred by aggregate community rates (Johnson-Hanks 2007). This may not be effective in all settings, especially when personal preferences regarding fertility are flexible and context-based (Müller et al. 2022; J. Trinitapoli and Yeatman 2018). The microeconomic approach is valuable, but leaves certain questions unanswered (McNicoll 1992), especially as fertility is empirically linked to macro- and meso-level processes in addition to micro-level ones (Balbo, Billari, and Mills 2013). This invites consideration of other theoretical approaches into population studies.

The sociocultural perspective originates in a pluralistic literature that examines reproductive decision making through the prism of social norms. It offers insight into observed outcomes regarding fertility (and fertility decline) that cannot be explained only via the microeconomic approach (Coale and Watkins 1986). This perspective holds that fertility and reproduction are dependent, among others, on exposure to prevailing social norms and cultural affiliations (Cleland and Wilson 1987), and their diffusion over time and space (Bongaarts and Watkins 1996), though the impact of social norms can also take place on the individual level (Axinn and Yabiku 2001), so that people are the product of their past personal and social experiences (Abbott 2005). Furthermore, norms and attitudes regarding family formation and

reproductive decisions are very sticky (Thornton, Axinn, and Xie 2007; Goldscheider and Waite 1991), such that "pathological" fertility trends may be irreversible (Coleman and Rowthorn 2011), and remain influential after migration to an environment with different norms (Furtado, Marcén, and Sevilla 2013).

Social norms regarding fertility change over time. They can be linked to slow grinding processes that develop over years in the global north or south (Lawson and Mace 2011; Thornton, Axinn, and Xie 2007; Lesthaeghe 1983), or long-developing norms in particular regions (Myong, Park, and Yi 2021; Freedman 1979), but they also exhibit relatively prompt Malthusian adjustments to demographic shocks such as war (Livi-Bacci 2021), political turmoil (Nakachi 2021), and famine (Rodrigues et al. 2022). Social norms regarding sex, family formation and reproductive decisions are also linked to legal change (Roth 2021; Stone 2017; Cahn and Carbone 2010; Barnett and Reed 1985; Barnett 1982).[13] Either way, change is not immediate; there is a period during which a norm will fluctuate until it stabilizes (Santow 1995).

There are a number of prominent social norms regarding fertility that can be linked to Family Law. Chief among them perhaps, is the decoupling of sex and marriage made possible by contraception and no-fault divorce (Grossman and Friedman 2011; Friedman 2004; Hartog 2002).[14] However, even despite easy access to divorce in the no-fault era (Waite and Gallagher 2000), marriage remains a desirable social institution (Cherlin 2020; Campbell and Wright 2010), legal alternatives such as civil unions and domestic partnerships notwithstanding

[13] This raises the specter of causation: is the Law driving social change or is it the other way around? This is an important and fundamental question in the field of Law & Society (Calavita 2016). Both views find support in the literature, and both can coexist. For examples on legal change driven by social change and population dynamics, see: (Barnett 2006; Hill 2000). Examples utilizing the view espoused herein – that Law can be a driver of population dynamics, see: (McAdams 2015; Sunstein 1996). Indeed, if both approaches are not mutually exclusive, this may suggest a bi-lateral relationship between Law and population, a concept explicitly discussed in the literature (Barnett and Reed 1985; Lee et al. 1976; Lee and Gardiner 1971).

[14] This then paved the way for the decoupling of birth from marriage (Smock and Greenland 2010).

(Anderson 2023; Murray 2013). Even marriage itself – which can be thought of as a "*government-run licensing system*" (Sunstein 2004: 3) – has been extended to many new individuals in the 20th and 21st centuries through legal change (Celello 2009; Hartog 2002), coinciding with a marked shift in attitudes towards marriage (Ellison, Wolfinger, and Ramos-Wada 2013; Baunach 2012; Campbell and Wright 2010). Other social norms that can be linked to Family Law include a shift towards more egalitarian gender roles within marriage (Brinton and Lee 2016; Cherlin 2016),[15] and a transition to a shared custody arrangements post-divorce rather than a sole custody arrangement (Nielsen 2015). Therefore, in addition to (and sometimes, in opposition of) the microeconomic perspective, the sociocultural perspective can explain observed outcomes regarding fertility.

The third theoretical perspective contemplated here is uncertainty demography, set out by Trinitapoli (2023). This approach adds another layer to population studies both as determinant and object of inquiry, by clearly formalizing certain assumptions that underly demographic research (2023: 59–61). Uncertainty is present both on the individual and population levels and has a real effect on observed outcomes (S. R. Baker, Bloom, and Terry 2024). An empirical link between uncertainty and fertility decline has been established in the literature (Aassve, Le Moglie, and Mencarini 2021). Herein, uncertainty is examined through the lens of Law.

Family Law is highly amenable to the application of uncertainty demography due to its dynamic nature, particularly in the latter half of the 20th century (Celello 2009). Legal change

[15] Gender roles, though not perfectly egalitarian, can be traced to (at least) three types of changes within Family Law: (a) equalizing rights and obligations – for instance, in Orr v. Orr, 440 U.S. 268 (1979) the U.S. Supreme Court held that Alimony payments can be required of wife, not only husband, and in Stanley v. Illinois, 405 U.S. 645 (1972) the U.S. Supreme Court held that fathers had a constitutional right to visit with and care for their non-marital children (both holdings were implemented by states' laws thereafter); (b) elimination of underlying gendered legal presumptions – for instance, the 'tender years doctrine', whereby children under age 5-8 are automatically placed with mother after divorce (Artis 2004); and (c) repeal of relics created under the legal regime of 'coverture' – for instance, prohibitions against bad faith divorce and 'heartbalm' laws (laws creating legal lability for romantic pursuits such as seduction, alienation of affections, and breach of promise) (Grossman and Friedman 2011).

engenders uncertainty (Huntington 2018; Bix 2013; Mason 2011; Glendon 1983). Uncertainty in Law includes the manner in which law is applied (Deffains and Dari-Mattiacci 2007; D'Amato 1983), as well as the manner in which actors orient themselves to the law (Calfee and Craswell 1984). Put differently, a new or modified regulatory environment generates uncertainty as both regulator and regulated must adjust to the new system or its modifications (Stone 2017; Katz 2015; Regan 1993; Mather 1993; Glendon 1983). Furthermore, a prolonged period of change and adaptation may result in "unsettled times" (Swidler 1986), so that different strategies of adaptation may be necessitated.

Legal change neatly fits the definition of uncertainty (Trinitapoli 2023, 76), as it is specific, observable and measurable, it relates to both past (Cott 2002; Hartog 2002) and present (Babb 2008; Hartenstein 2023; Huntington 2022), it varies across time (Jacob 1988) and space (Cahn and Carbone 2010), it applies at both the individual (Stone 2017) and population level (DiFonzo 1997), and it is unevenly distributed across the regulated community (Weiss 2019). In other words, legal change, serving as a proxy for uncertainty, may interact with fertility. Legal change can occur at the level of a particular provision (e.g., best interest of the child), topic (e.g. alimony), or subfield (Family Law).

Uncertainty is also attached to the type of legal instruments utilized in Family Law, so that even a stable legal regime will nevertheless exhibit uncertainty when employing more standards than rules (Kaplow 1992).[16] In fact, Family Law employs the notoriously vague standard of "best interest of the child", heavily criticized for its subjective outcomes and its

[16] Legal rules provide more certainty, but less flexibility compared to legal standards. A legal rule creates lucid determinations, typically binary. For instance, minimum age requirements are a clear legal rule, where an applicant is either of age or not. A legal standard typically includes a number of factors that may be considered in the decision-making process. For instance, in determining the best interest of a child for the purpose of custody, a judge might consider the child's wishes, her parent's wishes, the ability of parents to amicably co-parent, and whether any parent has a history of violence or addiction.

intrinsic indeterminability (Mnookin 2014; Mason 2011). Other standards that often yield uncertainty include child support guidelines (determining the amount of support to be paid) (Cammett 2022), and statutory guidelines determining the amount of alimony payments (Starnes 2014). The presence of legal change and uncertainty is expected to implicate fertility. The level of uncertainty is observed, as is the fertility, but the mechanisms through which they interact are not. Therefore, some possible mechanisms are explained below in terms of costs and social norms.[17]

Uncertainty in Law can be understood as a cost-inducing mechanism. When a legal regime undergoes reform, it will entail adjustment and interpretation costs (Deffains and Dari-Mattiacci 2007; Calfee and Craswell 1984; D'Amato 1983). This occurs at both the institutional level (e.g., courts), and the individual level (e.g., litigant and attorney). Uncertainty can also present in a particular topic to create a multiplying effect. For example, if child support enforcement raises the costs of divorce (whether via jurisdiction or penalties), frequent change will add to these costs. Conversely, uncertainty may counter the intended consequence of a legal change. For instance, if pre-marital requirements are relaxed with the goal of lowering the entry cost to marriage, but the amended requirements engender too high a level of uncertainty due to prohibitive adjustment and interpretation costs, the amendments may result in more barriers to marriage.[18]

Uncertainty in Law also shapes social norms regarding fertility. Consider the effects of lifting a legal ban on contraception: (a) it may signal to an individual or a community that the

[17] There is admittedly an overlap between uncertainty demography and the microeconomic and sociocultural perspectives, as there is uncertainty in the evaluation of costs and social norms. However, uncertainty demography is presented distinctly because it fundamentally views the presence of uncertainty as inherent in population dynamics and thus as a driver independent of social norms or costs.

[18] The temporal dynamic is important, as uncertainty may diminish over time, though this depends on the source of uncertainty (D'Amato 1983).

new prevailing attitude abhors any state involvement in the bedroom, a view that values both couples' and individual's privacy (Stone 2017: chap. 15); or (b) it may signal to an individual or a community that the risks associated with contraceptive use (e.g., health risks or reputation costs) are now acceptable, helping to break the monopoly marriage had over sex (Grossman and Friedman 2011: 109–10); or (c) it may send a signal that people have already been using contraceptives (Simmons 2009). Even though the law changed in a clear direction (ban repealed), it still engenders uncertainty as each such signal described may result in different fertility outcomes.

2.3 A Note on Law as a Mediator of Observed Outcomes

It is difficult to disentangle the effects of Law from the forces shaping it in the background. Legal historians provide an invaluable contribution by uncovering the underlying forces leading up to legal changes. With respect to custody law, Dinner (2015) provides compelling evidence to demonstrate how various interest groups converged and aligned at different times to shape custody legislation and the presumptions included therein (e.g., joint custody); Mason (2011) explains how legal standards such as "the best interest of the child" rose alongside the fall of old rules such as the "tender years doctrine", to achieve particular political ends and reshape the marital bargain; and no-fault divorce was the culmination of various forces that sought to put an end to what is infamously known as the "duality" of Family Law prior to no-fault divorce.[19] This is further complicated by the fact that Family Law typically implicates

[19] The "duality of Family Law" (Grossman and Friedman 2011; Friedman 2004; Hartog 2002; DiFonzo 1997), describes a marked gap between Law on the books (what ought to happen) and the Law in action (what actually happened), particularly with respect to divorce. The story begins as early as the colonial period, when much of Family Law was imported from England (Basch 2001), including the now dreaded institution of 'Coverture', whereby the union of man and wife through marriage created one legal entity (Cott 2002). This meant that a wife had no legal standing, could therefore not own property or sign a contract (including an employment contract), and was subject to a legal regime eerily similar to that of master and slave, as wife (and children) were the property of husband (Hartog 2002). During the 19th century, coverture began to erode as it was inefficient (e.g., preventing women from dealing with real estate when husbands were absent during the tumultuous expansion westward

and interacts with sub-systems such as education, retirement, and urban/rural planning (May 2012), that may espouse unique goals that are not necessarily aligned.

But Law may still play a role, independent of the various drivers of legal change. This is because any legislative body is best described as a "they" rather than an "it", the idea being that new law is a product of negotiation and logrolling, susceptible to the dynamics of transitivity, human interaction, and randomness (Shepsle 1992). This is to say that even if in theory legislators represent their constituents faithfully so that the Law reflects their median position (McAdams 2015; Stearns and Zywicki 2009), in practice there should be a confidence interval around the position signaled by Law. Other complicators such as the level of legislation, its link to other (not necessarily adjacent) legal issues, path dependency, and periodic events, can stretch out these confidence intervals (McAdams 2015; Stearns and Zywicki 2009; Shepsle 1992). Central Limit Theorem suggests that, on average (and given a large enough constituency), the sample average (legislature) should reflect the population average (constituents). However, the dynamics described above lie far beyond augmented errors; they imply that there is systematic bias in the legislation process (as applied to reflecting the median position), though the direction of this bias is random (Shepsle 1992).[20]

(Grossman and Friedman 2011), and was clearly unpalatable to various groups as an affront to women's rights (Cott 2002). Despite slow and gradual changes to coverture (Basch 2001), it was never really abolished as a fundamental philosophy (or policy) of Family Law until the 1970s with the rise of no-fault divorce and the "silent revolution" (Jacob 1988); Hartog aptly dubs this "the very long 19th century" of Family Law (2002: 309). Why did the 19th century of Family Law last so long? The narrative which unfolds in the pages of the history books is one of interest group dynamics (Stone 2017; Simmons 2009), coordination breakdowns and conflict (DiFonzo 1997), sticky long-enduring vestiges of coverture such as alimony (Starnes 2014), resistance to change and narrow interpretation by the judiciary (Hartog 2002), socioeconomic change (Grossman and Friedman 2011), the rise of women's rights (Simmons 2009), legal and constitutional development (Friedman 2004), and the exceptionalism of Family Law (Hasday 2014).

[20] To this we may add a host of organizational dynamics relevant to legislatures such as bounded rationality and satisficing (March and Simon 1958), buffering the core (Thompson 1967), hierarchy and ecological control (Padgett 1981), and Hollow Core concerns such as antagonistic cooperation (Laumann and Knoke 1987). This sojourn into organizational theory is important as it emphasizes the distance between the position of Law and the population's median position, strongly suggesting that Law is external (in part) to social change and population dynamics.

At times, the Law may even reflect a position that is very distant from the median position of a population. This typically occurs in instances of regulatory capture (Osiel 2019), when a particular interest group is able to exert influence that is disproportionate to its share in the population (but not to its resources). The captivator will then secure Law favorable to its own interests, but this will reflect the population's interests quite poorly (Posner 2011).[21]

A final feature of Law that is important in this respect is its rich variance, borne of the nuance in its language, its interpretation, and effectiveness (Posner 2011; Claes, Devroe, and Keirsbilck 2009; Posner and Sunstein 2006). Two highly similar states pursuing identical goals (e.g., lowering the teen-pregnancy rate, see: (Lepage 2022)) will nevertheless exhibit non-identical laws. Even when Law is transplanted from one state to another, word-for-word, its interpretation and utilization will necessarily differ. This is because law does not exist in a vacuum, but is always part of a larger system, a patchwork of interlinked laws (Pollet 2010; Lee and Gardiner 1971).

This evokes the concept of "*Pervasions*" introduced by Abbott (2022), whereby "little things" or small-scaled dynamics are often overlooked when exploring a general trend, though they nevertheless have an important effect in the aggregate (2022: 4–5). Family Law's nuance makes it a fitting example for Pervasions: attention has been given to the shift to no-fault divorce, and subsequently connected to the fertility decline, two trends that are quite obvious from 35,000 ft. However, there is great nuance in the shift to no-fault divorce and epic diversity in the legal environment in which it is embedded and applied. Family Law consists of multiple

[21] The case of the Tennessee Valley Authority (Selznick 1953) is a prime example: particular private interests (not reflecting the median position of the population in the Tennessee Valley) coopted leadership and control within a gov't agency established to promote the interests and well-being of the valley's mostly rural, agrarian population, so that the policy eventually created was narrowly tailored to promote the goals of said private interests rather than those of the population at large.

topics with numerous provisions, most of which are linked to marriage and divorce. These pervasions in Law – mostly unobserved in research on divorce and fertility decline – add up and have an effect in the aggregate (as will be demonstrated below). Many of these smaller, seemingly innocuous legal provisions,[22] are not forged in the crucible of political battle, but rather via a much more informal process underpinned by different pressures (Briffault 1990). Consequently, widespread pervasions in Family Law render it a fundamentally imperfect mediator for underlying social pressures, and consequentially, a lucrative topic of study that has yet to be fully explored.

Taken together, this suggests that Law has an effect on population dynamics that is independent of the underlying social dynamics associated with legal change. The Law may be mediating between social change and observed outcomes, however, it is an imperfect mediator. As such, the study of Law and legal change can provide new insight.

2.4 Theoretical Framework: Family Law & Fertility

Law casts its shadow on individuals and communities, who orient their behavior to adapt to the Law, which results in changes to observed demographic rates on the population level. This formulation is very similar to "Coleman's boat" (1990: 702),[23] in providing for a general theory of social action. This formulation also allows the incorporation of mechanistic explanations (set out below as hypotheses) (Tuma and Hannan 1984). Bunge (1997) continues to develop and elaborate upon the general theory, paying special attention to the role of explanatory mechanisms

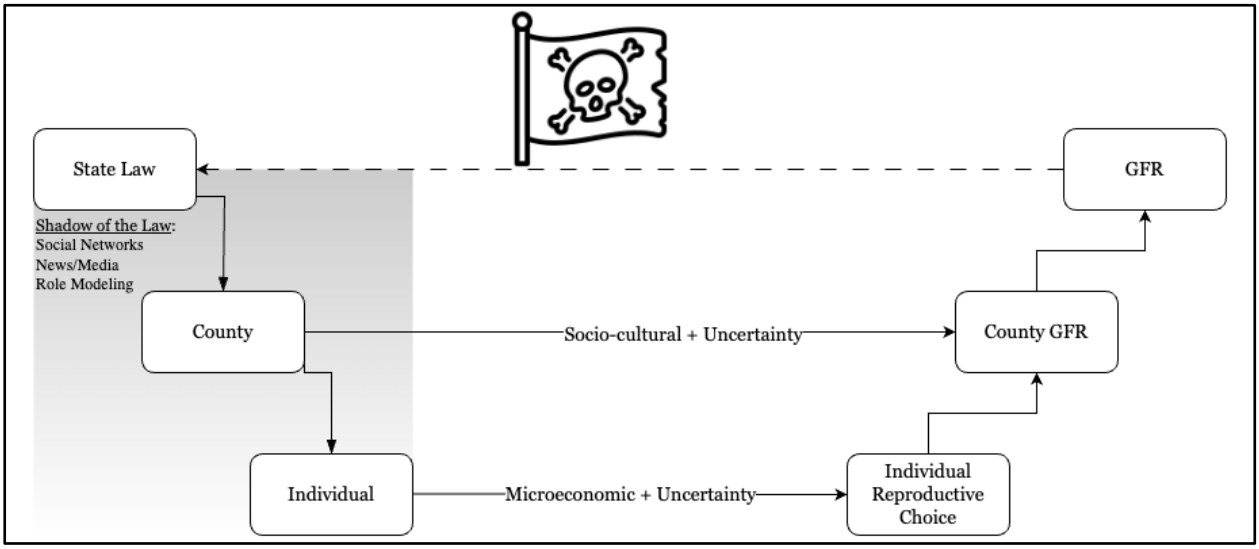
[22] Examples: determining alimony payments based on explicit rather than implied marital fault (Act of April 6, 1977, Ch. 728, G.A. Laws, 1253); "final separation" is considered to have begun upon filing for dissolution, unless the couple has already filed for legal separation (Act of March 3, 1988, P.L. 170, I.N. Laws, 2032); grounds for divorce based on living separate and apart must be maintained for one continuous year (August 6, 1979, Ch. 360, L.A. Laws, 1004); consent for marriage provided by a parent is not required from a non-custodial parent (February 22, 1971, Ch. 145, A.R. Laws, 377); wage garnishing due to unpaid child support must be specified in dollar amount (March 20, 1991, Ch. 406, M.S. Laws, 284).

[23] This general theory of social action appeared in slightly different forms in the works of other scholars as well. For a wonderful and instructive review of Coleman's boat and its recent developments, see: (Stoltz 2023).

in the micro level, which allow for the creation of a "dynamical framework". Under this formulation, mechanisms at the micro level explain outcomes observed on the macro level.[24]

The framework here departs from the traditional construction of the general theory of social action in that it does not strictly espouse methodological individualism. This is because the Law is contemplated herein to have influence on individuals and communities, the latter via shifting social norms (Sunstein 1996) and creation of uncertainty (S. R. Baker, Bloom, and Terry 2024). Building on Jepperson and Meyer (2011), a new meso level of analysis is introduced, as this better reflects the underlying structure and theoretical pathways studied. In terms of constraint, this means that an individual is influenced by both the macro and meso levels (Meyer and Jepperson 2000), an idea explicitly recognized by Coleman (1990: 66–67).[25] This leads to a

Figure 2.3: Legal Embeddedness – Family Law & Fertility



[24] One of the examples used pertains to fertility, a similar, yet abstracted version of the framework presented here (Bunge 1997: 453).

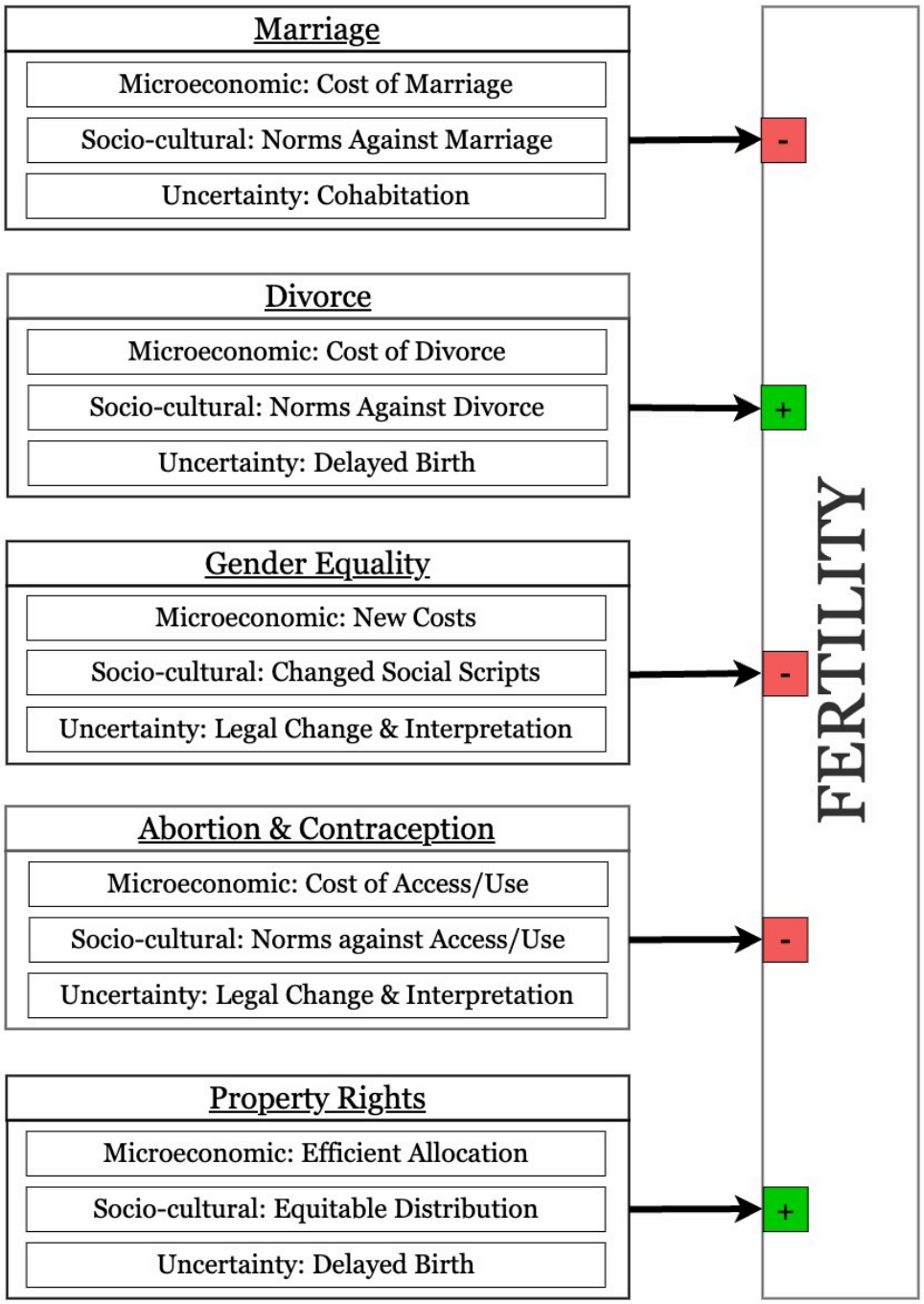
[25] For the neo-institutional or meso level constraint arguments to work, a certain level of cohesion and organization must be ascribed to the community variable used herein – counties. While counties are far from a perfect measure of community due to their diversity, they have been established as an acceptable proxy for communities in social scientific research generally (Cohen, Kelley, and Bell 2015; Rupasingha, Goetz, and Freshwater 2006; Irwin et al. 2004), and in population studies in particular (Kim and Potter 2020; Ryabov 2015; Lesthaeghe and Neidert 2006; Tolnay 1995). The US Census Bureau's Geographic Areas Reference Manual (G.A.R.M.) provides a well-crafted historical review of counties and their administrative function in the US (Torrieri 1994, chap. 6).

more pluralistic approach enabling a more diverse set of mechanisms (Huinink, Kohli, and Ehrhardt 2015; McNicoll 1992).

The framework presented in Figure 2.3 raids charted waters, though it does not rock the boat. It is an abstraction of the theoretical pathway contemplated herein with respect to fertility, and given the structure of the legal system, it can be further abstracted to include additional levels of analysis (Federal Constitutional Law) and other population dynamics such as immigration or mortality.

Pathways from the individual and county levels are expounded in Figure 2.4. These pathways suggest a number of possible mechanisms on the micro- and meso-levels of analysis, and the theoretical approach they implicate. The list is not exhaustive such that additional common levers or additional mechanisms (via existing or other theoretical approaches) can be added. Three of the common levers are given empirical attention in this paper (Marriage, Divorce, and Gender Roles), and a number of the mechanisms will be explored via the hypotheses and the results, though these are not directly observed.

Figure 2.4: Potential Micro- & Meso-Level Mechanisms



2.5 Data & Methods.

The dataset draws on multiple sources to include legal, demographic, and economic data pertaining to the primary variable of interest: general fertility rates (GFR). Each of the three data

types and the sources from which they were drawn are elaborated upon in turn. The final dataset includes 120,276 county-years (1,911 state-years) for 49 jurisdictions in the continental United States (48 states and the District of Columbia), ranging from 1969-2007. A complete list of all raw variables and the operations conducted in preparing data for final analysis are presented below in Figure 2.6 and Figure 2.7, respectively.

The legal portion of the dataset includes an original survey of Family Law,[26] i.e., the 'state' of Family Law in each jurisdiction, 1950-2019.[27] To conduct this survey, the following logic was applied: identify the state of Family Law in 1949 and track all changes made thereto until 2020. To identify the state of Family Law in 1949, the most recent State Code enacted by a jurisdiction prior to 1950 was obtained and coded to set the baseline.[28] In coding Family Law, particular legal provisions were identified and given numeric values. The selection of each legal provision, as well as the manner in which it was coded, required a careful balance between specificity (variance) and generality (bias). In all, approx. 75 legal provisions were tracked and coded to survey the 'state' of Family Law in each of the 49 continental US jurisdictions from 1950-2019.[29]

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[26] This survey was guided in part by the "Family Law in the 50 States" project, an annual survey of Family Law published in "Family Law Quarterly". This incredible resource provided guidance and inspiration though it is smaller in scope compared to the survey conducted here, both in the time period that it spans, and the provisions coded. Moreover, these data are not uniform over time, making it difficult to construct time-series panel data.

[27] There is no exhaustive definition for what constitutes Family Law (Hasday 2014), and it would be infeasible to conduct a complete survey of Family Law even if there were. This work takes a narrow approach to Family Law (recognizing that traditionally, a broad view is espoused in qualitative research (Huntington 2022)), covering five primary topics within Family Law: Marriage, Divorce, Alimony, Child Custody, and Child Support. These topics were selected as they are the most widely applicable to the population (compared to topics such as parentage, foster care, or juvenile delinquency) (Katz 2015). In essence, these are the most "mundane" topics in Family Law, those that have the highest visibility in academia and popular culture.

[28] In most instances, the most recent State Code was published prior to 1949. State Codes were published in various years, from 1921 to 1949. This necessitated setting a baseline in an earlier year and working through the legal changes to reset the baseline at 1949.

[29] For a comprehensive list detailing all provisions, the coding scheme, boundary rules, and a glossary of terms, see **Appendix A**. Where possible, legal provisions are coded as continuous, for example minimum age at marriage or residency requirements (number of months required for a state to gain jurisdiction over litigant). However, often data for legal provisions are coded as ordinal, whereby the complete absence of a legal provision is coded as '0', explicit inclusion of a provision is coded as '2', and an intermediate designation (whether implicit or simply a half-

Legal provisions were selected based on three general criteria: (A) *Presence Over Time* – some provisions are relevant only for the early period of the survey. These are legal provisions that are now outdated, for example 'wife as chattel/property of husband'. Other provisions are relevant only to the latter portion of the survey, for instance provisions regarding same-sex marriage. And some provisions are relevant throughout the survey (e.g., minimum age for legal marriage), or shift in and out of relevancy (e.g., provisions relating to incest). Provisions of all three types (early, late, and persistent) were selected, as long as they had enough presence in the survey. (B) *Theoretical Link to Family Life* – as the goal is to explore how fertility is shaped in the shadow of Family Law, provisions regarding the court system and its operation were excluded: administrative and purely procedural provisions (e.g., technical changes such as changing "1 month" to "30 days, *see*: Act of Feb 12, 1987. Ch. 33, N.E. Laws, 211), provisions directed at court officers and staff (e.g., edict empowering state office to collect vital statistics, *see*: Act of May 21, 1992. Ch. 607, A.L. Laws, 1255), or any financial appropriations made to a state agency. (C) *Wide Applicability* – as with criterion (A), it is prudent to identify provisions that will offer rich variance, but this must be balanced against some degree of generalizability. For instance, states employ pilot programs to test new policies, agencies, or authority (for example, *see*: Act of June 12, 1987. Ch. 403, M.N. Laws, 3255), but these pilot programs vary wildly in their application style, presence, and substantive material, making them uniquely difficult to code uniformly. The eventual choice of provisions was made based on a pilot study of

measure) is coded as '1'. At times, when the data allow, an additional level coded as '3' is included as well. Appendix A includes a complete list of all provisions detailing what was coded as an intermediate category. This coding strategy raises some concern regarding the distance or difference between coded categories (e.g., is an explicit provision coded '2', twice as impactful as an intermediate designation coded '1'?). This coding strategy is employed in legal research (Ginsburg and Versteeg 2014; Elkins, Ginsburg, and Melton 2009), as it allows the introduction of more nuance an variability in the data, and is apt when the coding scheme is harmonious and applicable across all units coded, as is the case in this work. Furthermore, a robustness check was performed using only binary desgnations in lieu of ordinal ones; this check yielded similar results across all provisions tested.

8 states, which included states of varying types (size, location, neighbors, and cultural/political region).

Data for legal provisions were manually crafted from the 'Session Laws' of each jurisdiction: a compilation published by legislatures detailing all legal changes made in the previous year within that jurisdiction.[30] Each Session Law for every applicable year and jurisdiction was examined, and any legal change relevant to Family Law was set aside. Legal changes include repealing an existing law, amending an existing law, or enacting a new law (or any provision within a law). Relevancy to Family Law was defined very loosely so as to cast as wide a net as possible.[31] Then, each of the laws identified in the Session Laws was examined for relevancy and coded if found to be relevant. In this way working from the baseline on, the state of Family Law for each jurisdiction was tracked from 1950 to 2019.

Various external checks were built into the coding process to ensure quality control. First, State Codes published after 1950 were used as milestones to validate the state of law for each jurisdiction, such that law at baseline t_0 modified by legal changes in t_1, t_2, and t_3, should equal the legal code at t_4. Second, topical aggregations of legal provisions in Family Law offered another external check.[32] Third, news and media publications provided some guidance by

[30] While most jurisdictions publish Session Laws annually, some smaller jurisdictions published their Session Laws biannually, specifically in earlier years (up to the late 1960s). In such instance, the state of law did not change and was simply carried over to the next year.

[31] As Session Law publications can be thousands of pages long over multiple volumes, legal changes that were potentially relevant were identified using various word search functions (either by downloading the session law, or its index, and parsing the text, or by using the search function embedded in the archive used (state legislature websites or via the central depository of Session Laws available in the legal database HeinOnline). The words search included a glossary of terms to be searched, so as to yield any Family Law related legal change. The complete glossary of terms is available in **Appendix A**.

[32] For instance, the Child Custody subject compilation in HeinOnline provides a list of when each jurisdiction enacted different uniform child custody laws such as the Uniform Child Custody Jurisdiction and Enforcement Act (UCCJEA). See: https://heinonline-org.proxy.uchicago.edu/HOL/NSSL?collection=nssl&law=CHILD%20CUSTODY&edition=7 (last visited March 2, 2024).

reporting on the occurrence of legal change in a jurisdiction.[33] Finally, scholarly publications discussing a particular law or a particular jurisdiction (or both) offered more information on the timing of a legal change.[34] In all cases, external checks were used as a guide rather than an authority, meaning that these external checks were utilized to locate the appropriate Session Law, so that coding was based only on Session Laws. Data for the legal provisions are complete – there is zero missingness.

Legal data were merged with county-level demographic and economic data. First, ICPSR 36603 on natality and mortality (M. Bailey et al. 2016) were used to obtain county-level data on total births, total deaths, population, population female (15-44), births to non-white mothers, and infant mortality. These data extend to 2007. Second, NGHIS was used to obtain total marriage and divorce counts per county (Manson et al. 2023). Third, data on vote share by county were obtained from the Library of Congress. Fourth, the Bureau of Economic Analysis' CAINC30[35] dataset provides per capita data on the county level for income, unemployment insurance, and jobs available. These data begin 1969. The US Census Bureau includes data on county geographic size, as well as the 2022 Annual Survey of State Government Tax Collections (STC), which provides data on state income tax and inheritance/death tax.[36] Finally, the State Border Data Set (T. J. Holmes 1998),[37] includes county neighbor weights matrices and distances from

[33] For instance, an article published in the Great Falls Tribune reports that Montana legislators proposed a bill to eliminate the mandatory premarital blood test (last in the nation to do so). See: https://www.greatfallstribune.com/story/news/2019/02/16/montana-end-premarital-blood-tests/2891538002/ (last visited March 4, 2024).
[34] For instance, Polonoff and Garland (1979) discuss premarital blood tests in Oregon, while Shafer (1954) discusses a transition towards a nation-wide adoption of premarital blood test in an effort to combat the spread of sexually transmitted disease such as syphilis.
[35] U.S. Bureau of Economic Analysis, "CAINC30 Economic profile" (last visited March 6, 2024)
[36] U.S. Census Bureau, https://www.census.gov/programs-surveys/stc.html (last visited Match 6, 2024).
[37] Also available at: https://users.econ.umn.edu/~holmes/data/BorderData.html (last visited Match 6, 2024).

nearest neighbor state per county. Given the range restrictions, the time period was restricted to 1969-2007. These data are not complete.

County-level General Fertility Rates serve as the dependent variable. As the ICPSR data do not include births by mother's age group, age-specific fertility rates could not be constructed. However, as these data do include the number of births to women, 15-44, the general fertility rate could be constructed, serving as a more exact measure compared to crude birth rates with no sex-specific designations. GFR is constructed as such:

$$\mathrm{GFR}_{it} = \left(\frac{B_{it}}{F_{it}^{15-44}}\right) \times 1{,}000$$

Where:

GFR indicates the general fertility rate for county *i* in year *t*;

B indicates the number of live births for county *i* in year *t*;

F indicates the female population, 15-44, for county *i* in year *t*;

Most variables have a negligible amount of missing at <1.5%, however four variables stand out with high degrees of missing observations: marriage, divorce, infant mortality, and mortality, all of which are necessary to construct important rates.[38] Marriage and divorce are complete in their report per county-year, but do not include 1989-1999 or 2001-2007. Mortality and infant mortality are missing throughout the data from 1969-2007, though more prominently after 1989. To address these missing observations (and others), the relevant agency in each state was interrogated for additional data. This second state-by-state data mining proved useful, as the

[38] GFR is constructed as: [(number of total county births/county female population, 15-44)*1,000]. IM rates are constructed similarly, using population female as the denominator; marriage, divorce, and mortality rates are constructed using county total population in the denominator.

missingness of marriage and divorce were nearly cut in half, while missing observations for other variables were completed as well.[39]

Table 2.1: Missingness of Demographic and Economic Data, 1969-2007

	Available Data		Post State-by-State Data Mining	
	#Missing	%Missing	#Missing	%Missing
Births	566	0.47	0	0
Population	457	0.38	423	0.35
Population non-white	450	0.37	448	0.37
Population Female (15-44)	124	0.1	122	0.1
Infant Mortality	45,569	37.89	45,569	37.89
Mortality	34,148	28.39	34,143	28.39
Republican vote share	75	0.06	0	0
Marriage	58,798	48.89	37,180	30.91
Divorce	60,139	50	40,010	33.27
Income Per Capita	1,777	1.48	1,743	1.45
Unemployment Insurance Per Capita	1,777	1.48	1,743	1.45
Jobs Available Per Capita	1,777	1.48	1,743	1.45
Population Density	457	0.38	0	0
Distance to Neighbor State	5	0	0	0
Income Tax	39	0.03	0	0
Death Tax	39	0.03	0	0

Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, and State Border Data Set 1998.
Note – A complete list of State Agencies used to source state-by-state data appears in Appendix B.

When employing spatial econometrics, missingness is preferably avoided as it requires dynamic weights to model a shifting structure imposed on the data (Anselin and Rey 2014). Imputation is a superior alternative in this case, as the spatial structure of the data and the underlying autocorrelation across space and time make predictive mean matching (PMM) particularly apt (Morris, White, and Royston 2014). This method of imputation uses predetermined 'donor' observations to impute the value of the missing observation. Leveraging

[39] For a complete report of the data obtained from individual state agencies, and the county-year observations completed, see **Appendix B**.

Tolbler's first law of Geography (Tobler 1970),[40] the PMM imputation can use donors that are closer in time and space to the missing observation, by limiting the imputation to predefined geographic regions and time periods. The relative size of the pool from which donors are selected reflects the tradeoff between variance and bias (Schenker and Taylor 1996). Following trial and error, imputation was conducted using the following parameters:

- k=12 donors, representing roughly twice the mean number of geographic contiguous neighbors per county (5.8).
- grouped by, region: the US Census groups the 50 states (and D.C.) into 9 geographically contiguous divisions.[41] A number of states were culled from the large Division 5 (South Atlantic) to form a tenth division (FL, NC, WV, GA, and SC).
- grouped by, year: 3-year intervals were created (1969-1971=1, 1972-1974=2…) with the exception of 1987-1992 (5-year interval), 1993-1997 (5-year interval), and 2004-2007 (4-year interval) to ensure sufficient observations from which to draw donors.
- m=30 iterations performed for each variable separately. The process was sequential, imputing all missing values for the variable with the fewest missing observations VarX, using all available variables with no missingness. Once imputed, VarX is then used to impute the values of the next variable with the fewest observations. This sequence was repeated until all variables were imputed and the data were complete.

Selection of provisions was based on both data and theoretical justifications. To obtain data-driven support, shrinkage techniques were undertaken to identify legal provisions of

[40] "I invoke the first law of geography: everything is related to everything else, but near things are more related than distant things." (1970: 236)
[41] https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf (last visited, March 6, 2024).

substantive significance.[42] Data for each of the legal provisions was complete and did not require imputing. To avoid gluttonous model specifications, the effects of multicollinearity, and spurious correlations that typically accompany large datasets, Elastic Net and LASSO regression (Hastie, Tibshirani, and Wainwright 2015; Zou and Hastie 2005) were applied to the full non-missing data to identify which of the legal provisions are significantly impactful vis-à-vis fertility. More importantly, a robust and replicable application of shrinkage techniques creates a data-driven justification for the choice of model and provisions to avoid concerns regarding "stargazing" and bias (Bruns and Kalthaus 2020). Given a relatively high degree of correlation among the provisions, multiple iterations using various parameters were tested to identify the legal covariates with the most predictive power. These iterations are not identical in their specification, as some are nested within each other.[43] Therefore, no single model produced by LASSO or Elastic Net could be rigidly selected, but rather provisions that consistently appeared to be of high predictive power across multiple iterations with varying parameters. LASSO was performed with different parameters to obtain Lambda (cross validation, BIC, and adaptive LASSO).[44] Of the 70+ covariates tested, roughly ½ were identified as statistically predictive of fertility,[45] including all control variables that consistently proved highly predictive across all models.

[42] Furthermore, each of the legal provisions chosen to be included in the survey was selected based on its potential link to family life, though some are more relevant than others. This means that at baseline, no provision was completely devoid of a theoretical link to family life.

[43] For instance, the provision "Child's Wishes" codes whether a judge may consider a child's wishes when awarding custody (or do so conditionally), which is partially nested within the "Best Interest" provision which codes the degree of specificity with which the law details factors that must be considered when determining the best interest of the child (Hartog 2002).

[44] A full detailed report of the shrinkage analysis can be found in **Appendix B**.

[45] The term 'roughly' is used here as there is no necessary clear cut-off to determine which variable is predictive and which is not; the manner in which shrinkage methods were used provides a degree of confidence regarding each provision (based on how consistently is appears predictive using various parameters).

From the group of provisions identified as more statistically predictive, 12 provisions were selected based on their link to fertility as identified in the literature.[46] These are the most theoretically salient of the provisions with regards to fertility, as they provide *a priori* reasoning for the manner in which they are associated with fertility. Background and summary statistics for each provision are provided below in the Hypotheses segment.

Data were analyzed using spatial regression.[47] Family Law is particularly amenable to spatial regression as it is created and developed within a system of regions and neighbor states (Stone 2017; Grossman and Friedman 2011); Law, like social facts, is located (Abbott 1997) – the geographic component is crucial. This method utilizes the underlying structure of spatial panel data to control for autocorrelation across space and time (Rey and Franklin 2022). In practice, both space and time lags are created to control for the influence of neighboring counties' legal, demographic, and economic profiles. This is illustrated in Figure 2.5, where Cook County, IL, the focal county of interest, is mapped alongside its contiguous neighbors.

The weights matrix created represents the structure of the data as an *n* x *n* matrix where observations that are considered neighbors according to a certain logic have a value of '1', and those that do not have a value of '0'. To enable cross comparison across different scales of values, the weights are row standardized by dividing neighbor observations by the row sum (Anselin 2022). The weight implemented for analysis is a queen 1 (first order) weight, [48]

[46] The 12 provisions selected also try to reflect a unique diversity of theoretical effects; in other words, some (typically colinear) provisions are theoretically salient to fertility in the same way so that adding both is redundant. For instance, there are 9 legal provisions that regulate entry into marriage (minimum age requirements, prohibitions on incest, health requirements, licensing requirements, conditions upon re-marriage, authority to solemnize marriage, same sex marriage, miscegenation, and alternatives to marriage). While these are not perfectly collinear (theoretically or empirically), not all provisions are presented, for the sake of brevity.

[47] Analyses were conducted using a combination of statistical software: Stata (2023), GeoDa (Anselin, Syabri, and Kho 2006), and R (R Core Team 2021), using the package 'splm' (Bivand, Millo, and Piras 2021; Millo and Piras 2012).

[48] The choice of weight is crucial in every spatial analysis (Anselin 2024), as it determines the structure imposed on the data and the interactions studied. The choice of weight is determinative of the degree of significance and strength

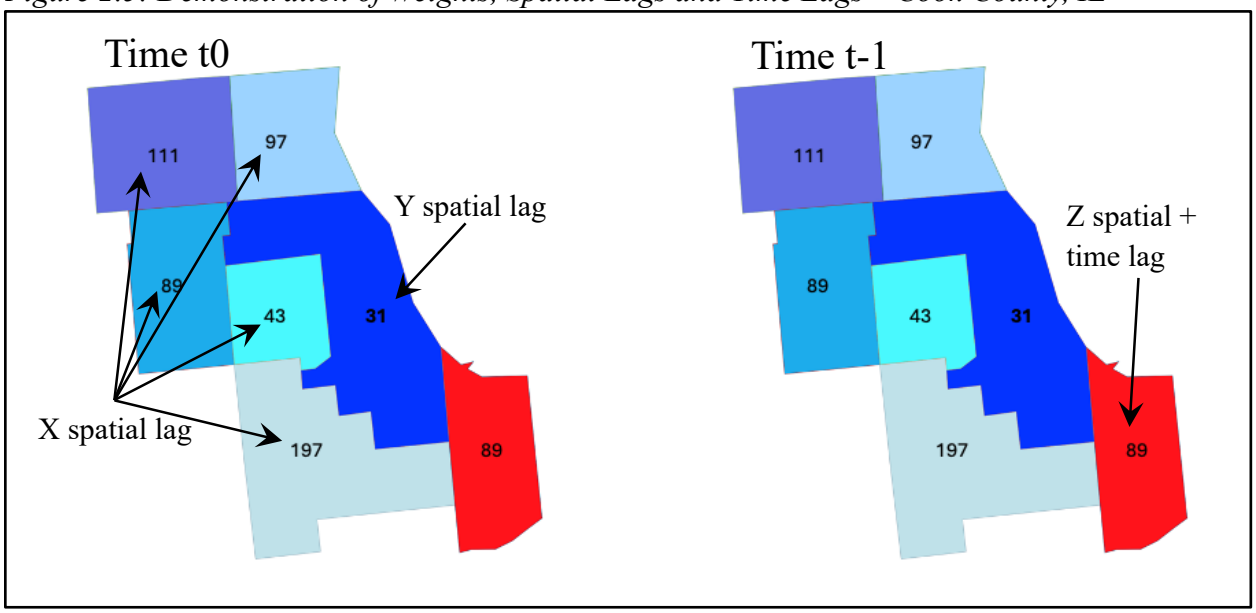
meaning that all counties that are geographically contiguous to the focal county are considered neighbors. In the example presented in Figure 2.5, Cook County has 6 neighbors.[49] Of the 6 neighbors, 5 are in Illinois State (shaded blue), and one county is in Indiana (shaded red).

Once the identity of neighbors is determined, spatial lags can be constructed. Returning to Figure 2.5, a spatial lag is created for each of the demographic and economic controls, meaning that the median value of Cook County's neighbors, for time 0, is calculated to create a new variable (Anselin 2024). A spatial lag is constructed for each control variable to isolate the focal county's GFR from the influence of neighboring counties' demographic and economic profiles, as well as its own.

of spatial autocorrelation (Martellosio 2012), and as such, of the results of spatial analysis (Anselin and Rey 2014). Therefore, sensitivity analysis using different parameters (including differing weights) is helpful in determining the final choice of weight, to create both data-driven and theory-driven justifications. For this project, a number of weights were tested, including k nearest neighbors (k=5, k=6, k=7), queen second order (with lower orders included as well), and particular distance bands. Queen 1 weights produced the most balanced weights matrix, meaning that the histogram of number of neighbors was not skewed, each county had at least 1 neighbor (no isolates), and no county had too many neighbors that would be hard to theoretically justify. KNN neighbors produces a stable number of neighbors for each county (based on the value of K) but loses the richness of geographic detail within the continental US, particularly the marked difference between counties in the East and Midwest of the US (smaller), and the large counties in the US Mountain West and West Coast. Queen 2 weights exhibit the opposite problem, as too much diversity is captured; for instance, some counties – particularly in the West – have upward of 20 neighbors spanning over 4 states. This is theoretically unjustifiable as the interaction interrogated here is the influence of Law on community decision making regarding fertility on the county level – imposing a structure where over 1/3 of the observations (n=1,179, the peak of the histogram at 18-20 neighbors) interact with nearly the entirely of the remaining observations suggests that every county is influenced by every other county. While this is true to a degree, it is theoretically untenable and empirically unsound to pursue. Results from the sensitivity analysis and information regarding the choice of weight can be found in **Appendix C**

[49] The number of mean neighbors per county when employing queen 1 weight is 5.8, and the median is 6. In this weights matrix, the number of non-zero observations is 0.19% meaning that of all the possible interactions among counties (n^2=3,084^2=9,511,056), only 0.0019 are modeled, or ~18,071 interactions per sample year. A full accounting of weights' descriptive statistics and diagnostics appear in **Appendix C**.

Figure 2.5: Demonstration of Weights, Spatial Lags and Time Lags – Cook County, IL



Note – Cook County, IL is the focal county. It is identified by its county FIPS code, 31. The remaining counties shaded in blue are neighbors of Cook County (197 – Will County; 111 – McHenry County; 97 – Lake County; 89 – Kane County; and 43 – Du Page County). The remaining county shaded in red, 89 – Lake County, is a county within the State of Indiana. To differentiate Lake, IL and Lake, IN, a State code is added at the beginning of the county FIPS such that their unique ID is 17098, and 18089, respectively. Three types of spatial controls are presented here: first, the spatial lags for the control variables (X spatial lag) – holding constant the influence of the focal county's neighbors (e.g., crude death rate, republican vote share, income); second, space-time control for a neighbor state's legal provision (Z spatial + time lag) to hold constant the closest neighbor state's law at the time of analysis; and third, a spatial lag of the dependent variable (Y spatial lag), which is the median value of GFR among the focal county's neighbors. This control holds constant the influence of neighbor counties' GFR on the focal county.

A second quasi-spatial lag was constructed to capture the influence of a neighboring state's law (Posner and Sunstein 2006). Using Holmes' State Border Data Set (1998), each county was assigned one neighbor state based on the closest distance from its centroid to its nearest neighbor state. For example, Cook County, IL, is 14.4 miles away from the border with Indiana, 44.1 miles away from the Wisconsin border, etc. For each county and each provision, these distances were assessed, and the spatial lag was assigned the value of the legal provision of the state closest to the county.[50] For Cook County, the value of its legal spatially lagged variable

[50] This form of "quasi-spatial lag" was crafted due to the nature of the legal data; most provisions are categorical, rendering a mean or median calculation of all neighbors less meaningful (Anselin and Rey 2014). Furthermore, as the goal is to quiet the noise created by a neighbor state's law (and its potential influence on fertility), incorporating multiple laws makes little sense when the distances from a focal county's centroid to the nearest neighbor state are very right skewed, meaning the vast majority of counties are not equidistant from their neighbor states. The Mean

was assigned the value of the legal provision for Indiana, for that year. The final spatial lag constructed is for the dependent variable. This is done to isolate the observed value of GFR in the focal county from the influence of its neighbors, i.e., to examine GFR in Cook County independent of the GFR observed for its neighbors.

Lastly, a time lag is constructed for both the legal provision and its spatial lag to create time lags of 1, 3, 5, and 6 years.[51] This is to facilitate the exploration of the association between legal provisions and a later change in county GFR. Selection of these time lags is grounded in theory regarding the temporal effects of law (McAdams 2015). In all, the final dataset includes: (I) all demographic and economic controls and the spatial lag for each, including the dependent variable, GFR; (II) all relevant legal provisions and their respective spatial lag (neighbor state's law); and (III) time lag variables for each legal provision and its spatial lag, for every period lagged (1, 3, 5, and 6 years).

The base model utilized is a fixed effects spatial lag model using maximum likelihood estimation (Anselin 2022):[52]

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distance between a county and all its neighbor states is 152.4 miles, whereas the standard deviation is 108.7 miles. The construction of this spatial lag is not perfect and misses unique dynamics among densely population counties such as Boyd County, KY or Brooke County, WV, which are both within 5 miles of two neighbor states. However, there are very few such exceptions: only 33 counties (of 3,084) are within 10 miles of more than one state, and none are within a 10-mile range of more than 2 states. Distance may not be the only deciding factor in thinking about the interaction – the influence of law – but it serves as a good proxy for the data as a whole.

[51] As the legal data range from 1950-2019, time lags can be created for legal provisions without introducing missing observations into the complete dataset, which extends from 1969-2007. The earliest time lags (t-6) can include legal provisions from 1963 included in the data, to study the effect they may have on fertility in the first year of the sample, 1969.

[52] Prior to analysis, 5 tests were performed to determine the most appropriate method given the possibility of panel/time and spatial autocorrelation (Baltagi et al. 2007). Baltagi, Song and Koh LM-H one-sided joint test for $\lambda=0$ (spatial autoregressive coefficient) and $\sigma^2\mu=0$ (panel autoregressive coefficient) resulted in $p<0.000$; Baltagi, Song and Koh SLM1 marginal test for $\sigma^2\mu=0$, assuming $\lambda=0$, resulted in $p<0.000$; Baltagi, Song and Koh LM2 marginal test for $\lambda=0$, assuming $\sigma\mu^2=0$, resulted in $p<0.000$; Baltagi, Song and Koh LM*- μ conditional LM test (assuming $\lambda >= 0$) resulted in $p<0.000$; and Baltagi, Song and Koh LM*- λ conditional LM test (assuming $\sigma^2\mu>= 0$) resulted in $p<0.000$. Therefore, the data exhibited both spatial and panel effects – which is to be expected. A Hausman test yielded $p<0.000$ indicating that random effects regression is not appropriate. As such, a fixed-effects spatial lag model was employed; given the relatively large number of observations, maximum likelihood estimation was utilized.

$$Y=\rho WY+X\beta+\varepsilon$$

Where:

Y is the dependent variable.

ρ is the spatial autoregressive coefficient.

W is the spatial weights matrix.

X is the matrix of independent variables (including spatial lags).

β is the coefficient vector for the independent variables.

ε is the error term.

This model is then modified to include time lags and the exogenous legal provisions:

$$Y_{t0}=\rho WY_{t0}+X_{t0}\beta+Z_{t0\text{-}y}\,\delta+\varepsilon$$

Where:

Y is the dependent variable, at time t_0.

ρ is the spatial autoregressive coefficient, at time t_0.

W is the spatial weights matrix.

X is the matrix of control variables (including spatial lags), at time t_0.

β is the coefficient vector for the control variables.

Z is the matrix for the tested legal provision (including spatial lags), at time t_{-y}, where y is the number of lagged years.

δ is the coefficient vector for the tested legal provision.

ε is the error term.

Time lags and legal provisions are tested individually, such that the association between the Law at time t-y, and the observed fertility at t0 can be tested. This will yield a separate model

for each legal provision at each time lag.[53] For instance, the GFR in Cook County, IL, in 1970 will be examined, holding controls (and their spatial lag) constant in 1970, while plugging in a legal provision (and its spatial lag) at an earlier time – either 1969 (lag 1), 1967 (lag 3), 1965 (lag 5), or 1964 (lag 6). This provides an estimate for the association between legal provision and Cook County's GFR, independent of the contemporaneous confounding demographic and economic pressures of Cook County and its neighbors, and the influence Indiana's Law.

[53] Controls include the remaining legal provisions, and their neighbors, in each topic (marriage, divorce, alimony, custody, and support), held constant at t0. Robustness checks included an alternative model wherein the Family Law Index (the product of a factor analysis, see FN72), and its neighbor, was added to the model to hold the general state of law constant; estimates obtained remained robust to the inclusion of this control. No-fault divorce was used as a control for all provisions tested (with the exception of gender neutrality), to demonstrate that estimates are not simply capturing the effects of a shift to no-fault divorce.

Figure 2.6: Raw Data – Sources & Years

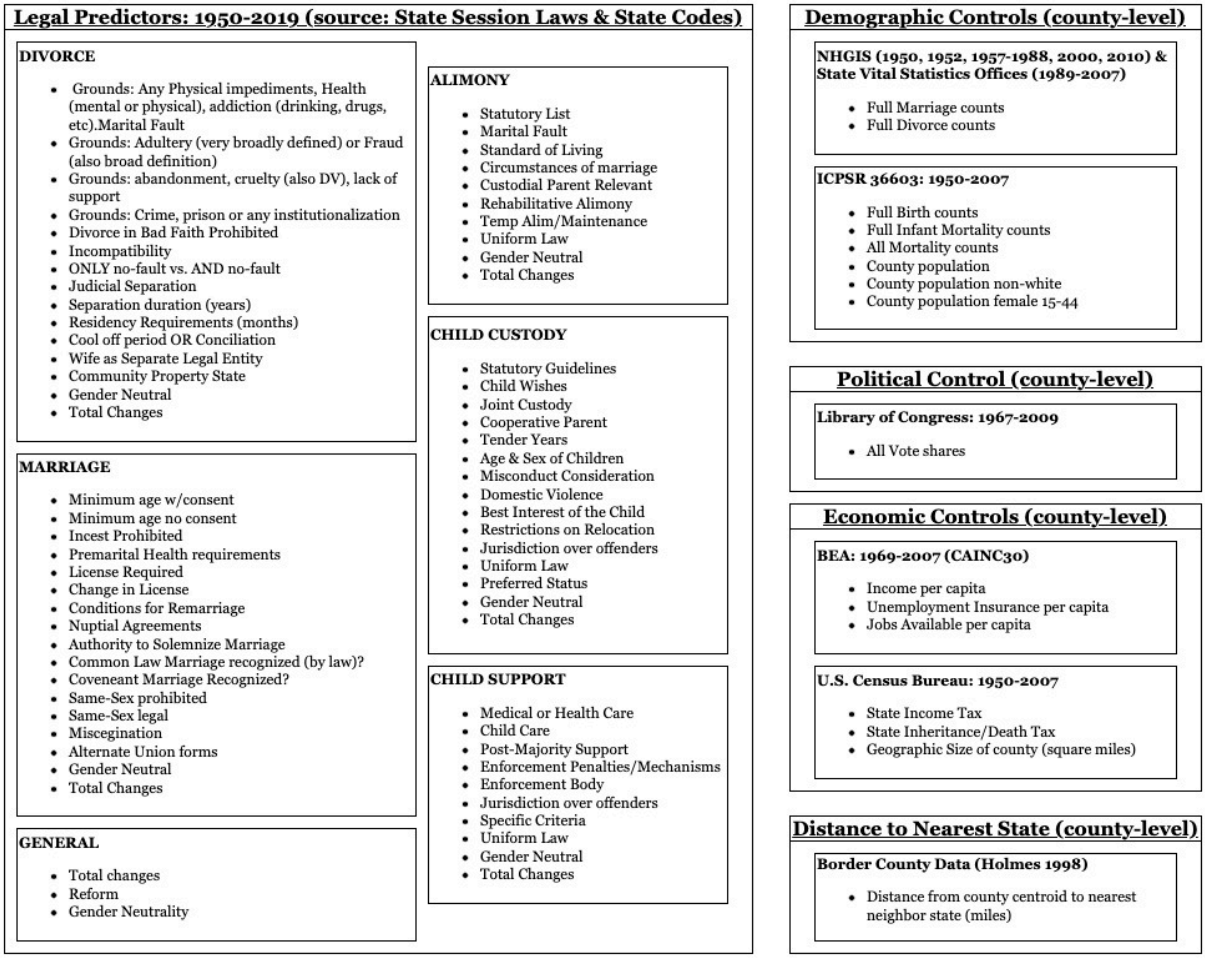

Figure 2.7: Preparing Raw Data for Analysis

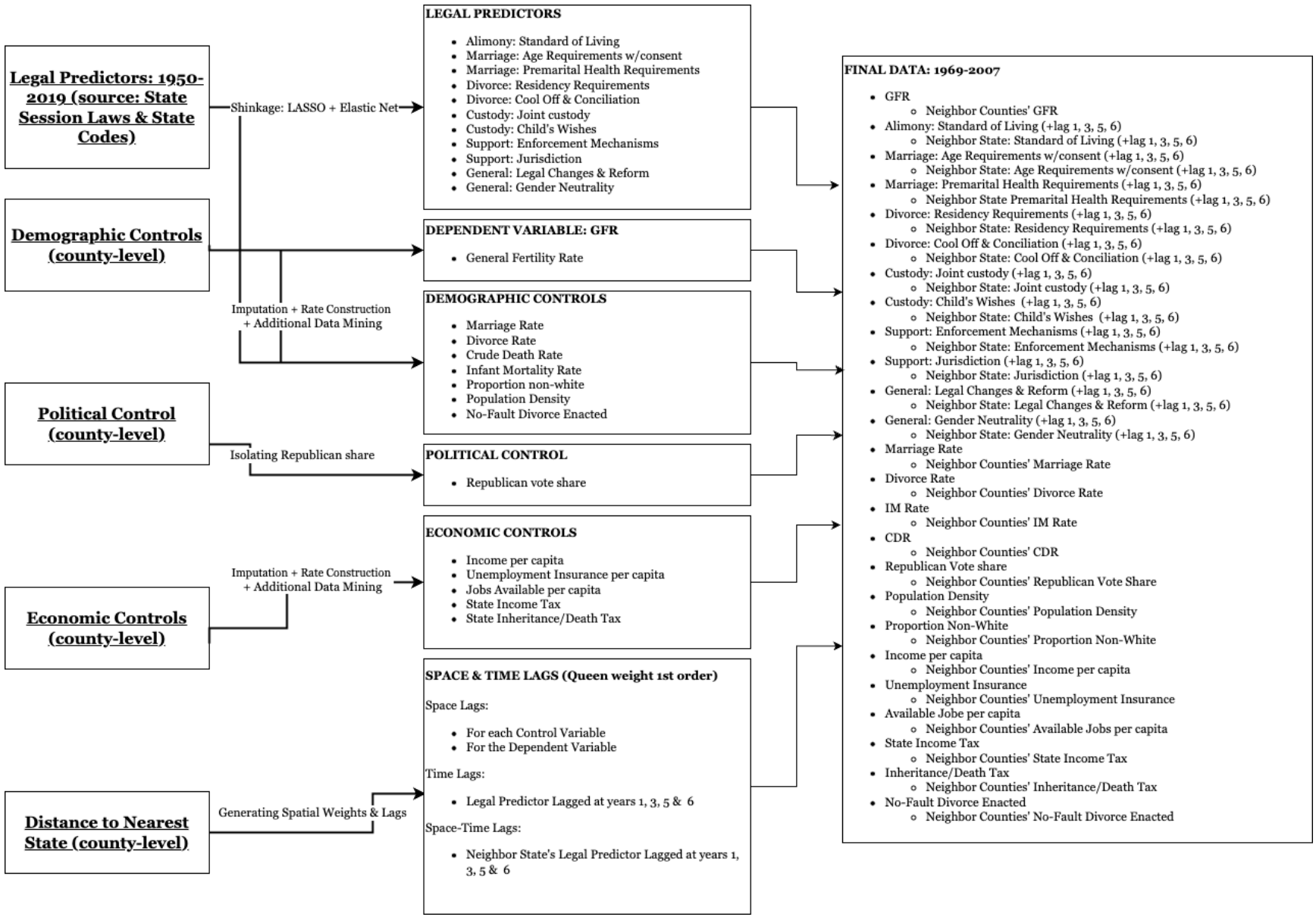

Table 2.2: Summary Statistics – County-Level Demographic and Economic Measures, 1969-2007

	Mean	Std. Dev.	Min	Max	1%	99%
Year	1988	11.25	1969	2007	1969	2007
Distance to closest neighbor state (miles)	49.05	52.79	0	701.00	1.9	273.2
Demographic Controls						
General fertility rate	70.28	17.61	0	535.79	33.22	123.93
Marriage rate	10.56	20.27	0	1124.84	3.56	42.82
Divorce rate	4.86	12.82	0	796.19	.512	17.13
IM rate	10.76	9.26	0	250.00	0	43.17
Crude death rate	12.72	28.92	0	2373.23	3.61	62.19
Republican vote share	52.06	15.39	0	100.00	12.5	100
Pop density (logged)	3.65	1.62	-2.50	10.52	-.18	7.91
Proportion nonwhite (logged)	-2.85	1.20	-4.61	1.49	-4.55	-.39
Economic Controls						
Income per capita (logged)	9.38	0.71	7.06	11.96	7.79	10.6
Unemployment insurance per capita (logged)	3.87	0.98	0.00	6.77	1.1	5.62
Number of jobs per capita (logged)	-0.80	0.27	-2.24	1.90	-1.25	-.41
Income tax rate per state (standardized)	0.00	1	-0.25	97.87	-.25	2.26
Death/inheritance tax rate per state (standardized)	0.00	1	-0.13	124.70	-.14	1.2
Legal Control						
No-Fault divorce fault enacted	0.86	0.34	0	1	0	1
Observations	120, 276					

Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – Due to the imputation process, marriage, divorce, IM and crude death rates exhibit few outliers, as can be seen in the rates exceeding 1,000 (theoretically only possible if, say, more marriages were conducted within a county than number of residents, which is highly unlikely). To provide a more accurate account of the data, the value at the first and ninety-ninth percentiles are reported as well.

Table 2.3: Summary Statistics – State-Level Family Law Provisions, 1969-2007

	Mean	Std. dev.	Min	Max
Marriage				
Min age to marry, with consent: female	15.91	1.05	12	21
Premarital health requirements	1.25	1.03	0	3
Covenant marriage	0.03	0.26	0	2
Divorce				
Residency requirements (Months)	6.60	3.56	0	24
Cool off period	1.94	1.17	0	4
Alimony				
Standard of living	0.89	0.99	0	2
Child Custody				
Childs wishes	1.29	0.95	0	2
Joint custody	0.73	0.72	0	2
Child Support				
Child support enforcement mechanisms	13.49	6.07	2	29
Child support jurisdiction	3.61	0.49	3	4
Legal Change				
Total changes	3.87	4.55	0	39
Reform enacted	0.21	0.40	0	1
Gender neutral	5.29	2.63	0	10
Observations	120,276			

Source – Original data collected by author from State Session Laws.
Note – These represent 13 legal provisions (of the approx. 75 coded) in five unique topics within Family Law, that are employed in spatial analysis. The complete coding guide and scheme (as well as the remaining legal provisions coded) appear in Appendix A.

2.6 Hypotheses

This segment provides further detail on the legal provisions tested, elaborating on their theoretical relevance to family dynamics with the aim of generating *a priori* beliefs regarding their potential influence on counties' general fertility rate. In linking legal provisions to expected outcomes, both legal scholarship and population studies serve as a theoretical foundation. Hypotheses will focus on the direction of the association (positive or negative) rather than its magnitude. Similarly, the influence of a neighbor state's law will be theorized in terms of direction of influence.

Hypotheses are not formal. Each will contemplate multiple *plausible* mechanistic explanations for observed outcomes, based on the three theoretical approaches to fertility discussed above. As the mechanisms are not directly observed, they remain suggestive. An argument will be made for why each is plausible based on evidence proffered in the literature, though alternative explanations can exist. For all legal provisions, the null hypothesis is no significance in the association with GFR.

In addition to the hypotheses set out below, a general hypothesis is set out regarding American Family Law in the 20th century. The legal history of Family Law is rich and well documented, but is limited mostly to qualitative accounts such the inimitable works of Cott (2002), Hartog (2002), and Grossman and Friedman (2011). The original data employed here allow for a quantitative account of Family Law (1950-2019): general and specific changes, trends over time, variance, rate of change, and more. All of these aspects will be interrogated in the Results segment. This discussion will include changes to Family Law as a body of Law, and changes to particular topics within Family Law, such as child custody and alimony. Hypotheses will now focus on the expected association between particular legal provisions within each Family Law topic, and their association with a later change in GFR.

Given their numerosity, only five legal provisions will be discussed in depth here.[54] The outcome interrogated sets up four distinct types of results based on the direction in which a legal provision is associated with GFR: positive or negative, for each of the focal and neighbor states' laws. One legal provision from each such type is selected to demonstrate the underlying dynamics expected to occur. A fifth legal provision is added to provide coverage for all topics within Family Law. Three of the legal provisions selected (Alimony: Standard of Living, Child

[54] A full discussion of each legal provision, including elaboration on its background and expected association with GFR, is presented in **Appendix F**.

Support: Jurisdiction, and Custody: Joint Custody) are set up as competing hypotheses and can be included in more than one type. Results will be reported for all legal provisions, but only the provisions detailed herein will be discussed at depth.

Table 2.4: Grouping Legal Provisions, by Type of Hypothesis

		Focal State's Law: Association with County GFR	
		Positive	Negative
Neighbor State's Law: Association with County GFR	Positive	• ***Cool Off & Conciliation*** • Covenant Marriage • Child's Wishes • Residency Requirements	• ***Premarital Health Requirements*** • Age Requirements
	Negative	• ***Standard of Living (Mom)*** • Child Support Enforcement	• ***Joint Custody (Mom)*** • ***Child Support Jurisdiction (Dad)*** • Legal Change • Legal Reform • Gender Neutrality

2.6.1 Divorce: Cool Off and Conciliation.

Cool off periods and conciliation are legal measures that aim to prevent divorce initiated on a whim or by miscommunication, particularly when minor children are involved (Grossman and Friedman 2011). Cool off periods might apply at the time of filing (mandating a period of time must pass between filing for divorce and actual deliberation), or when the decision is handed down (a period of time must pass before the divorce decree takes effect – in this interim period the couple is still legally married and cannot re-marry or cohabit with a different partner). Cool off periods were somewhat effective in reducing the number of divorces granted in a jurisdiction (Green 1965).

Conciliation, which can be optional or mandated at the discretion of a judge, is promoted as a tool to enhance family welfare, and reduce acrimony in divorce (Richardson 1964).[55] The

[55] For some examples, see: Act of April 2, 1980, Ch. 26, P.A. Laws, 63; Act of Jun 19, 1963, Ch. 301, O.K. Laws, 431; Act of May 7, 2019, Ch. 350, M.T. Laws, 1479; Act of February 17, 1972, P.l. 202, I.N. Laws, 955.

concept of conciliation began as a precursor to no-fault, a half-measure to avoid '*full*' no-fault divorce by introducing a conciliatory 'step-0' into the process (Grossman and Friedman 2011), with the expressed goal of try to reconcile couples seeking to separate (Green 1963). Over time, conciliation began to take on a different meaning; the goal began to shift towards facilitating a separation with fewer hostilities, one that would be less emotionally taxing on parents and their children (Yates and Salem 2013; Salem 2013). Nevertheless, conciliation requirements still pose a barrier to divorce, even in a no-fault regime.

Cool off requirements were coded from 0-4, where each level corresponds to the existence of a cool off period or a conciliation requirement, and a mandatory conciliation requirement corresponds to 2 levels. For example, for a jurisdiction that has one cool off period and a mandatory conciliation requirement, this provision was coded '3'.

Cool off requirements raise the costs of divorce. Therefore, under the microeconomic perspective, cool off requirements are expected to positively associate with a later increase in GFR. The sociocultural perspective predicts a similar result, as the state is signaling the existence of a support system for troubled couples,[56] by not only allowing time for conciliation, but actually facilitating it, so that this approach may help change attitudes by creating a new regulatory environment that may ultimately positively influence community attitudes regarding fertility. A neighbor state's Cool Off requirements are expected to exhibit a similar positive association, such that more demanding requirements raise the alternative price of divorce in a different state and associate with higher GFR. The legal provisions Covenant Marriage, Residency Requirements, and Child's Wishes (whether considered during custody litigation) are expected to associate with GFR similarly, as all raise the costs of Divorce.

[56] This may also encourage couples to make further investments in the union, children included (Oosterbeek, Sonnemans, and Van Velzen 2003).

2.6.2 Child Custody: Joint Custody

When a marital union with minor children is dissolved, courts have to determine where the children will primarily reside (physical custody) and who will make decisions regarding the children's education, health, upbringing, etc. (decision-making or legal custody). One or the other, or both, can be assigned to parents jointly or separately (Grossman and Friedman 2011). Joint custody came on the scene in the late 1970s, and has become popular since, though to varying degrees (Dinner 2015). In 2019, 15 states had rebuttable presumptions built-in to their child custody law stating that joint custody is in the best interest of a child. With a handful of exceptions,[57] the remaining states have provisions that recognize and facilitate joint custody if it is in the best interests of the child. This provision ranges from 0-2, where '0' indicates a complete absence of joint custody; '1' indicates joint custody may be awarded given certain conditions; and '2' indicates that a state has enacted a rebuttable presumption that joint custody is in the best interest of the child.

Joint custody is viewed positively in the literature (Nielsen 2017; Ryznar 2017; Pruett and DiFonzo 2014; Kruk 2011; Bauserman 2002; Brinig and Buckley 1997), though it is not immune to criticism.[58] It is, by and large, considered a cost-reducing mechanism that reduces post-divorce costs such as re-litigation, coordination, and parent dissatisfaction (Bauserman

[57] In a small number of states (e.g., New York, Illinois) joint custody is not enacted in the state's legal code, but rather is established via case-law and precedent. This is a limitation of the dataset as case-law can modify state codes (and often does), however, given the structure and goals of the legal system, case-law rarely falls far from State Law, and usually focuses on interpretation, clarification, and elaboration of law (Huntington 2018).

[58] Arguments against a blanket adoption of joint custody rules include: (1) the importance of context, as some divorcing spouses are ill-equipped to co-parent post-divorce (DiFonzo 2014; Smyth et al. 2014), especially when this arrangement is imposed rather than elected (Singer and Reynolds 1987); (2) selection bias obfuscating the actual outcomes, i.e., ex-spouses that are better situated (emotionally, financially) to co-parent are greater utilizers of joint custody and thus exhibit better outcomes (Ortega-Gaspar, Moreno-Mínguez, and López-Narbona 2022; Emery and Emery 2014); (3) the undermining of the female marital bargaining position (Vuri 2018; Post 1988; Bartlett and Stack 1986); (4) the instability of children's residence (Vanassche et al. 2017; Sodermans and Matthijs 2014); and (5) questionable efficacy at very young ages (Tornello et al. 2013).

2012; Cohen 1998).[59] Furthermore, a shift to a joint custody regime influences behavior and bargaining positions within the marital union (Altindag, Nunley, and Seals 2017; Rasul 2006), so as to encourage relationship-specific investment by both spouses (Brinig and Buckley 1997), though this is likely skewed in favor of men (Dinner 2015).

Taken together, these findings suggest that a shift to joint custody should associate with an increase in fertility. Halla (2013) explored the relationship between joint custody and fertility and found that a shift to a joint custody legal regime is in fact associated with a later increase in state-level fertility, though this varies by age group (2011: 15-16). This fits seamlessly with the view that under a joint custody regime, the risk of disassociation from children is reduced, which would encourage greater investment (typically from father), and thus increased fertility (Becker 1991: 355), especially if joint custody is thought to empower men's bargaining position in the marital union (Dinner 2015; Brinig and Buckley 1997). Accordingly, the microeconomic perspective predicts that a shift to joint custody would associate with a later increase in GFR.

However, the sociocultural perspective offers a different, competing view. A shift in Law can bring about a change of social norms, as a community adapts to a new legal regime (Sunstein 1996). The social meaning of a behavior might depend on its legal position; for example, people wear seatbelts in part because it is the law, but also because it has become the norm (McAdams 2015). As joint custody has become increasingly popular (Nielsen 2017), it has also become the norm in custody arrangements (Cancian et al. 2014; Brinig and Buckley 1997). In other words,

[59] Note however, that the selection bias into joint custody arrangements (discussed above in FN58), raises serious questions regarding the ostensibly lower post-divorce costs within joint custody arrangements; there may be certain costs that are omitted, such as emotional costs (lack of stability, see: Vanassche et al. 2017; Sodermans and Matthijs 2014), logistical costs, such as the involvement of parent coordinators (Parks, Tindall, and Yingling 2011), costs to the judiciary as the determination is fluid rather than binary like sole custody (DiFonzo 2014), and other associated costs such as negotiation, settlement and attorney fees that are not observed.

joint custody has become the default solution, the expectation in the minds of judges, attorneys, and parents alike.

While the norm and law of joint custody offer some assurance that a divorced single adult will not become the sole caregiver of their minor dependents,[60] they also hamstring both spouses by guaranteeing that both will be tasked with caring for dependent minor children, which will subsequently present a barrier to remarriage and fertility within a new union, though this is found to have an asymmetrical effect on women, as they are less likely to remarry (Reynolds 2021; Schweizer 2019), are less likely to enjoy the benefits of remarriage (Sweeney 2010), and experience a post-divorce economic penalty (Gadalla 2008).[61] In other words, the male remarriage advantage is in tension with the fertility incentive created by joint custody (particularly for men), as additional children disadvantage both parents in the event of a divorce, albeit in separate ways. Moreover, joint custody encourages women's investment and participation in the labor force (Bonnet, Garbinti, and Solaz 2022; Altindag, Nunley, and Seals 2017; Easterlin 1966),[62] which is traditionally associated with reduced fertility (Becker 1991). For joint custody to associate negatively with a later change in GFR, it must become the norm – a reliably predictable outcome.

Joint custody can also be thought of in terms of uncertainty. A narrow view, whereby joint custody is regarded in probabilistic terms, would suggest greater certainty (Brinig and Buckley 1997), and thus subscribes to the microeconomic approach of increased GFR. A broader view, internalizing the practical implications and costs of joint custody both for parents (Smyth

[60] This is also the function of child support, which is intended to facilitate a comfortable standard of living for recipient children, but is consistently underperforming so that, on average, children, and consequently their sole custodian/caregiver is worse off following a divorce (Thies and Winn 2023; Cammett 2022).
[61] In addition to Gadalla's (2008) finding that women's income is reduced post-divorce, consider that support payments are much lower in joint custody arrangements, given that child custody is the counter weight to support (Dinner 2015).
[62] For an opposing view, see: (Halla 2015).

et al. 2014; Emery and Emery 2014; Parks, Tindall, and Yingling 2011) and courts (DiFonzo 2014; Pruett and DiFonzo 2014), yields the opposite result.

Therefore, joint custody can be associated with either a later increase in GFR (microeconomic approach), or a later decrease in GFR (sociocultural approach), depending on the underlying causal mechanism. Should the latter find empirical support, this may also suggest that the full costs of joint custody have been underestimated. The influence of neighbor states' joint custody laws may further support one approach or the other and are expected to correspond to the association observed in the focal county (albeit a smaller effect size), by either reducing costs of the alternative option (custody litigation elsewhere), or reinforcing the social norm further. Given the gendered nature of the underlying explanations, two competing hypotheses can be constructed: (a) the "Mom" hypothesis, whereby an increase in joint custody will be associated with a later decline in GFR; and (b) the "Dad" hypothesis, whereby an increase in joint custody will be associated with a later increase in GFR.

2.6.3 Child Support: Jurisdiction

The history of child support law is a fascinating tale of cat and mouse, which began in the 1930s (Grossman and Friedman 2011). The cat is (typically) the state via mother, and the mouse is (typically) father, also known as the "deadbeat dad" (Dinner 2015), because historically, the most effective tool at dad's disposal was to abandon mom and children (Cott 2002). The main thrust of this subset of Family Law is to "catch" dad to secure a healthy standard of living for children following a divorce (Cammett 2022), so that the state may avoid dipping into its own coffers (Thies and Winn 2023). This is explicitly recognized by states in their legislation,[63] in an

[63] For some examples, see: Act of May 7, 1979, Ch. 612, M.T. Laws, 1674 ("WHEREAS, it is the responsibility of the state through the department of revenue to limit the expenditure of public assistance funds, whenever possible, in order that such funds not be spent if there are private funds available, or which can be made available by judicial process or otherwise, to partially or completely meet the financial needs of the children of this state. The failure of

effort to privatize dependency (Cossman 2005). The application of child support legislation has important economic consequences, and is severely criticized, particularly with respect to the uniformity of its application and the onus it places on women and minority groups (Thies and Winn 2023; Cammett 2022).

The efficacy of child support enforcement is based, *inter alia*, on its ability to locate and prosecute an obligor ex-territorially. Beginning in the early 1950s, states began to enact uniform child support laws which included "long-arm" provisions,[64] facilitating reciprocal interstate enforcement of child support (Ducanto 2009). As the world became smaller, long arm provisions expanded to include international jurisdiction (Duncan 2009), and all states adopted some version of the "Uniform Interstate Family Support Act" (Levine 2017).[65]

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parents to provide adequate financial support and care for their children is a major cause of financial dependency and a con- tributing cause of social delinquency."); Act of July 17, 1979, Ch. 421, O.R. Laws, 514 ("It is the public policy of this state that dependent children shall be maintained, as much as possible, from the resources of the parents, thereby relieving or avoiding, at least in part, the burden often borne by the general citizenry through public assistance programs."); Act of June 9, 1995, Ch. 354, O.K. Laws, 2060 ("The Legislature finds and declares that child support is a basic legal right of the state's parents and children, that mothers and fathers have a legal obligation to provide financial support for their children and that child support payments can have a substantial impact on child poverty and state welfare expenditures. It is therefore the Legislature's intent to encourage payment of child support to decrease overall costs to the state's taxpayers while increasing the amount of financial support collected for the state's children by authorizing the district courts of this state and the Department of Human Services to order the revocation or suspension of an occupational, professional or business license or the driving privilege of or to order probation for a parent who is in noncompliance with an order for support for at least ninety (90) days"); Act of June 2, 1979, Ch. 599, N.V. Laws, 1269 ("WHEREAS, The failure of parents to provide adequate financial sup- port and care for their children is a major cause of financial dependency and a contributing cause to social delinquency; and WHEREAS, The present remedies are slow and uncertain, and result in a burden on the resources of the state, which must provide public assistance for basic maintenance when parents fail to meet their obligations; and WHEREAS, It is the duty of the state to conserve money for public assistance by providing reasonable and effective means to enforce the obligations of persons who are responsible for the care and support of their children…"); Act of July 12, 1986, Ch. 993, N.C. Laws, 351 ("There is a strong public interest in providing fair, efficient, and swift judicial processes for establishing and enforcing child support obligations. Children are entitled to support from their parents, and court assistance is often required for the establishment and enforcement of parental support obligations. Children who do not receive support from their parents often become financially dependent on the State.").

[64] A Uniform Law can be thought of as a template, typically drafted by experts (for instance, the American Law Institute), that has been adopted by numerous states. When a state adopts a Uniform Law, it may modify it, but the core provisions, especially those pertaining to interstate relations, remain harmonized across sates (Benfield 1996). A crucial component of the child support laws was the "long-arm" provision extending a court's jurisdiction to the interstate level so that a child support obligor can be located and prosecuted outside their state of residence.

[65] Currently, all states have adopted a version of the Uniform Interstate Family Support Act (UIFSA), which has international long arm provisions.

While this legal provision includes a designation for all levels of jurisdiction (county/local, state, interstate, and international), the dataset (1969-2007) includes only the last 2 levels. In 1969, most states did not have an international long arm provision; in 2007, all states but for Alabama and Missouri had a long-arm provision. Nevertheless, a shift from national to international jurisdiction may be associated with GFR. Jurisdiction either serves as a costly restraint for non-custodial parents (typically the father), or as additional insurance for custodial parents against post-divorce malfeasance (typically the mother) (K. G. Anderson 2011; Aizer and McLanahan 2006). This can operate on the micro-level purely as a cost altering mechanism, or it can shift social norms regarding post-divorce parental responsibilities.

Once more, competing Mom and Dad hypotheses can be constructed utilizing the microeconomic approach. The Mom hypothesis predicts a positive association between increased jurisdiction and GFR, while the Dad hypothesis predicts a negative relationship such that a shift to international long arm provisions is associated with a later decrease in GFR. The influence of neighbor states should be commensurate with the respective hypothesis, though smaller in magnitude. The legal provision of child support enforcement mechanisms tests a similar aspect (number of legal mechanisms available to punish/encourage payment of child support), in that it may serve as deterrent to the non-custodial parent ordered to make support payments, or as a form of insurance to secure the custodial parent receiving support payments.

2.6.4 Marriage: Premarital Health Requirements

Premarital health requirements regulate entry into marriage; they are composed of mandatory blood tests necessary to receive a marriage license and some form of education or pamphlet received when obtaining a marriage license. Mandatory blood tests began proliferating among states in the 1940s, with the goal of limiting the spread of sexually transmitted diseases,

syphilis in particular (Shafer 1954; Kingon and Wiesner 1981). As this was a time that marriage had a monopoly over sexual relations (Stone 2017), this was thought to be measure necessary to promote public welfare of parent and child, and was later employed to combat the spread of HIV (Wathen 2017). Blood test requirements proliferated throughout all states in the 1940s and 1950s,[66] but were highly ineffective (Felman 1981), so that states began to repeal these laws as early as the 1970s (Doroshow 2019); Montana was the last to repeal the requirement in 2019.[67] Premarital blood requirements served as a barrier to marriage, as stricter requirements were associated with a decrease in marriage rates (Buckles, Guldi, and Price 2011).

The second of the two premarital requirements coded, includes some education in the form of a course, a pamphlet, or a document that a couple seeking a marriage license must sign. Topics include Fetal Alcohol Syndrome (Ris 1988),[68] sexually transmitted or genetic diseases,[69] and Family Planning.[70] While these do not present a major barrier to marriage – the cost is relatively low, in some cases optional, these requirements still represent a cost to marriage. Therefore, an increase in premarital health requirements is believed to be associated with a later decrease in GFR.

This provision ranges from 0-3, where mandatory blood tests equal two levels, an intermediate blood test requirement (e.g., optional test or exceptions for age or special

[66] Only 2 states did not enact any blood test requirements throughout the sample period: Nevada and Minnesota (Emerson 2009) (for background on Nevada's omission of this legal provision, see: https://weddings.vegas/why-las-vegas/history-of-las-vegas-weddings/#:~:text=In%20the%201930s%2C%20Nevada%20relaxed,ceremony%20out%20of%20the%20limelight, last visited March 18, 2024; and https://knpr.org/desert-companion/2024-02-08/tying-the-knot, last visited February 1, 2024).
[67] Act of March 7, 2019, Ch. 43, M.T. Laws, 165.
[68] For examples, see: Act of April 30, 1988, Ch. 226, N.H. Laws, 354; Act of 27 July, 1990, Ch. 1040, N.C., Laws, 670; Act of June 10, 1988; Ch. 624, R.I. Laws, 1216.
[69] For examples, see: Act of November 2, 1977, Ch. 282, N.J. Laws, 1101; Act of March 1, 1993, Ch. 193, S.D. Laws, 248.
[70] Act of July 9, 1973, Ch. 447, S.C. Laws, 792; Act of May 1, 1999, Ch. 185, T.X., Laws, 653. Act of March 10, 1971, Ch., 64, U.T. Laws, 218.

circumstances) equals one level, and an educational requirement equals one level as well. For instance, in a jurisdiction with mandatory blood tests and an educational requirement, the value is '3'.

The impact of a neighbor state's laws on GFR is tied to a unique interstate competition present in American Family Law: marriage and divorce "tourism" (Grossman and Friedman 2011). Long before Elvis was marrying and divorcing couples in Nevada, states were tailoring their Family Laws to attract applicants and increase state revenue (Bergeson 1935; Hartenstein 2023). Indeed, the first divorce mill was Indiana, not Nevada (Hartog 2002). Couples take advantage of this interstate variance in Law to circumvent marriage and divorce requirements (Blank, Charles, and Sallee 2007).

As such, the association between a neighbor state's premarital health requirements and GFR is expected to be positive, contrary to the negative association expected of the association with the focal state's law. Increasing premarital health requirements across the border raise the costs of marriage in a different jurisdiction, encouraging couples to marry in-state, potentially leading to a rise in GFR. A similar association with GFR (negative focal, positive neighbor) is expected for the legal provisions residency requirements and minimum age requirements for marriage (Blank, Charles, and Sallee 2007; Riley 1997); this also suggests that these legal provisions may have inadvertently created community approval of marriage & divorce tourism (DiFonzo 1997), which was rarely the case in the early 20th century (Celello 2009).

2.6.5 Alimony: Standard of Living

Alimony has been a critical component of Family Law for the past century as a tool to regulate the economic consequences marital dissolution (Kachroo 2006). Despite its practical and theoretical necessity, Alimony and its recipients are often derided (DiFonzo 1997), due to

perceived unfairness and uncertainty (Starnes 2014). Over the years, and especially following the shift to no-fault divorce, Alimony saw a number of key reforms including the addition of statutory factors to guide the determination of how much Alimony to award and a shift to a gender neutral regime where both husband and wife can be ordered to make Alimony payments (Starnes 2014). Alimony has been shown to influence behavior and investments within the marital bargain, as a legal regime facilitating smaller payments encouraged more female labor force participation (Schaubert 2023).

A central statutory factor in this respect is 'standard of living', which requires that the Alimony awarded be sufficient to allow the recipient to maintain the same or a similar standard of living they became accustomed to during the marriage. In 1950, no state had this consideration as part of its law of Alimony, whereas today 33 states include some version of this factor. This provision ranges from 0-2, where '0' indicates no such consideration is included by law; '1' indicates some intermediate level, implicit recognition, or consideration with exceptions; and '2' indicates explicit enactment of this requirement.

Standard of living is a statutory factor that may serve as insurance against lost investment in relationship-specific capital (Landes 1978), by raising the cost of divorce. This would suggest that adoption of a standard of living provision would be associated with a later increase in GFR. Another way to explore the influence of this legal provision is via uncertainty, as Alimony is often critiqued for its subjective and erratic outcomes in terms of the amount actually awarded, and the standard of living factor is specifically thought to combat this uncertainty (Willick 2014). However, certainty can cut both ways; for the spouse likely to receive Alimony, marital investments are encouraged, whereas for the spouse likely to pay Alimony, this creates a certainty that post-divorce life will be costlier, and thus a disincentive to invest (Stevenson 2007;

Lundberg and Rose 1999). A third approach is that Alimony shapes norms regarding post-divorce responsibility towards an ex-spouse, which is inherently linked to parental responsibility when minor children are present (Starnes 2014).

These three approaches set up two competing hypotheses, based on who is most influenced by the change: the "Mom" hypothesis predicts a later increase in GFR, while the "Dad" hypothesis predicts a later decline in GFR. With respect to a neighbor state's law, consideration of 'standard of living' sets up the same competing hypotheses, as the question becomes who is more likely to utilize the alternative to in-state divorce.

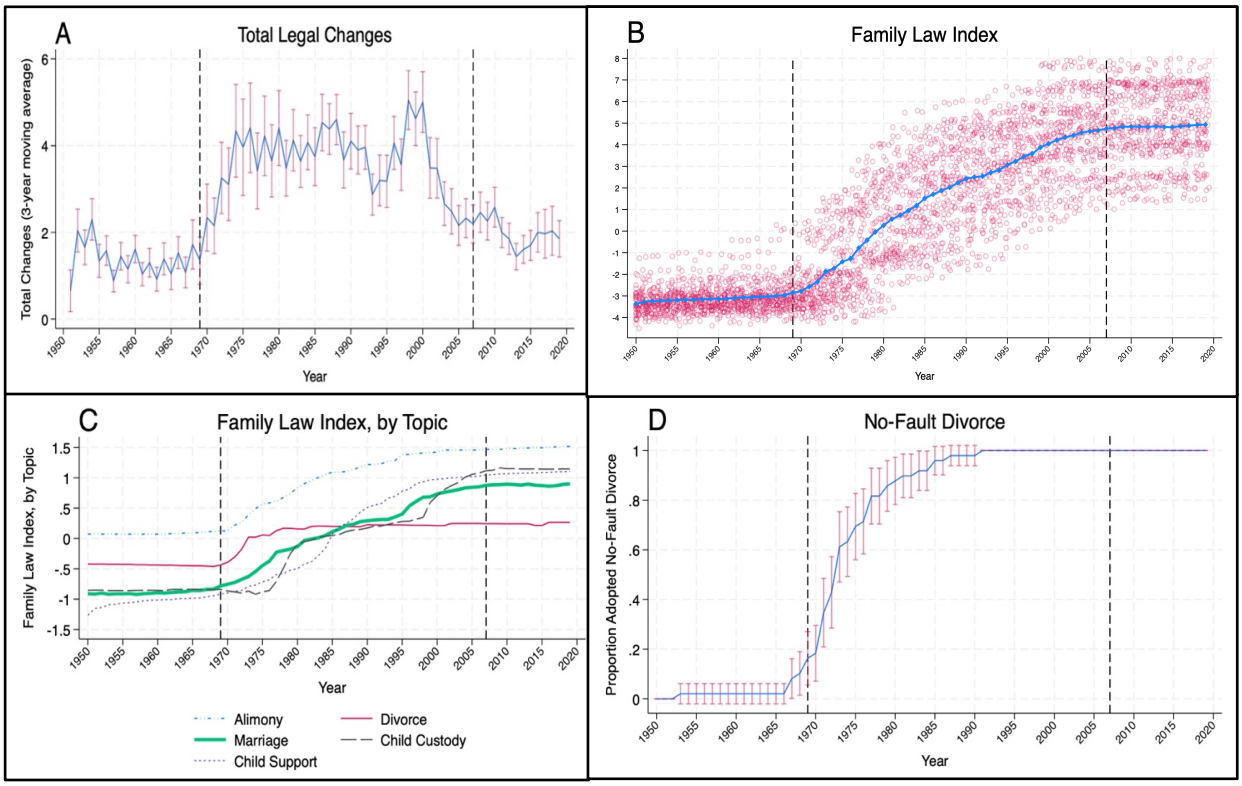
Table 2.5: Summary of Hypotheses

	Theoretical Framework*	Focal County GFR	Neighbor County GFR
Marriage			
Min age to marry, with consent: female	ME	(-)	(+)
Premarital health requirements	ME, SC	(-)	(+)
Covenant marriage	ME, SC	(+)	(+)
Divorce			
Residency requirements (Months)	ME, SC	(+)	(+)
Cool off period	ME, SC	(+)	(+)
Alimony			
Standard of living	ME, UN	Mom (+), Dad (-)	Mom (+), Dad (-)
Child Custody			
Joint custody	ME, SC, UN	ME (+), SC (-)	ME(+), SC (-)
Child's wishes	ME, SC, UN	ME (+), SC (-)	ME (+), SC (-)
Child Support			
Enforcement mechanisms	ME	Mom (+), Dad (-)	Mom (+), Dad (-)
Child Support jurisdiction	ME	Mom (+), Dad (-)	Mom (+), Dad (-)
Legal Change			
Total changes	UN	(-)	(-)
Reform enacted	UN	(-)	(-)
Gender neutral	ME, SC, UN	(-)	(-)

Note – ME=Microeconomic; SC=Sociocultural; and UN=Uncertainty (Provisions in Bold discussed in length).

2.7 Results

Figure 2.8: Overview of American Family Law in 49 Continental U.S. Jurisdictions, 1950-2019



Source – Original data collected by author from State Session Laws.
Note – Panel A depicts the national mean number of observed changes to Family Law, on a 3-year moving average; in all panels, the upper and lower bounds indicate the standard error, and the dashed vertical lines delineate the sample range for analysis, 1969-2007. Panel B depicts the Family Law Index, the result of a factor analysis, showing the progress and development of Family Law over time, including of scatter plot of all state-year data points; the blue line indicates the national mean. Panel C depicts the Family Law Index by topic. Panel D depicts the transition to No Fault-Divorce, the y-axis indicating the proportion of states that have shifted to no-fault divorce regime.

Figure 2.8 provides four windows into American Family Law between 1950-2019, all revealing that this was a tumultuous and dynamic time for American Family Law. This is doubly so for the year range interrogated herein, 1969-2007 (delimited in Figure 2.8 by the vertical dashed references lines), as can be seen in the number of changes[71] (panel A), the curve of the Family Law Index[72] (panel B), the Family Law index split by topics (panel C), and the transition

[71] A comprehensive list of states and their legal changes by topic (including transition to no fault divorce), by can be found in **Appendix E**. This appendix also includes the Family Law Index over time, by state, demonstrating that Family Law exhibited a unique change pattern by state.
[72] Factor analysis was applied to each topic within Family Law to create an index for change (variables varying high-to-low across time, such as miscegenation, were reverse coded, and continuous variables, such as minimum age

to no-fault divorce[73] (panel D). Peering through these windows in tandem demonstrates that after the shift to no-fault regimes, Divorce Law became relatively stable (slope of red line in panel C approaches zero), but the remaining topics continued to change, and became relatively stable only around the early aughts. Panels B and C demonstrate the incredibly rich variance Family Law exhibits by topic, by state, and over time, a richness that is still present in Family Law.

For the sake of brevity, results for the control variables are reported once. Introducing legal provisions did not alter the controls in significance or direction. The spatial-lag fixed effects model produces a 'lambda' statistic (reported in the first line). This is the spatial lag for the dependent variable (GFR), indicating that approx. 31% of the variance in a focal county's GFR is explained by its neighbors' GFR. Additionally, each control variable includes a spatial-lag, the median value of the focal county's neighbors. Most controls interact with GFR as is expected, with few notable exceptions. First, a county's republican vote share is associated negatively with GFR. This is surprising as "red" states and counties are thought to exhibit higher fertility (Cahn and Carbone 2010). The coefficient is very small (10 percentage points increase in republican vote share associates with a 0.14 decline in GFR), and neighbor counties' republican

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to marry, were converted into categorical variables). The first Factor from each of the analyses for Alimony, Marriage, Divorce, Custody, and Support is used as the change index. As all variables range low-to-high (e.g., '0' – no such law; '1-2' – intermediate level; and '3' explicit/full recognition), mostly progressing from '0' to higher values over time, a higher score on the index equates to a more 'modern' state of law. Variance captured and Eigenvalue of Factor 1 and 2 for each topic: Alimony (.98, 3.85, .32), Divorce (.84, 4.1, .7), Marriage (.74, 2.2, .77), Custody (.85, 6.36, .74), and Support (.96, 4.85, .43). To create the Family Law Index, all topic indices were summed. Various iterations with differing parameters (number of factors, use of rotation) yielded results that were not significantly different.

[73] While often considered as a binary legal shift, adoption of a no-fault divorce regime includes a great deal of nuance, much of which is included in the data. For instance, a no-fault divorce regime can be considered to be in effect if a state enacts a new legal ground for divorce, pertaining to irreconcilable differences (or replaces all existing grounds with an incompatibility ground). But in some states (e.g., North Carolina, South Carolina, Virginia, and Vermont), only a "soft" or vague ground exists for incompatibility, such that no-fault is effective via 'period of separation" provisions (if the couple lives separate and apart for X years, this constitutes a ground for unilateral divorce), though these periods vary from a few months to 10 years. This is to say that the determination that a state has enacted no-fault divorce is subjective. Vlosky and Monroe (2002) tackle this question, by reviewing multiple studies on no-fault divorce, ultimately setting out their view of the year each state effectively enacted no-fault. These are the years used herein, starting with Oklahoma in 1953, and ending with Arkansas in 1991. See **Appendix E** for a complete list of states (sans Alaska and Hawaii).

vote share is insignificant. Second, population density associates with a marked increase in GFR, though it serves as a proxy for urbanicity, and is expected to be associated negatively with GFR (Ryabov 2015). This suggests that population density may not be a good proxy for urbanicity, or that intercounty variation requires interaction with other variables such as income.

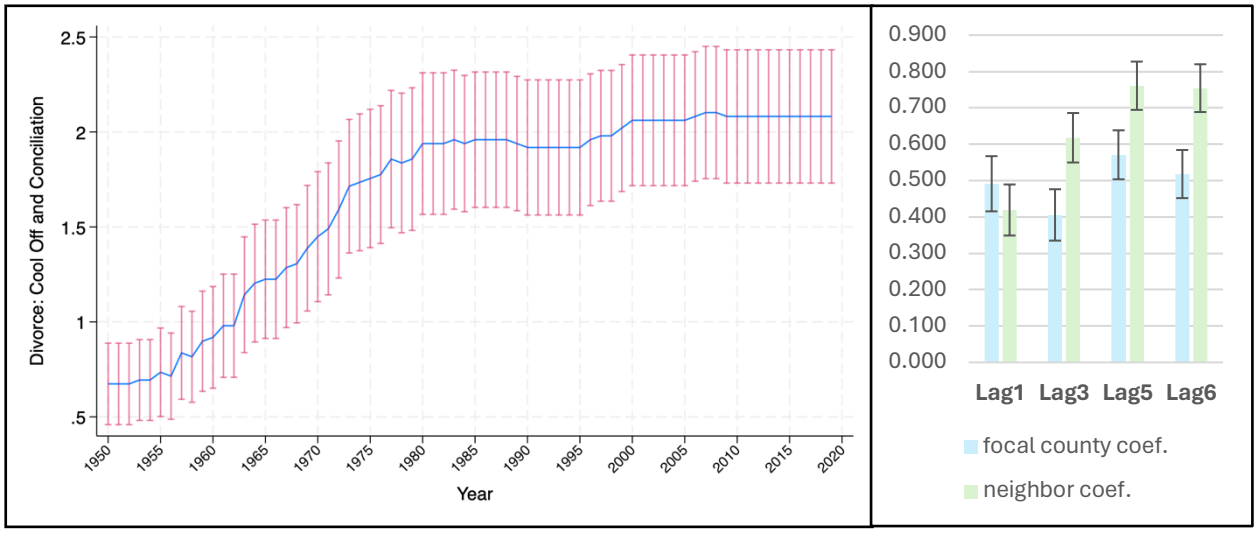
In two cases, the coefficient of a control and its spatial lag are opposite. Focal county marriage rate is positively associated with GFR, while neighbor county marriage rate exhibits a negative association. The explanation is loosely related to the concept of Tiebout competition, where certain jurisdictions tailor their Family Laws and policies to attract new populations (Lemke 2016; Saltz and Capener 2016), which is also similar to the concept of "divorce mills" introduced earlier (Hartog 2002). In other words, a higher marriage rate among neighbors may indicate that people are being attracted to marry (and bear children) across state/county lines. Similarly, available jobs per capita are positively associated with fertility (Currie and Schwandt 2014), but when neighbor counties offer more jobs as well, denizens may be attracted to relocate to a neighbor diminishing the potential for fertility in the focal county. One notable finding was the consistent insignificance of a control variable often used in studies on Family Law: whether the state employs a community property regime, a common law property regime, or some hybrid. As this control continually proved insignificant, it was omitted from analyses. Similarly, the legal status of women (a proxy for the existence of vestiges of coverture) exhibited no significant results and was omitted from analyses.

Table 2.6: Fixed Effects Spatial Regression Results for County-Level General Fertility Rates – Control Variables Only (Base model, no legal predictors), 1969-2007

Control Variables	Estimate	Std. Err.	t-value	p-value
lambda (spatial autoregressive coefficient)	0.317***	0.004	78.120	0.000
Marriage rate	0.011***	0.002	4.292	0.000
Spatial lag: neighbors' marriage rate	-0.021*	0.009	-2.387	0.017
Divorce rate	-0.010**	0.004	-2.890	0.004
Spatial lag: neighbors' divorce rate	-0.034*	0.014	-2.458	0.014
Infant mortality rate	-0.027***	0.004	-6.606	0.000
Spatial lag: neighbors' IM rate	-0.004	0.009	-0.433	0.665
Crude death rate	-0.035***	0.001	-24.345	0.000
Spatial lag: neighbors' crude death rate	-0.119***	0.006	-20.043	0.000
Republican vote share	-0.014*	0.007	-2.177	0.029
Spatial lag: neighbors' republican vote share	-0.006	0.007	-0.902	0.367
Population density (logged)	5.012***	0.273	18.352	0.000
Spatial lag: neighbors' population density	3.252***	0.300	10.827	0.000
Proportion non-white (logged)	-0.335†	0.179	-1.874	0.061
Spatial lag: neighbors' proportion non-white	0.154	0.215	0.716	0.474
Income per capita (logged)	-1.060*	0.439	-2.413	0.016
Spatial lag: neighbors' income per capita	-5.665***	0.495	-11.443	0.000
Unemployment insurance per capita (logged)	-1.070***	0.104	-10.291	0.000
Spatial lag: neighbors' unemployment insurance per capita	0.032	0.120	0.265	0.791
Available jobs per capita	7.831***	0.374	20.939	0.000
Spatial lag: neighbors' available jobs per capita	-6.466***	0.559	-11.578	0.000
State income tax (standardized)	-1.045***	0.054	-19.378	0.000
Spatial lag: neighbors' state income tax	-0.122	0.204	-0.601	0.548
Inheritance/death tax (standardized)	-0.281***	0.052	-5.417	0.000
Spatial lag: neighbors' inheritance/death tax	-3.452***	0.333	-10.369	0.000
No-Fault Divorce Enacted	-3.134***	0.467	-6.714	0.000
Spatial lag: neighbors' No-Fault Divorce Enacted	-1.601***	0.466	-3.437	0.001
Observations	120,276			

Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – Depicted here are the estimates for all control variables used in a model including only spatial lags for independent variables and the dependent variable. Introduction of the legal provisions did not materially influence these estimates, so that they are presented only once for the sake of brevity.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Figure 2.9: Divorce – Cool Off & Conciliation Provisions National Mean (1950-2019) & Association with County-Level General Fertility Rates (1969-2007)

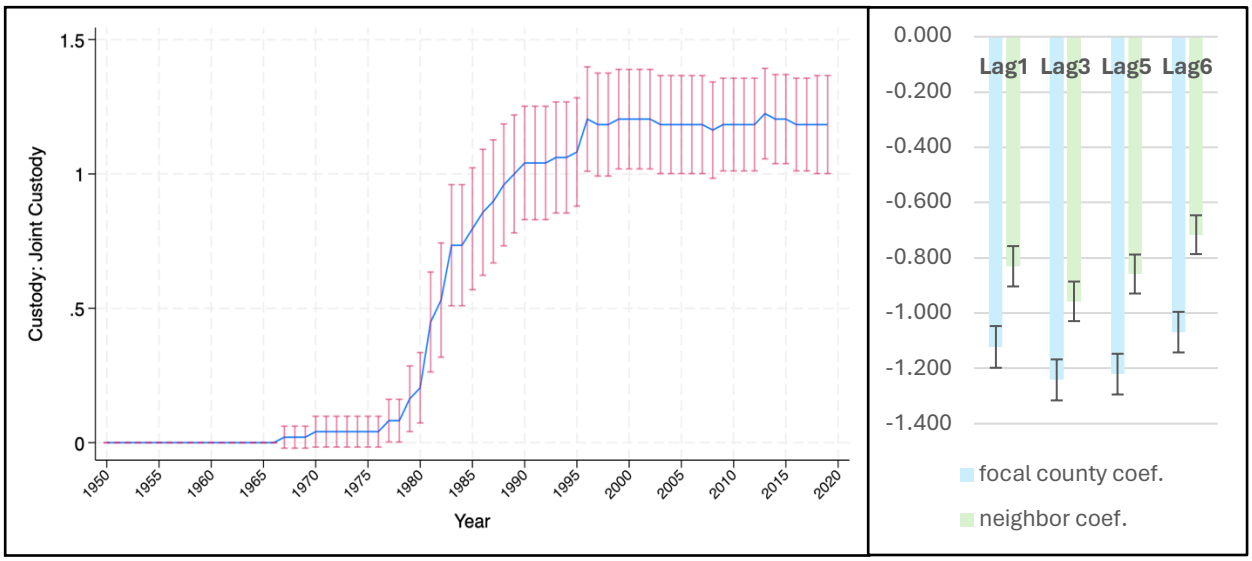


Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – The left panel presents the national mean 1950-2019 (whiskers represent standard errors). The right panel presents the coefficients for Cool Off & Conciliation Requirements on GFR across four time lags (1, 3, 5, and 6 years), as well as the influence of the closest neighbor State's Law. These estimates were obtained using Fixed Effects Spatial Regression with all Legal, Demographic, and Economic Control Variables. Whiskers represent the 95% CIs.

Cool Off & Conciliation laws range from 0 to 4 (SD=1.16), where a pre- or post-divorce cool off period (before or after litigation) equal '1' unit in the scale, voluntary conciliation between divorcing spouses is also equal to '1' unit on the scale, and mandatory conciliation (ordered by the court) equals '2'. As expected, an increase in this legal provision is associated with a later increase in GFR. Adoption of a mandatory conciliation law is associated with an increase of about 1 in GFR after one year. A similar association is observed for neighbors. Both sociocultural and microeconomic mechanisms may be relevant. By adopting a conciliation law, the state is indicating its willingness to help couples avoid acrimonious divorce, signaling its greater investment in families. From the cost perspective, cool off and conciliation raise the cost of divorce, resulting in a higher GFR, as observed. Neighbor states' laws possibly serve to

reinforce the signal regarding investment in families or add additional costs (raising the alternative costs to divorce).

Figure 2.10: Child Custody – Joint Custody National Mean (1950-2019) & Association with County-Level General Fertility Rates (1969-2007)

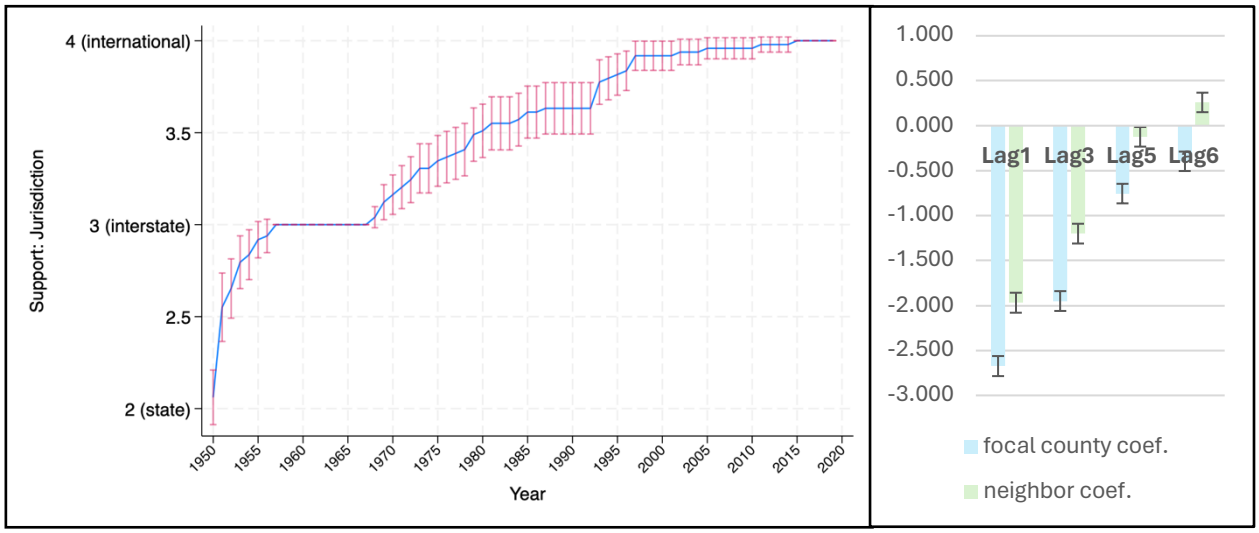


Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – The left panel presents the national mean 1950-2019 (whiskers represent standard errors). The right panel presents the coefficients for Joint Custody Laws on GFR across four time lags (1, 3, 5, and 6 years), as well as the influence of the closest neighbor State's Law. These estimates were obtained using Fixed Effects Spatial Regression with all Legal, Demographic, and Economic Control Variables. Whiskers represent the 95% CIs.

The precipitous rise of joint custody is evident in Figure 2.10. Joint custody varies from 0 to 2 (SD=.72). The hypothesis set up competing views, where a microeconomic perspective predicts a later increase in GFR (as was demonstrated by Halla (2013)), while a sociocultural view predicts a later decrease in GFR. Results support the latter; a shift from no joint custody to full joint custody (with a rebuttable presumption that it is in the best interest of the child) is associated with a later decrease in GFR of roughly 2.2 after one year. This may suggest that a norm regarding joint custody has developed, which creates both uncertainty (new costs associated with post-divorce life that may have been underestimated) and a bar to remarriage.

Additionally, when joint custody becomes the norm, a primary caregiver can more easily invest outside the household, effectively increasing labor force participation, which is also associated with a decrease in GFR. A neighbor state's law has a similar influence, providing further support to the notion that a norm has been created (or modified), whereby joint custody is the new normal, as well as the baggage it carries with it.

Figure 2.11: Child Support – Support Jurisdiction National Mean (1950-2019) & Association with County-Level General Fertility Rates (1969-2007)

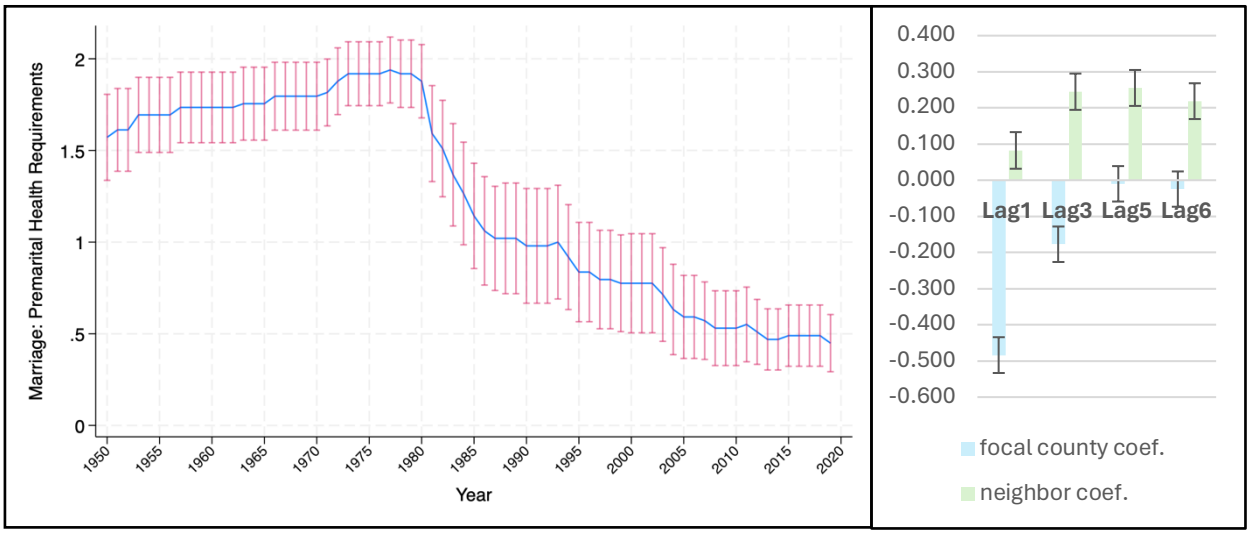


Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – The left panel presents the national mean 1950-2019 (whiskers represent standard errors). The right panel presents the coefficients for Child Support Jurisdiction Law on GFR across four time lags (1, 3, 5, and 6 years), as well as the influence of the closest neighbor State's Law. These estimates were obtained using Fixed Effects Spatial Regression with all Legal, Demographic, and Economic Control Variables. Whiskers represent the 95% CIs.

Support jurisdiction extended to the interstate level for all states by 1969 (mean=3.12); then, incrementally, states began extending support jurisdiction to the international level (mean in 2007=3.9). Support jurisdiction is a binary variable indicating either interstate ('3') or international ('4') jurisdiction over obligors who owe child support payments. Results obtained for support jurisdiction carry the dad hypothesis as they associated with a later decline in GFR. Adopting an international long-arm provision associated with a drop in GFR of over 2.5 after the

first year, and nearly 2 after three years. The deterring aspects of this law for men may be stronger than the incentivizing aspects for women, due to the well-documented history of *skipping pappies* (Cott 2002).

Figure 2.12: Marriage – Premarital Health Requirements National Mean (1950-2019) & Association with County-Level General Fertility Rates (1969-2007)

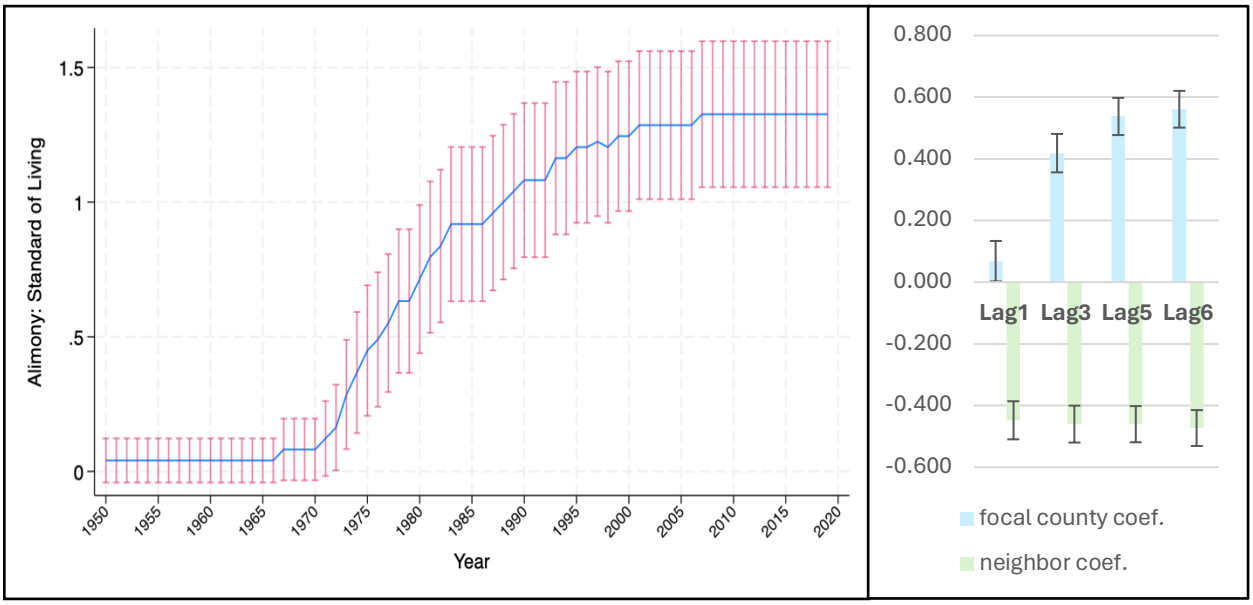


Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – The left panel presents the national mean 1950-2019 (whiskers represent standard errors). The right panel presents the coefficients for Premarital Health Requirements on GFR across four time lags (1, 3, 5, and 6 years), as well as the influence of the closest neighbor State's Law. These estimates were obtained using Fixed Effects Spatial Regression with all Legal, Demographic, and Economic Control Variables. Whiskers represent the 95% CIs.

Premarital health requirements vary from 0 to 3 (SD=1.03). These requirements are associated with a later decrease in GFR. A shift from no such requirements (coded '0') to a regime where mandatory blood tests are required prior to marriage (coded '2') resulted in a drop of nearly 1 in a county's GFR. However, this association quickly diminishes (0.18 after three years) and becomes insignificant by year five. This supports the view that premarital health requirements are a cost-inducing mechanism (vis-a-vis marriage)(Buckles, Guldi, and Price 2011). As these requirements have declined over time (mean=1.93 in 1980; mean=0.59 in 2007), the erosion of premarital health requirements is associated with an overall increase in GFR. A

neighbor state's adoption of new premarital health requirements raises the alternative cost of marriage making it less feasible, encouraging in-state marriage, and possibly procreation.

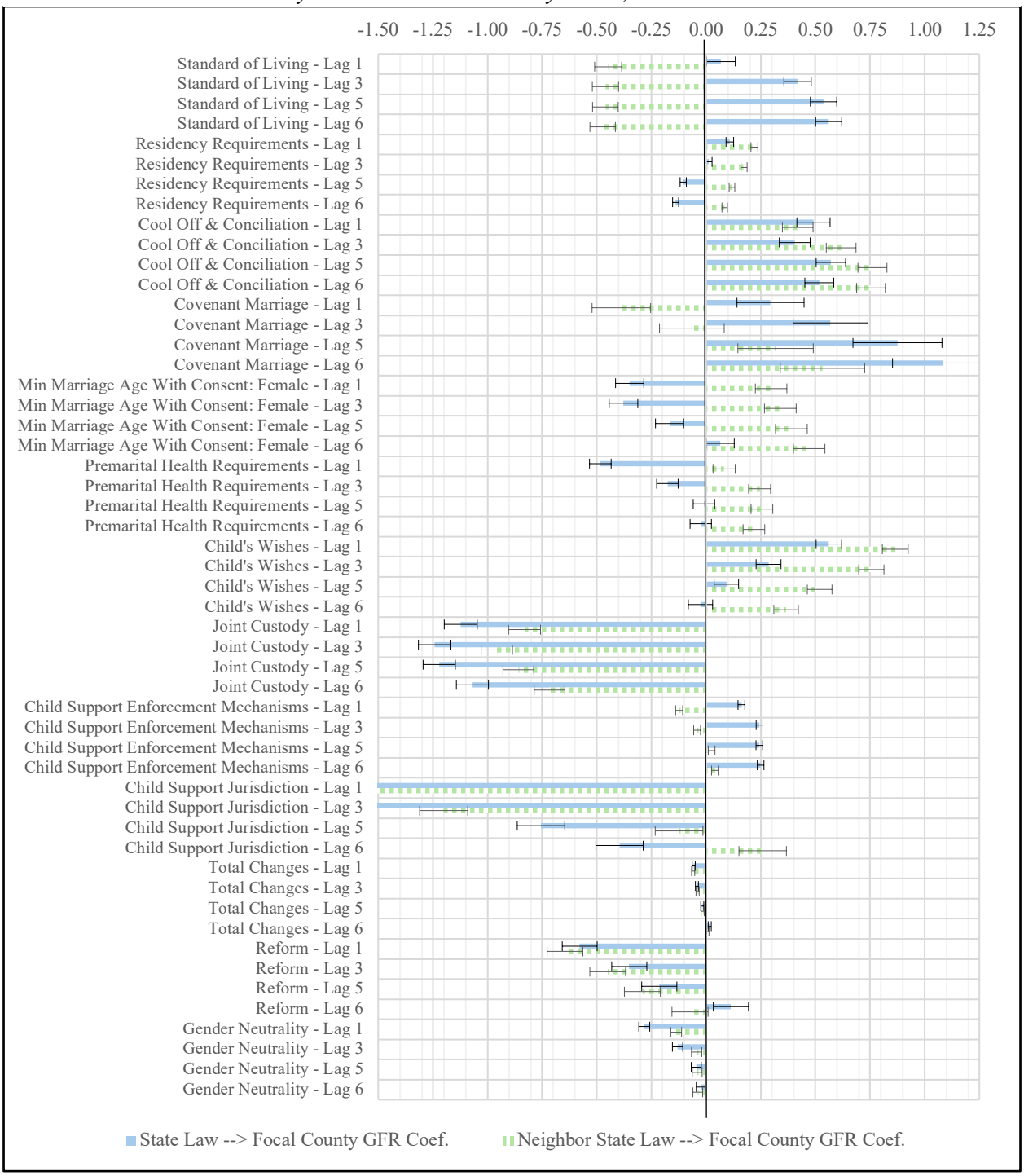
Figure 2.13: Alimony – Standard of Living National Mean (1950-2019) & Association with County-Level General Fertility Rates (1969-2007)



Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – The left panel presents the national mean 1950-2019 (whiskers represent standard errors). The right panel presents the coefficients for Standard of Living requirements on GFR across four time lags (1, 3, 5, and 6 years), as well as the influence of the closest neighbor State's Law. These estimates were obtained using Fixed Effects Spatial Regression with all Legal, Demographic, and Economic Control Variables. Whiskers represent the 95% CIs.

When a judge is determining the amount of Alimony payments, they may or must (or not at all) consider the standard of living of a potential alimony recipient during their marriage. This legal provision ranges from 0 to 2 (SD=.99). A shift from no consideration of standard of living to full consideration is associated with a later increase in GFR of about 1, supporting the "Mom" hypothesis, as it may be a form of insurance against post-divorce life for alimony recipients. Conversely, the influence of a neighbor state's law is negative, such that adoption of this provision is associated with a decrease in GFR in the focal county. This result suggest that a neighbor state's law is more effective in deterring the alimony payor (Dad), so that both hypotheses find some support.

Figure 2.14: Fixed Effects Spatial Regression Results – Coefficient Plot for All Legal Provisions' Association with County-Level General Fertility Rates, 1969-2007



Sources – ICPSR 36603, BEA CAINC30, U.S. Census Bureau STC (2022), Library of Congress (2023), NHGIS 18.0, State Border Data Set, 1998, and original data collected by the author from State Session Laws.
Note – This figure includes the coefficient of the association between each legal provision and GFR, lagged by 1, 3, 5, and 6 years. Whiskers indicate 95% CIs. These estimates were obtained using Fixed Effects Spatial Regression with all Legal, Demographic, and Economic Control Variables. Coefficients for Support Jurisdiction are cut for scale but can be found in Figure 2.11.

Table 2.7: Summary of Spatial Regression Results – County-Level Fertility Rates and All Legal Provisions 1969-2007

	Common Lever Implicated	Observed Association w/GFR	Expected Association w/GFR
Marriage			
Min age to marry, with consent: female	Marriage	(-)	(-)
Premarital health requirements	Marriage	(-)	(-)
Covenant marriage	Marriage & Divorce	(+)	(+)
Divorce			
Residency requirements (Months)	Divorce	(+)/(-)	(+)
Cool off period	Divorce	(+)	(+)
Alimony			
Standard of living	Divorce	Mom (+)	Mom (+) Dad (-)
Child Custody			
Joint custody	Divorce	(-)	(+)/(-)
Child's wishes	Divorce	(+)	(+)
Child Support			
Enforcement mechanisms	Divorce	Mom (+)	Mom (+) Dad (-)
Child Support jurisdiction	Divorce	Dad (-)	Mom (+) Dad (-)
Legal Change			
Total changes	General	(-)	(-)
Reform enacted	General	(-)	(-)
Gender neutral	Gender Roles	(-)	(-)

2.8 Discussion.

"*After all, one can't leave his shadow lying about and not miss it sooner or later, don't you agree?*"
-Peter Pan (1953)

This work seeks to give Law a more prominent voice in population studies. Law and legal theory are introduced as a compliment rather than a substitute for current understandings of fertility dynamics. Relying on foundational work in the Sociology of Law (Weber 1954; Simmel 1964), Functionalism (Parsons 1968), and modern applications in legal scholarship (McAdams 2015; Sunstein 1996; Mnookin and Kornhauser 1979), the paper argues that Law casts a shadow over individual and community social action, as it pertains to fertility. Knowledge of Law is

gleaned via a number of intertwined pathways: Media/news, role modeling, and social networks, but accuracy of knowledge is not required, as individuals and communities orient their behavior to comply with their imagined (possibly inaccurate) version of the Law (Van Rooij 2021).

Stated differently, fertility and reproduction is embedded within the legal system (Blake 1994; Barnett and Reed 1985; Barnett 1982), or more accurately, fertility and reproduction are embedded within a social system marked with cultural, economic, and legal determinants. Guided by both legal and demographic theory in the pluralistic vein (McNicoll 1992; Gutman 1960; Hauser 1959), the analyses herein demonstrate that American Family Law casts a shadow over fertility dynamics. This shadow, to paraphrase Peter Pan, has been missing from population studies.

In studying the shadow American Family Law casts over fertility, this work tested the association between multiple legal provisions drawn from an original sample of American Family Law and county-level GFR. Results obtained from spatial regression demonstrate that the legal provisions tested significantly associated with a later change to GFR. These results provide solid empirical evidence to support the plausibility of legal embeddedness. A number of themes emerge from these findings, each of which yields new research questions.

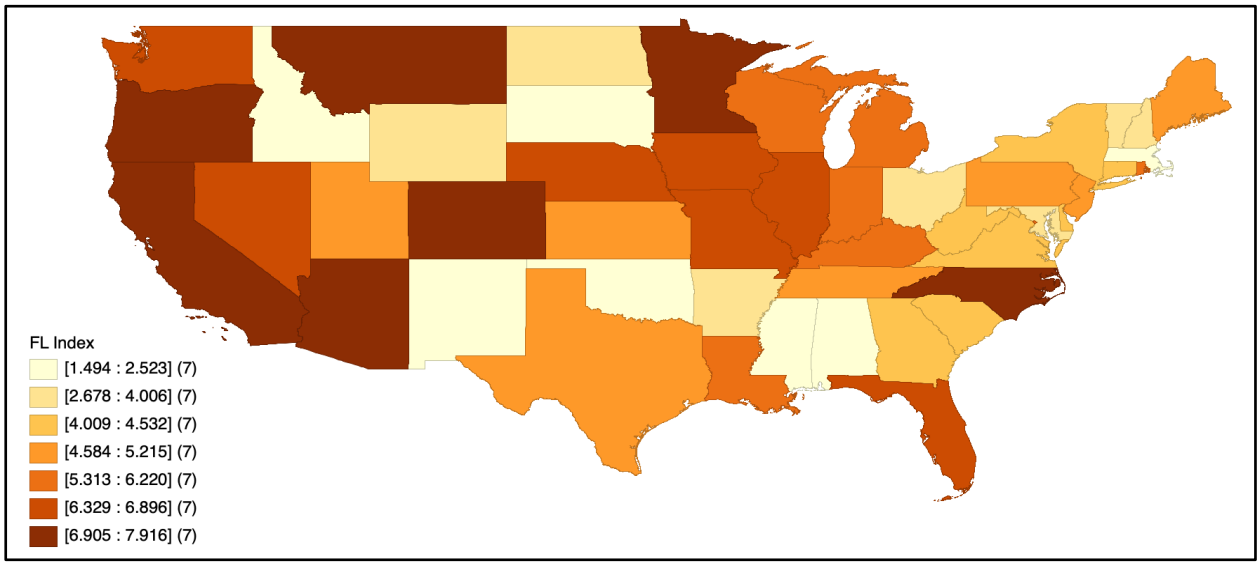
Directionality of the associations between legal provisions and GFR were as expected, affirming previous findings with one notable exception. Halla (2013; 2015) finds that a shift to joint custody (defined as binary) associated with a later increase in GFR, particularly for the age group of 35-44, as it encourages more investment of relationship-specific capital, lowering the risk of post-divorce disassociation (Brinig and Buckley 1997). Results obtained herein yield the opposite result: that a shift to joint custody (including an intermediate category and a full category, see page 70), associated with a later decrease in GFR on the county-level. This is

explained in terms of community influence, whereby joint custody is associated negatively with fertility through a possible increase in labor force participation and barriers to remarriage (Bonnet, Garbinti, and Solaz 2022; Altindag, Nunley, and Seals 2017; Reynolds 2021; Scarf 2014). This is more likely when joint custody is highly prevalent, i.e., has become the norm.

However, these results are not mutually exclusive, rather they highlight an important aspect of spatial analysis, the modifiable areal unit problem (Anselin 1989). The boundaries used to differentiate spatial units – states, counties, regions, etc. – are arbitrary to some degree, so that results are sensitive to the type of spatial unit employed (Goodchild, Anselin, and Deichmann 1993). In this case, it may be that the mechanism linking between joint custody and fertility operates differently on different spatial scales (Halla uses state-level fertility, and this paper uses county-level fertility). As the determinants of fertility operate on the macro, meso, and micro levels (Balbo, Billari, and Mills 2013), the modifiable areal unit problem is inherently baked into the study of fertility, making this an important question to investigate.

Neighbor states' laws' association with GFR demonstrates how interstate variation in Law is can be exploited, providing quantitative evidence for the concepts of marriage and divorce tourism. For instance, an increase in premarital health requirements (or other legal provisions such as minimum age requirements for marriage, or residency requirements for divorce), erect barriers to marriage, subsequently associating with diminished GFR. However, when a neighbor state follows suit, the association with GFR is positive. This implicates two aspects relevant to fertility: first, that the cost of marriage and divorce should be considered alongside ex-territorial alternatives; second, that inter-state and inter-county mobility are influenced by Law. A third general implication regards the question of spillover and externalizing costs: should a jurisdiction consider the effects its laws may have on neighbors?

Figure 2.15: Family Law Index, by State (2019)



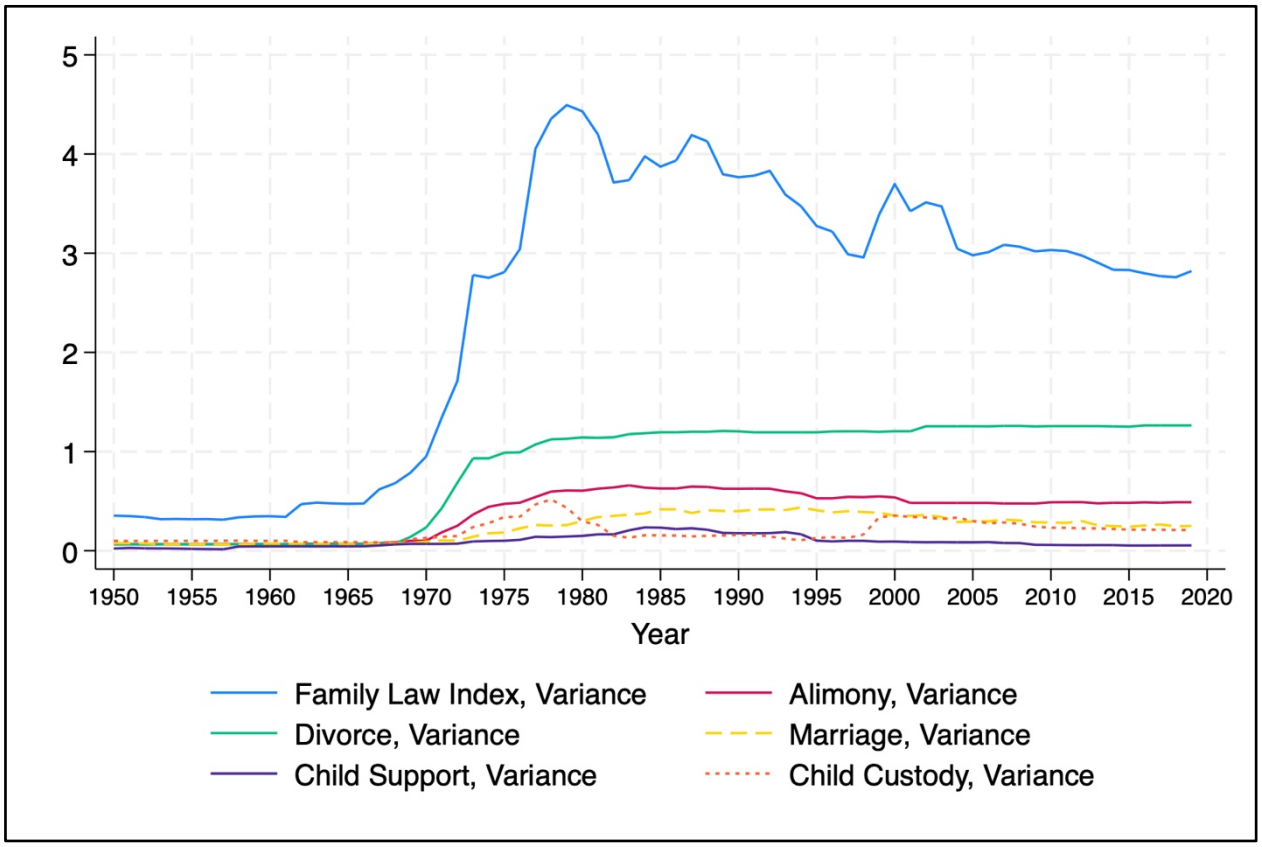
Source – The Family Law Index was constructed with original data collected by author from State Session Laws. The Family Law index was constructed via factor analysis; this process is detailed in FN72.
Note – This figure presents a map of all 49 Jurisdictions by their Family Law Index for 2019, split into septiles to obtain an equal number of states.

This highlights the importance of further study of the spatial variation in Family Law, making neighboring states with very different laws (spatial outliers) particularly interesting candidates to explore. For instance, Figure 2.15 depicts the Family Law Index for each state in 2019; two states in particular – Montana and Rhode Island – are significantly different from their neighbors' Family Law Index scores (significant at 1%). Both are interesting for different reasons given the disparity in their county size, region, and socioeconomic attributes. A more sophisticated analysis would include the entire time period (1950-2019) to identify states are that are consistently different from their neighbors over time.

Interstate variation and the manner in which Family Law changes over time may have unique implications for the study of uncertainty in demography. Family Law changed as well as the degree of interstate variation – states did not change their laws together (see Figure 2.18, Appendix E). Figure 2.16 illustrates this well, demonstrating that the shift to no-fault divorce in

the 1970s sparked a storm of interstate variation, which has remained relatively high since. Divorce remains the topic most variated across states. The degree of variance in Family Law and the rate of change it exhibits (see Figure 2.8, panel A) can proxy uncertainty as well as the degree to which a period of time is unsettled (J. A. Trinitapoli 2023; Swidler 1986). In other words, in addition to specific provisions, certain features of the legal system may cast a shadow on fertility as well, thereby reinforcing the necessity of legal context.

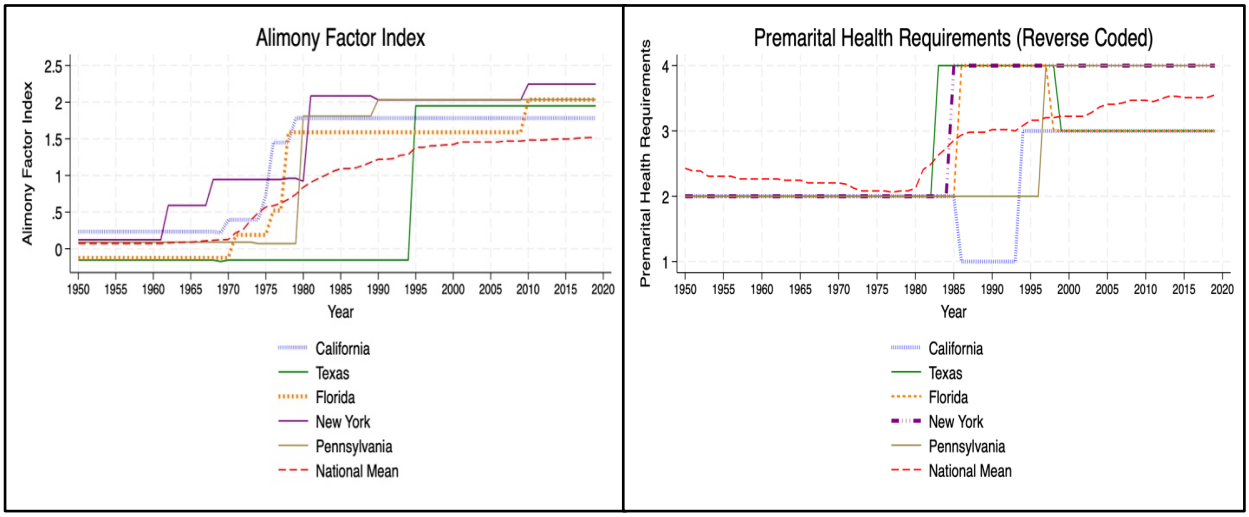
Figure 2.16: Variance in Family Law Index & Family Law Index, by Topic, 1950-2019



Source – Original data collected by author from State Session Laws.
Note – This figure presents the variance in Family Law Index, 1950-2019. The calculation is conducted for the Family Law Index as a whole, and per topic as well.

Results presented above (Figure 2.14) support this assertion, as the number of legal changes, legal reform (legal changes that exceed one standard deviation above mean change), and a general shift to gender neutral law are all significantly associated with a later decline in GFR. This sets up the question of whether Law and fertility associate differently during more settled times. This question can be extended outside the Law to include the study of how socioeconomic and demographic shocks mediate the relationship between Law and fertility.

Figure 2.17: Demonstrating Pervasions – Alimony and Premarital Health Requirements, by Five Largest U.S. States with National Mean, 1950-2019



Source – Original data collected by author from State Session Laws.
Note – The left panel includes an index of all Alimony laws, 1950-2019 (obtained via factor analysis, see FN72); The right panel presents premarital health requirements, 1950-2019, reverse coded so that a lower number corresponds to fewer requirements. Data are presented for the five most populous states, including the national mean (dashed red line).

Figure 2.17 effectively demonstrates the prevalence of pervasions (Abbott 2022) throughout Family Law, adding a third complexity. In addition to the spatial dynamics and interstate variation, the data are rife with small and chronologically "local" occurrences that are otherwise missed or misinterpreted. For instance, the left panel in Figure 2.17 illustrates that Alimony Law in the US shifted from a state of X in the early 1950s, to a state of Y in the early aughts. This would overlook the fact that New York was an early adopter and progressed slowly

towards a new legal regime, or that Texas was a late adopter that essentially changed all of its Alimony Law within two years. In the right panel all states begin with the same number of premarital health requirements and end with a similar number but took different legal routes to the end point. The period of adjustment extends over almost 20 years (early 1980s to early 2000s). Both dynamics could be misinterpreted as a shift alongside the national mean (as both begin and end in similar points), though these pervasions are influential in that they are significantly associated with fertility.

Taken together, these findings strongly suggest that fertility is influenced not by a law, but by The Law, that fertility and reproduction are embedded within the legal environment. It is therefore worth elaborating on the empirical components of a "legal environment", or what legal variables are relevant to population studies. First, particular provisions that are theoretically linked to fertility can be influential. This has been demonstrated with numerous legal provisions from various topics within Family Law. It is also important to recognize that such provisions need not be limited to Family Law[74] or state law.[75] Second, certain features in the legal system that are not directly linked to fertility can nevertheless be influential. This may include legal change and reform (found here to be significantly associated to GFR), use of legal rules vs. legal standards (Huntington 2018), or the degree of judicial deference set out by Law (Mason 2011). Extended to the international arena, the type of legal system (e.g., common law vs. civil law) can be influential as well (Opeskin and Nwauche 2013).

As the mechanisms proposed herein, linking between Law and fertility are unobserved, a natural extension of this work would focus on particular mechanisms using qualitative or micro

[74] For instance, Baily (2010) examines of the effects of Obscenity Laws on fertility.
[75] Consider provisions in the Federal Constitution that may bear on GFR, such as the Full Faith and Credit Clause, or constitutionally protected rights that fall under the Due Process Clause, such as the right to marry, abortion, and parental autonomy in childrearing (Stone 2017; Bix 2013).

level data in tandem with the county and state level data to further explore the underlying mechanism at work. This allows for deeper study of the differential effects of Law on sub populations based on age, income, ethnicity, and education, all important co-determinants of fertility. Furthermore, these data would provide valuable insight to lawmakers in better tailoring legislation to fit diverse populations. This mode of inquiry also aligns observed fertility rates with stated individual preferences and behavior (Johnson-Hanks 2007).

A second natural extension of this work is to interrogate legal change in the shadow of population dynamics. This intuitive and powerful notion has been contemplated in the literature (Barnett and Reed 1985; Barnett 1982; Lee and Gardiner 1971), but has received scant quantitative attention (for two wonderful exceptions, see: (Barnett 2006; Hill 2000)). This line of work would be of interest to both legalists and demographers, yielding further insight into the bilateral relationship between Law & demography.

Lastly, this work can be extended outside the American context. Despite American (R. J. Lesthaeghe and Neidert 2006) and Family Law exceptionalism (Hasday 2014), legal variance can still be found elsewhere, as some countries exhibit administrative variation in Family Law: India (36 units), Mexico (31 units), Brazil (26 units), Switzerland (26 units), and Germany (16 units), to name a few. However, inquiries need not be limited to Family Law. National Constitutions, often address issues linked to fertility such as the right to marriage, the right to a family, abortion rights, marital equality, and more (Opeskin and Nwauche 2013). National Constitutions play a unique role due to their hierarchical supremacy in the legal system, and their relative isolation from the routine political process (Breslin 2009). Like American Family Law, National Constitutions exhibit notable variation in time and space, and can serve as a promising avenue for future research.

2.8.1 Limitations.

This work suffers from a number of technical and strategic limitations. First, a number of important control variables could not be created on the county level. This includes age, non-marital fertility, domestic migration, and education. While these data do exist, application of spatial regression is very demanding such that missingness becomes a barrier. Nevertheless, the existing list of controls is quite rich, including both demographic and economic controls, so that the failure to include any particular control here is unlikely to change estimations significantly.

Second, while time fixed effects are included in the spatial regression model, there is no information on the timing of births, though this is a crucial aspect of fertility. In making divorce harder to obtain (whether through cost or norm), the expected result of higher fertility is a result of 'artificially' lengthened marriage durations. Similarly, in altering the costs of entry into marriage, the pre-marital phase is altered as well. Both these suggest that the timing of marriage, birth, and possibly divorce and non-marital birth are necessary to establish causality and flesh out the actual underlying mechanism. This means that a life course perspective would be a worthwhile path to pursue in the future.

Third, county level GFR are not sensitive to composition effects, particularly with respect to age. For instance, joint custody was found to have a negative association with GFR, whereas Halla (2013) reports a positive association between joint custody and fertility. Both can be true when the age composition is considered, as joint custody may have a chilling or incentivizing influence on fertility based on the life stage of the couple. Or younger populations may develop different norms regarding post-divorce parental responsibility compared to older populations. Decomposing key attributes such as age, education, and ethnicity may be key to fully understanding the association between Law and fertility.

Fourth, case law and litigation must be incorporated into the legal framework, as Law is developed and even created in the court room. Difficult borderline cases can create precedent and shape the law (Stone 2017; Friedman 2004), and concomitantly, the signal sent to the regulated population (McAdams 2015). Future work can consider salient cases and their impact on relevant Law when identifying the state of Family Law.

2.9 Conclusion.

"*I don't want to set the world on fire,*
I just want to start,
a flame in your heart."
-The Ink Spots

The shadow of Law is a powerful insight as it pertains to population studies. Serving in a complementary role to other theoretical formulations, the Law is a visible system of determinants in which individuals and communities are embedded. Pragmatically, this means that economic or cultural explanations for social action are made better by considering the legal milieu as well. Legal embeddedness can be applied to the study of dynamics such as migration, aging, and mortality. In other words, the Law shares common levers with many other topics of interest within population studies, and as such, makes for an appealing addition.

There is a narrow and a broad role for Law in population studies; both are currently underutilized. At minimum, the Law can be thought of as a control for economic or cultural (or other) predictors in population studies. Law is accessible and visible and can readily be used to complement studies on fertility. For instance, most micro datasets include information on a respondent's state of residence, so that they may be linked with their respective legal environment. In creating the survey of Family Law presented here, the hope was to facilitate

such use of legal data. Law is a low-risk-high-reward addition to population studies, that can shed new light on old questions.

At maximum, Law & Demography is a topic of study in its own right. Law is a dynamic body of knowledge that is inherently linked to macro and micro social processes. Despite, and perhaps because, the social dynamics underlying legal change (e.g., social movements, politics, morality, etc.) are not perfectly reflected in the Law, it is worthy of study as it has independent real-world effects. While the results obtained herein are all relatively small in terms of substantive significance (meager association with GFR), they clearly add up, much like Abbott's Pervasions (2022).

Therefore, espousing the notion of legal embeddedness contributes to both population studies and the study of Law. A deeper appreciation of the legal environment of the time and place studied may be able to clarify puzzles and unexplained population trends; this becomes even more appealing when conducting comparative analysis with longitudinal data. A closer look at Law as a system of determinants shaping population dynamics will provide not only better feedback on the effects of Laws (and yes, population policies), but will also provide a more complete picture of how Law and demography interact. As such, this paper serves as an invitation to further explore the bilateral relationship between Law & Demography, which may include other laws and population dynamics, but may also include the study of legal change in the shadow of population pressure.

2.10 References

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2.11 Appendix A: Family Laws, Coding Scheme, Glossary of Terms, and Boundary Rules

2.11.1 Family Law Variables Extracted from Session Laws & Coding Scheme:

Table 2.8: Family Law Variables – Alimony

Alimony (Also referred to as: spousal Support, or Maintenance**)**			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Statutory List	3: high; 2: medium; 1: low; 0: none	0: no mention; 1: general or implied factors; 2: list of factors (e.g., health, education); 3: specific allocations of income based on Formula	In making determinations (e.g., how much alimony, or child support), the law may guide judges by providing a list of factors to consider.
Marital Fault	3: high; 2: medium; 1: low; 0: none	0: conduct of spouse not considered in determining Alimony; 1: implicitly or indirectly considered; 2: directly considered; 3: misconduct may lead to suspension/cancellation of alimony (e.g., denying visitation).	Is a spouse's conduct a relevant factor to consider in determining alimony? This may be related or unrelated to children
Standard of Living	2: yes; 1: intermediate; 0: no	0: no conditions; 1: general or vague conditions; 2: explicit conditions	Does law consider a spouse's standard of life prior to divorce or separation
Length, quality, or circumstances of marriage	3: high; 2: medium; 1: low; 0: none	0: no consideration; 1: general or vague consideration; 2: explicit consideration of time/quality; 3: explicit consideration of circumstances	Does the law consider the length of the marriage, its quality, and the circumstances when determining alimony? Circumstances are usually an examination of the leverage, bargaining positions, and/or relationship specific investments made by each spouse (i.e., did mom forgo college education to stay at home with kids and let dad develop his career?)
Custodial Parent Relevant	2: yes; 1: intermediate; 0: no	0: no consideration; 1: general or vague consideration; 2: explicit consideration	Is the spouse paying/receiving alimony the custodial or non-custodial parent?
Rehabilitative Alimony	2: yes; 1: intermediate; 0: no	0: no consideration; 1: general or vague consideration; 2: explicit consideration (and state has a "displaced homemaker" law - by itself not enough, must have some indication in the law as well to receive code '2', otherwise only a displaced homemaker law is just '1')	Rehab alimony is the idea that a spouse may be awarded alimony for a period of time that will be long enough for them to gain the necessary skills to support themselves and become independent

Table 2.8: Family Law Variables – Alimony Continued

Alimony (Also referred to as: spousal Support, or Maintenance**)**			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Temp Alim/Maintenance	3: high; 2: medium; 1: low; 0: none	0: no mention; 1: general mention; 2: explicit mention; 3: is required	this is alimony that is awarded to spouse to maintain them throughout the legal process (divorce/separation)
Uniform Law?	count	number of times uniform law is adopted/amended	Uniform Law is a Law that is suggested by national orgs; states are not required to adopt a uniform law, but when multiple (neighboring) states adopt a uniform law (or a similar version thereof), it allows for the facilitation of inter-state dynamics (e.g., locate debtor/obliger in different state and make them pay money they owe in alimony)
Gender Neutral	2: yes; 1: intermediate; 0: no	0: Gendered; 1: Weakly Gendered; 2: Gender Neutral.	0: Alimony only to wife; 1: neutral - can go both ways; 2: no gendered mentions at all
Uncoded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are not captured by the coding scheme. For examples, see the sheet on boundary rules.
Coded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are captured by the coding scheme.
Total Changes	Count	Sum of uncoded and coded changes	

Table 2.9: Family Law Variables - Divorce

Divorce			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Grounds: Any Physical impediments, Health (mental or physical), addiction (drinking, drugs, etc.).	2: yes; 1: intermediate; 0: no	Each ground is either directly relevant to both F & M, or similar/equivalent gendered grounds included in each category	
Grounds: Adultery (very broadly defined) or Fraud (also broad definition)	2: yes; 1: intermediate; 0: no		
Grounds: abandonment, cruelty (also DV), lack of support	2: yes; 1: intermediate; 0: no		
Grounds: Crime, prison or any institutionalization	2: yes; 1: intermediate; 0: no		
Divorce in Bad Faith Prohibited	2: yes; 1: intermediate; 0: no	Instances in which law prohibits divorce if a ground is contrived (e.g., condoning adultery)	
Incompatibility	2: yes; 1: intermediate; 0: no	0: no such ground; 1: general/vague designation (or still bi-lateral requirement, or attached requirement like time necessary apart); 2: explicitly stated/noted (purely unilateral)	This ground for divorce typically indicates a shift to a No-Fault regime
Only-No Fault	1: yes; 0: no	0: no no-fault; 1: old grounds repealed, only no-fault divorce	Some states shifted to a purely no-fault divorce scheme where there is only 1 ground for divorce such as incompatibility or irrevocably broken marriage (always one-sided)
AND No-Fault	1: yes; 0: no	0: no; 1: No-fault in addition to old grounds	
First year No-Fault is introduced	year	the year no-fault is adopted	in consultation with FL50S and Vlosky and Monroe 2002

Table 2.9: Family Law Variables – Divorce Continued

Divorce			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Judicial Separation	3: high; 2: medium; 1: low; 0: none	0: does not exist; 1: implied; 2: specific mention+ conditions (years apart); 3: equivalent to divorce (e.g., no restrictions on remarriage)	States had laws to regulate situations in which spouses were separated (for various reasons)/ Over time these became better regulated as they served as a good (and only) alternative to divorce. This may have different names: 'divorce from bed and board', judicial separation', 'separation', etc. This has different names: 'divorce from bed and board', judicial separation', 'separation', etc.
Separation duration (years)	number of years		how long the law requires that the spouses lived apart to grant a legal separation (aka judicial separation, separation from bed and board, etc.)
Residency Requirements (months)	number of months	When there are two separate residency requirements (e.g., for residency in state vs. county, or prior to filing and before decree can be granted), the longer of the two is used here	how long a spouse(s) must have lived in a jurisdiction/state to be considered a resident for the purpose of divorce/separation. Thus, a state can grant a divorce (or separation) only if it has jurisdiction over a person, which occurs only when that person is a resident of the state.
Cool off period OR Conciliation	0-4	Cumulative count of "cool off" mechanisms: (1) time period before divorce becomes effective (or mandatory "pause" between filing and when case may be heard); (2) state attorney against divorce (or proctor); (3) voluntary conciliation(=1); and (4) mandatory conciliation(=2). e.g., time period before divorce effective + mandatory conciliation =3. (Note: mandatory conciliation means that court may, if it deems fit, order conciliation).	This is a legal mechanism that forces the court to hold off on providing a final divorce decree until the spouses have had a chance to cool off and potentially re-think their decision to marry.

Table 2.9: Family Law Variables – Divorce Continued

Divorce			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Wife as Separate Legal Entity	2: yes; 1: intermediate; 0: no	0: coverture system; 1: some limitations; 2: yes	Until the 1970s, some states still had a system of "coverture" where a wife was considered part of the husband's legal entity. This means wife could not sign a contract, be employed, file a legal claim (sue) independently of husband, buy land, etc. Anyone one of these restrictions in the law should hint at the existence of full or partial coverture
Community Property State	2: yes; 1: intermediate; 0: no	0: Common Law regime; 1: hybrid regime; 2: Communal (Marital) Property Regime	Short explanation on the difference between the 2 systems.
Gender Neutral	2: yes; 1: intermediate; 0: no	0: Strongly Gendered; 1: Weakly Gendered; 2: Gender Neutral.	0: wife at fault or petitioner; 1: neutral and no blame ('*in RE marriage of*' instead of '*plaintiff vs defendant*') - transition to no-fault (irreconcilable diff or unilateral divorce) is not enough; 2: no ref to gender at all (except for name change for wife)
Uncoded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are not captured by the coding scheme. For examples, see the sheet on boundary rules.
Coded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are captured by the coding scheme.
Total Changes	Count	Sum of uncoded and coded changes	

Table 2.10: Family Law Variables - Marriage

Marriage			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Minimum age w/consent	Age specified by law	years	minimum age to marry with the consent of a parent or legal guardian - this is usually gendered, such that women may marry at younger ages (with consent) - each is recorded differentially
minimum age	Age specified by law	years	minimum age to marry (no consent required) - this is usually gendered, such that women may marry at younger ages - each is recorded differentially
Incest Prohibited	2: yes; 1: intermediate; 0: no	0: no prohib; 1: Only blood relatives (or includes specific exceptions); 2: prohibition includes (a) non-blood relatives by marriage (e.g., spouse of child); (b) relatives by adoption; and (c) first cousins.	
Health prerequisites	3: high; 2: medium; 1: low; 0: none	0: no health requirements prior to marriage license; 1: some requirements, such as just premarital education like pamphlets attached or mandated sex education; 2: blood test requirements for persons marrying; 3: blood tests + attached pamphlets or premarital education	Some states necessitate a physical exam prior to issuing a marriage license. Exams include testing for STD/STIs and other illnesses (e.g., TB).
License Required	2: yes; 1: intermediate; 0: no	0: no; 1: required w/ exceptions; 2; yes	Is a marriage license required to marry? when this is the case, it allows the state an important mechanism to intervene in, and regulate marriage by setting requirements and conditions to receive a marriage license (e.g., health requirements).

Table 2.10: Family Law Variables – Marriage Continued

Marriage			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Change in License	0-3	A Count of the changes in a marriage license, 1 for any (a) procedural change; (2) substantive change; and (3) pre-requirements for a max of 3 changes per year	any change to marriage license? This includes procedural and substantive changes (e.g., change in the form, submission requirements, time requirements, proof of identity, premarital preparation courses, etc.)
Conditions for Remarriage	2: yes; 1: intermediate; 0: no	0: no conditions; 1: general or vague conditions (or cool off period before divorce becomes final); 2: explicit conditions (e.g., adulterer cannot remarry)	general or vague conditions would include instances where a judge has discretion to decide or if limitations are placed only on one spouse
Nuptial Agmts	3: high; 2: medium; 1: low; 0: none	0: not recognized/mentioned; 1: general or implied recognition; 2: explicit recognition; 3: separate law/act dedicated to nuptial agmts (or explicit differentiation between agmt types with clear conditions) (surrogate agmts can be considered a non-coded change)	These are agreements entered into by spouses to set terms for their relationship. They can be created before (e.g., pre-nup), during (post-nup) or after a relationship (settlement agmt), and may be triggered by various events (e.g., divorce/separation, death, relocation, etc.). Different states have different conditions for what these contracts may include, but all states do not allow parents to include provisions relating to child custody in prenups

Table 2.10: Family Law Variables – Marriage Continued

Marriage			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Authority to Solemnize Marriage	State-level judge: Appellate or district	Cumulative count from 1-9 different authorities to solemnize marriage	Over time, it has become much "easier" to get married - in the sense that the authority to solemnize a marriage is granted to pretty much anyone who seeks it. It used to be vested in only a small (and powerful) type of position holders such as high court judges and politicians. To overcome the difficulties of marrying in the frontier or rural areas, the institute of common law marriages was created (see below)
	State-level judge: Supreme Court		
	Religious agent		
	Federal Judge		
	Local-level judge (probate, juvenile, peace, magistrate)		
	Local admin agent (mayor, city clerk, notary public, etc.)		
	State-level politician/admin agent		
	Retired judge or admin agent or marriage is valid even if married by unlawful agent, e.g., outside U.S.A.		
	A military chaplain (NV 1969, C46)		
	A "civil celebrant" - a civilian that was authorized by the state to do so (given certain conditions)		
CL Marriage recognized (by law)?	2: yes; 1: intermediate; 0: no	0: not recognized; 1: general/implied recognition (e.g., putative spouse or fraud, or law simply does not disallow); 2: explicit recognition with conditions	Does a state recognize Common Law Marriage (an implied marriage that exists without a ceremony, license or registration)?

Table 2.10: Family Law Variables – Marriage Continued

Marriage			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Covenant Marriage Recognized?		0: not recognized; 1: some intermediate designation exists; 2: explicit recognition with conditions	Does a state recognize a more binding version of marriage (with limitations on divorce) called Covenant Marriage?
Same-Sex prohibited	2: yes; 1: intermediate; 0: no	0: no mention; 1: general statement (e.g., does not recognize marriages from other jurisdictions that are against public policy OR law against same sex OR creates new definition of marriage as only between one man and one woman) OR const amend in this regard; 2: explicit statement	Does a state make any kind of statement regarding its NEGATIVE position on same-sex unions?
Same-Sex legal	2: yes; 1: intermediate; 0: no	0: no mention; 1: general statement (or partial - allows same sex couples to divorce in state if they can't divorce in their jurisdiction, but not official recognition otherwise OR allows alternative forms of union) OR const amend in this regard; 2: explicit statement RE same-sex marriage	Does a state make any kind of statement regarding its POSITIVE position on same-sex unions? If same-sex made legal by force of federal precedent, this remains '0'
Miscegenation	2: yes; 1: intermediate; 0: no	0: no mention; 1: general statement; 2: explicit statement	Does a state prohibit interracial marriages?
Alternate Union forms	2: yes; 1: intermediate; 0: no	0: no recognition; 1: general/implied recognition; 2: explicit recognition - for same-sex couples	Are any alternatives to marriage recognized in law (e.g., civil unions, domestic partnerships)
Gender Neutral	2: yes; 1: intermediate; 0: no	0: Strongly Gendered; 1: Weakly Gendered; 2: Gender Neutral.	0: diff application of law (tests/incest/license/min age); 1: similar application (min age requirements); 2: equal application of all provisions (no ref to gender at all)

Table 2.10: Family Law Variables – Marriage Continued

Marriage			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Uncoded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are not captured by the coding scheme. For examples, see the sheet on boundary rules.
Coded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are captured by the coding scheme.
Total Changes	Count	Sum of uncoded and coded changes	

Table 2.11: Family Law Variables - Child Custody

Child Custody			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Statutory Guidelines	3: high; 2: medium; 1: low; 0: none	0: no list - Full discretion; 1: General list of factors - high discretion; 2: specific list a judge MAY consider - intermediate discretion; 3: specific list a judge MUST consider - limited discretion	The law may include general or very specific factors/conditions that may/must ("shall") be considered by judges when making a custody determination. Serves as indicator for the degree of discretion a judge has in awarding custody.
Child Wishes	2: yes; 1: intermediate; 0: no	0: no; 1: partial/limited consideration (based on age); 2: must consider	Does the law require that a judge consider the wishes of a child when placing with a parent and awarding custody
Joint Custody	2: yes; 1: intermediate; 0: no	0: no; 1: implied (or mentioned, but not as presumption); 2: yes	does the law include a presumption that joint custody is in the best interest of the child (of that it is the default/preferred outcome of custody dispute)?
Cooperative Parent	2: yes; 1: intermediate; 0: no	0: no; 1: partial/limited consideration (based on circumstance); 2: must consider	does the law require that a judge consider the ability of each parent to cooperate with the other in making a custody determination?
Tender Years	2: yes; 1: intermediate; 0: no	0: no; 1: implied/indirect; 2: direct	Is there a presumption that children under 7(ish) are placed with mom?
Age & Sex of Children	2: yes; 1: intermediate; 0: no	0: no; 1: may generally consider; 2: must consider	Is the age & sex of children a factor the judge may or must consider in awarding child custody? Or not at all?
Misconduct Consideration	2: yes; 1: intermediate; 0: no	0: no; 1: general or vague consideration consider; 2: explicit consideration ("moral fitness")	Is the parents' behavior a factor the judge will consider in awarding child custody? Or not at all? This may include various behaviors such as adultery, getting tattoos, drinking/drugs (chemical dependency), traveling for work, etc.
Domestic Violence	2: yes; 1: intermediate; 0: no	0: no mention; 1: general mention or limited to visitation or limited to temp custody pending trial; 2: specific mention	Is the existence of domestic violence (or sexual abuse) a consideration made when determining custody (or visitation)?

Table 2.11: Family Law Variables - Child Custody Continued

Child Custody			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Best Interest of the Child	3: high; 2: medium; 1: low; 0: none	0: no mention/recognition; 1: general mention; 2: flexible standard with vague criteria; 3: strict standard with specific criteria set	the difference between a '2' and '3' will depend on how the "best interest of a child' is defined by law: fewer more general indicators (health, education, sex & age, etc.) with a MAY designation; vs more indicators with a specific definition of the best interest using multiple lower level criteria (distance from parent, time spent, quality of relationship, past interactions, special needs, etc.), and can have a MUST designation, or will have an indication that considerations must be made clearly in writing
Restrictions on Relocation	2: yes; 1: intermediate; 0: no	0: none; 1: partial/implied; 2: specific restrictions	Are any relocation restrictions placed on the parent with primary custody (or the non-custodial parent)? Who shoulders the burden of proof?
Jurisdiction over offenders	0: no mention	no explicit mention of jurisdictional issues as they regard child custody	The last category (out of state) is enabled by the adoption of a federal uniform custody/support jurisdiction act (UCCJA - uniform child custody jurisdiction act), though each state adopted at a different time, and with some differences
	1: local venues	only a court/judge located in the offender's county/city has jurisdiction over offender (narrow jurisdiction)	
	2: State-wide venues	any court/judge in state has jurisdiction over offender (broader jurisdiction)	
	3: Inter-state jurisdiction	any court/judge in state has jurisdiction over out-of-state offender	
	4: Some degree of international jurisdiction and/or cooperation	being party to what is effectively an int'l treaty with other countries to jointly enforce support orders (broadest jurisdiction)	
Uniform Law?	count	number of times uniform law is adopted/amended	Uniform Law is a Law that is suggested by national orgs; states are not required to adopt a uniform law, but when multiple (neighboring) states adopt a uniform law (or a similar version thereof), it allows for the facilitation of inter-state dynamics (e.g., locate debtor/obliger in different state and make them pay money they owe in alimony)

Table 2.11: Family Law Variables - Child Custody Continued

Child Custody			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Preferred Status	2: yes; 1: intermediate; 0: no	0: no preferred status; 1: general/vague designation; 2: specific conditions indicated (e.g., number of days)	Some states have laws to indicate that once a custody battle has begun, it is a preferred case and must receive expediency from the court system (so as not to let it drag on for the sake of children). An intermediate code of '1' can also be an instance in which the court has special procedures for temp orders such as support/maintenance to children during divorce, or where an appeal does not stay any order given in first instance tribunal, or where the law mandates that the court make a temp order of custody
Gender Neutral	2: yes; 1: intermediate; 0: no	0: Strongly Gendered; 1: Weakly Gendered; 2: Gender Neutral.	0: no mention (or bias to mom); 1: neutral (no bias in sex); 2: can go both ways (no gender mentions at al)
Uncoded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are not captured by the coding scheme. For examples, see the sheet on boundary rules.
Coded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are captured by the coding scheme.
Total Changes	Count	Sum of uncoded and coded changes	

Table 2.12: Family Law Variables - Child Support

Child Support			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Medical or Health Care	2: yes; 1: intermediate; 0: no	0: no mention; 1: general mention; 2: specific mention (with conditions - typically specific provisions to ensure that a child will receive health insurance)	Does the law specifically contemplate medical expenses and/or health care in determination of child support?
Childcare	2: yes; 1: intermediate; 0: no	0: no mention; 1: general mention; 2: specific mention (with conditions)	Does the law specifically contemplate childcare in determination of child support?
Post-Majority Support	3: high; 2: medium; 1: low; 0: none	0: no mention; 1: general mention; 2: specific mention (beyond 18); 3: include training and/or college (beyond 19)	Does the law specifically contemplate support that extends past the age of minority? This may mean a supporting parent is required to pay for college or provide other support (if child is disabled)
Enforcement Penalties/mechanisms	*Examples in Appendix D*	code as the number of penalties/mechanisms that the law can employ (only how many added over time)	Penalties vary greatly by state. There may also be different levels to each penalty, each adding another new penalty in practice
Enforcement Body	2: yes; 1: intermediate; 0: no	0: no body mentioned; 1: implied: 2: gov't body/institution stated/created by law	Most states created a dedicated body to locate offending parents (that did not pay child support), to ensure payment of child support by enforcing various mechanisms
Jurisdiction over offenders	0: no mention	no explicit mention of jurisdictional issues as they regard child support	The last category (out of state) is enabled by the adoption of a federal uniform custody/support jurisdiction act (UCCJA - uniform child custody jurisdiction act), though each state adopted at a different time, and with some differences
	1: local venues	only a court/judge located in the offender's county/city has jurisdiction over offender (narrow jurisdiction)	
	2: State-wide venues	any court/judge in state has jurisdiction over offender (broader jurisdiction)	
	3: Inter-state jurisdiction	any court/judge in state has jurisdiction over out-of-state offender	
	4: Some degree of international jurisdiction and/or cooperation	being party to what is effectively an int'l treaty with other countries to jointly enforce support orders (broadest jurisdiction). Inclusion of even one foreign country (e.g., Canada) is sufficient to code as '4'.	

Table 2.12: Family Law Variables - Child Support Continued

Child Support			
Variable	**Coding Scheme**	**Elaboration**	**Notes**
Specific Criteria	3: high; 2: medium; 1: low; 0: none	0: no mention; 1: general or implied factors; 2: list of factors (e.g., health, education); 3: specific allocations of income based on Formula	Over time, states began to develop VERY specific guidelines to determine child support - most now employ a FORMULA for calculating the amount of support required. This leaves the judge with relatively little deference (e.g., 17% of income for first child).
Gender Neutral	2: yes; 1: intermediate; 0: no	0: Strongly Gendered; 1: Weakly Gendered; 2: Gender Neutral.	0: dad pays; 1: neutral; 2: support obligation can go both ways (no gender mentions at all)
Uniform Law?	count	number of times uniform law is adopted/amended (adoption of new uniform law =1; amendment=uncoded change)	Uniform Law is a Law that is suggested by national orgs; states are not required to adopt a uniform law, but when multiple (neighboring) states adopt a uniform law (or a similar version thereof), it allows for the facilitation of inter-state dynamics (e.g., locate debtor/obliger in different state and make them pay money they owe in alimony)
Uncoded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are not captured by the coding scheme. For examples, see the sheet on boundary rules.
Coded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are captured by the coding scheme.
Total Changes	Count	Sum of uncoded and coded changes	

2.11.2 Glossary of Search Terms to Locate Family Law in Session Laws:

Table 2.13: Glossary of Search Terms

A	B	C	D	E	F	G	H	I
Alimony	best interest	child*	divorce		family law	grandparent*	husband	infant
Annulment	Blood	custody*	domestic relations		father	guidelines		
Agreement		consanguinity	dissolution		fault*			
Affinity			dependent		Family*			
			desertion					
			domestic partnership					
J	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**
Joint (custody)			marital	nuptial*	obligor*	parent		Rehabilitation *
			marriage		officiate			Relative (blood)*
			minor					
			matrimony*					
			maintenance					
			mother					
			miscegenation					
S	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	
support			visitation	wife				
Spouse*				wedding				
spousal support				wives (f/v replacement)				
separation								
solemnize								

Note – Asterisk (*) indicates term has multiple relevant derivations, example: custody, custodian, custodial, etc.

2.11.3 Boundary Rules:

Table 2.14: Boundary Rules for Coded Data

Rule	Examples (State, Year, Page/Chapter)			
LAWS RELEVANT TO MARRIAGE, DIVORCE, ALIMONY, CUSTODY, AND SUPPORT THAT ARE EXCLUDED FROM SAMPLE/ANALYSIS (not tracked in any way in data)				
General Boundary: All Laws outside of Family Law are excluded (see more detail below)	**Exception**: laws pertaining to child support penalties (which are embedded in various legal sub fields)			
Criminal law (except early non-support or desertion of wife/children)	laws against bigamy (NY 1915, vol.2, p. 1231)	Unlawfully granting marriage or divorce (NY, 1939, p. 359)	Ordering child support if person kills one parent (ID, 1994, p.1301	
Technical changes, logistics & appropriations	filing fees for certain counties (AL 1961, vol.2, p2044)	changing the name of the UCCJA to UCCJEA (IL 2003, Ch 108)	Method of payment for child support, e.g., cash or check (AZ 1985, Ch64)	Changing "1 month" to "30 days" (NE 1987, Ch33)
Jurisdiction/powers of a state body	creation of office for location of absent parents (AL 1980, p.1469)	Child abduction acts (AL 2009, p. 339)	Jurisdiction of other admins to adjudicate family law (NY 2011, Ch 468 on support magistrates)	jurisdiction granted to which court (district and juvenile), VA 1980, CH529
Wills/inheritance/probate law	effects of divorce on inheritance (NY 1929, p. 507)			
Tax	tax exemptions lost after divorce (NY 2017, Ch131)			
State records (is the primary target of legislation the state?)	destroying records for certain counties (AL 1962 special session, p. 110)	empowering vital statistics office (AL 1992, p. 1255)	Consulting Computer registry of offenders before issuing temp vis/cus (NY 2009, Ch 295)	

Table 2.14: Boundary Rules for Coded Data Continued

Rule	Examples (State, Year, Page/Chapter)			
LAWS RELEVANT TO MARRIAGE, DIVORCE, ALIMONY, CUSTODY, AND SUPPORT THAT ARE EXCLUDED FROM SAMPLE/ANALYSIS (not tracked in any way in data)				
Parentage//Adoption	Adoption of minor children (WY 1953, Ch 122, p. 138)	Paternity actions (WY 1993, Ch 128)		
Ancillary statutes using definitions from div/mar/cus/sup	Medical Support Healthcare Access Act (AL 1994, p. 1377)	Medicaid eligibility by marital status (ID 1986, p. 74)		
Civil procedure or service of notice	service of summons out of state (NY 1930, p. 1522)	for divorce or child support (MD 2006, Ch 423)		
laws/regulations with local application (city, county)				
Torts	Recovery of gift made under promise of marriage (NY 1965, p. 1075)			
Child protection/Order of Protection/Termination of parental rights	child abandonment (WY 1955, p. 175)	informing noncustodial parent of abuse in child's adoptive home (WY 1993, c44)	*Exception*: termination of parental rights as support enforcement mechanism (AR 2001, Ch 1779; SC 1992, Ch476)	
Other	Accepting gifts as public officer from marrying couple (NY 1983, p. 1875)	That a Parent is called to military duty cannot be considered in determining custody (NY 2008, Ch 576)	Banks subject to child support enforcement procedures (IL 2004, Ch 736)	Rights pertaining to the remains of a family member (IA 2008, Ch 1051)
Not widely applicable	Testimony of Husband and wife not privileged in child injury case (ID 1990, p. 325)	Exemptions for parents who are active-duty military personnel (IA 2010, Ch1168)	No pilot programs are coded (MN 1987. ch403)	

Table 2.14: Boundary Rules for Coded Data Continued

Rule	Examples (State, Year, Page/Chapter)			
LAWS RELEVANT TO MARRIAGE, DIVORCE, ALIMONY, CUSTODY, AND SUPPORT THAT ARE EXCLUDED FROM SAMPLE/ANALYSIS (not tracked in any way in data)				
No Constitutional Proposals (only those adopted) or resolutions (though these can be used as evidence of legislative intent)	Proposal to terminate alimony upon remarriage of receiving spouse (AL 1980, Ch80, p. 874)		*BUT: const amend not adopted that indicate legislative intent are in UNCODED category (see below)*	
Foster parents//Kinship//Emancipation				
State funded aid to children	Eligibility for aid to dependent children (without parental support) (WY 1951, Ch 98, p. 149)			
Mediation or counseling in Custody/visitation or parental education upon divorce	LA 1989 (Ch188)	LA 2019 (Ch 239)	CA 1998 (C390)	
Issues relating to the privacy of family members during litigation or dispute				
No statute of limitations	Collection of child support arrears 10-year statute of limitations (AR 1989, Ch 525)	no sunset/extension clauses (KS 2003, Ch 111)		
Title IV-D	not tracking how it is administered in each state, unless this bears directly on one of the vars (e.g., enforcement agency)	But yes tracking whether or not Title IV-D has been implemented in a state (via enforcement body)	Only coding enforcement mechanisms that apply to both Title IV-D cases and "regular" cases (not tracking measures that apply only to Title IV-D cases)	
Modification of order	applies to support, custody, and alimony			
Custody Evaluators and Investigators	CA 1999 (C932)			
Fees: Marriage License, motions, attorney fees (unless they are penalty for non-payment of support)	ANY legal change relating to marriage license is coded: the form itself, requirements to receive, procedure in obtaining, etc. *Exception*: FEES AND PENALTIES pertaining to marriage license are not recorded	No filing fees of any kind (or changes therein) are recorded	No heirloom wedding anniversary certificates (TX 2005, Ch 1264)	No "Proxy Marriages" (MT 2007, C235)

Table 2.15: Identifying Uncoded Changes

Rule	Examples (State, Year, Page/Chapter)				
UNCODED CHANGES IN LAWS: RELEVANT TO MARRIAGE, DIVORCE, CUSTODY, AND SUPPORT, but not captured by coding scheme (tracked only as uncoded change in data)					
Divorce	Grounds: mental health (physician may eschew testimony IN court when they are located far away from court (NY 1966, Ch572)	Changing the powers/jurisdiction of Conciliation Bureau to not include annulment (NY 1970)			
Support: all technical changes made in one chapter will equal one uncoded change.	Failure to notify the court of address change, results in penalties (NY 1966, Ch 559)	Allowing obligor to provide good cause for default before enforcement is undertaken (NY 1980, Ch 645)	A change in the formula for child support (allowing court to consider one-off sum or income, NH 2004, Ch77)	Removal or softening of an enforcement penalty (DE, 2006, Ch 207)	Veterans Benefits and Loans (OR 1999, Ch745)
Marriage	Eliminating cut-off date for remarriage after divorce (NY 1968, Ch 584) Age of marriage (consent or no) is a coded change, but procedure to provide consent (or who can give consent) is uncoded change (but can be change in marriage license if appears therein) (IN 1974, Ch131)	Extended requirement to test for STDs prior to receiving Marriage License (NY 1977. Ch 104)	How reconciliation procedure - during divorce is actually implemented (NH, 2011, Ch106)	Specific conditions that must be met prior to remarriage - not paying child support (WI 1969, Ch116)	Eliminating cut-off date for remarriage after divorce (NY 1968, Ch 584)
Custody	Mediation cannot take place when Rebuttable presumption against Joint Custody when one parent is abuser (WI 2003, Ch 130)	How joint custody is to be carried out or split between custodial parents (LA, 1995, Ch 463)	Parenting plans tracked as uncoded change under custody (criteria) (GA 2016 C362)		
Constitutional Amendment not adopted that indicate legislative intent	Proposal to amend marriage law to include only diff sex couples (MN 2011, Ch 88)				

Table 2.15: Identifying Uncoded Changes Continued

Rule	Examples (State, Year, Page/Chapter)		
UNCODED CHANGES IN LAWS: RELEVANT TO MARRIAGE, DIVORCE, CUSTODY, AND SUPPORT, but not captured by coding scheme (tracked only as uncoded change in data)			
Confidential Marriage License (CA)	Not tracked explicitly, but as bypass to "regular" license and blood tests		
Private child support enforcement	coded as change in enforcement body (GA 2009 C344)	Use of private "collection agents" to enforce child support (OH 1995, Ch230)	
Premarital Health requirements	Any added topic to a mandatory premarital brochure/pamphlet/training is marked as an uncoded change (GA 2009 C77)		
Uniform Law Change	Particular changes are not tracked - only as uncoded change (GA 2019, C 281)		
Changes to effective date or changes to retroactive application of act, or extending sunset clause	Grounds abolished after year X still valid for divorces begun before year X (NC 1983, Ch952)	Extending date for applicability of child support guidelines	Prohibiting retroactive application of mod to child support order (NC 1987, Ch739)
An uncoded change may be relevant to more than 1 category	Allowing couples to contract for alimony in nuptial agmts: relevant to alimony and nuptial agmts (in Marriage) - both uncoded changes (NC 2013, Ch140)		
Alimony	penalties for non-payment of alimony are tracked as uncoded changes (RI 1985, Ch202, 300, 407)		

2.12 Appendix B: Shrinkage and per-State Data Mining Report

2.12.1 Shrinkage:

Table 2.16: Shrinkage Results, by Different Parameters

Method	MSE	R-squared	Lambda	Number of Covariates	Observations
elasticnet1	205.7047	0.2345	0.5637186	28	117,653
elasticnet2	198.0129	0.2632	0.1953744	37	117,653
elasticnet3	185.8516	0.3063	0.3927697	26	117,528
elasticnet4	186.5712	0.3036	0.4152877	23	117,528
bic1	205.7047	0.2345	0.5637186	28	117,653
bic2	198.0129	0.2632	0.1953744	37	117,653
bic3	185.8516	0.3063	0.3927697	26	117,528
bic4	186.5712	0.3036	0.4152877	23	117,528
cv1	204.664	0.2384	0.4680091	33	117,653
cv2	192.8694	0.2823	0.0075288	69	117,653
cv3	178.7779	0.3327	0.0023546	83	117,528
cv4	179.5086	0.33	0.0032911	72	117,528
adapt1	199.302	0.2584	0.002799	33	117,653
adapt2	192.9876	0.2819	0.2058873	59	117,653
adapt3	178.8737	0.3324	0.0406772	75	117,528
adapt4	179.5478	0.3298	0.0269425	61	117,528

Above are the results from shrinkage using different parameters and model specifications (necessary due to high collinearity and nested variables). In the Tables below, the covariates identified as predictive in each shrinkage model are listed, presenting only those covariates that consistently appeared across all parameters and specifications.

Table 2.17: Covariates Identified via Shrinkage

Legal Provisions		Controls	
Variable	**# of models in which sig.**	**Variable**	**# of models in which sig.**
Standard of living	16	Crude death rate	16
Child's wishes	16	Divorce rate	16
Support jurisdiction	16	IM rate	16
Cool off & conc.	16	Prop. non-white	16
Judicial separation	16	Marriage rate	16
Separate and apart	16	Rep. vote share	16
Common law marriage	16	No-fault divorce	15
Marital fault	12	Distance to Border	8
Support enforcement body	12	Income per capita	8
Post majority support	12	Unemployment Insurance	8
Residency req.	12	Population Density	8
Authority to solemnize	12	Jobs Available	8
Same sex mar prohibited	12	Death tax	8
Preferred status	10	Income tax	8
Medical/Health support	9	Mean for all controls	11.67
Covenant Marriage	8		
Premarital health req	8		
Support enforcement mech	8		
Gender Neutral	8		
Joint custody	8		
Custody stat. guide	8		
No-fault AND grounds	8		
Domestic violence	8		
Age req. w/consent fem.	8		
Age req. n/consent male	8		
Incest	7		
Miscegenation	7		
Mean for all provisions	6.86		

2.12.2 Availability of Per-State Data on Marriage & Divorce:

Table 2.18: Per-State Data Availability of Marriage & Divorce Counts, 1988-2007

Year	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
AL													x					x	x	x
AR													x							
AZ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
CA													x							
CO													x							
CT					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
DC			x					x				x	x	x	x	x	x	x	x	x
DE							x	x	x	x	x	x	x	x	x	x	x	x	x	x
FL		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GA													x							
IA													x	x	x	x	x	x		x
ID													x							
IL													x	x	x	x	x	x	x	x
IN			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
KS									x	x	x	x	x	x	x	x	x	x	x	x
KY													x							
LA													x							
MA													x							
MD									x	x	x	x	x	x	x	x	x	x	x	x
ME													x							
MI												x	x	x	x	x	x	x	x	x
MN													x							
MO												x	x		x	x	x	x	x	x
MS	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MT													x							
NC	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ND													x							
NE													x	x	x	x	x	x	x	x
NH								x	x	x	x	x	x	x	x	x	x	x	x	x
NJ	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x
NM													x							
NV													x							
NY										x	x	x	x	x	x	x	x	x	x	x

Table 2.18: Per-State Data Availability of Marriage & Divorce Counts, 1988-2007 Continued

Year			90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
OH			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	X
OK			x					x					x	x	x	x	x	x	x	x
OR		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PA													x		x	x	x	x	x	x
RI													x							x
SC													x							
SD													x							
TN													x							
TX	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
UT													x							
VA													x	x	x	x	x	x	x	x
VT													x	x	x	x	x	x	x	x
WA												x	x	x	x	x	x	x	x	x
WI								x	x	x	x	x	x	x	x	x	x	x	x	x
WV													x							x
WY													x							

2.12.3 *Data Sources, by State:*

Table 2.19: Sources for Per-State Data

Sate	Data Found?	**Link if found** (and included if data exist for years outside the sample)
MI	Yes	https://www.mdch.state.mi.us/osr/Marriage/MarriageTrendNumbers.asp
WA	Yes	https://doh.wa.gov/data-statistical-reports/washington-tracking-network-wtn/marriage-and-divorce-data/marriage-and-divorce-dashboard
OR	Yes	https://www.oregon.gov/oha/ph/birthdeathcertificates/vitalstatistics/pages/marriage-data.aspx
NV	Yes	https://www.clarkcountynv.gov/government/elected_officials/county_clerk/marriage_statistics.php
AZ	Yes	https://pub.azdhs.gov/health-stats/menu/index.php?pg=divorces
TX	Yes	https://www.dshs.texas.gov/vital-statistics/marriage-divorce-records/marriage-divorce-indexes
OK	Yes	https://digitalprairie.ok.gov/digital/collection/stgovpub/id/437755/rec/2
KS	Yes	https://www.kdhe.ks.gov/1399/Annual-Summary-Archives
NE	Yes	https://dhhs.ne.gov/Pages/vital-Statistics.aspx
IA	Yes	https://publications.iowa.gov/3053/
MO	Yes	https://health.mo.gov/data/vitalstatistics/data.php
MS	Yes	https://msdh.ms.gov/page/31,0,75,702.html
IL	Yes	https://dph.illinois.gov/data-statistics/vital-statistics/marriage-divorce-statistics.html#publications

Table 2.19: Sources for Per-State Data Continued

Sate	Data Found?	**Link if found** (and included if data exist for years outside the sample)
WI	Yes	https://www.dhs.wisconsin.gov/library/collection/p-45359
IN	Yes	https://www.stats.indiana.edu/about/marriage.asp
AL	Yes	https://www.alabamapublichealth.gov/healthstats/publications.html
CT	Yes	https://portal.ct.gov/DPH/Health-Information-Systems--Reporting/Hisrhome/Vital-Statistics-Registration-Reports
DE	Yes	https://dhss.delaware.gov/dhss/dph/hp/2014.html
DC	Yes	https://www.cdc.gov/nchs/nvss/marriage-divorce.htm?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fnchs%2Fmardiv.htm
FL	Yes	https://www.flhealthcharts.gov/FLQUERY_New/Dissolution/Count#
MD	Yes	https://health.maryland.gov/vsa/Pages/reports.aspx
NH	Yes	https://nhvrinweb.sos.nh.gov/nhivs_divorce_query.aspx
NJ	Yes	https://www-doh.state.nj.us/doh-shad/resources/Marriages.html
	Yes	https://collections.libraries.rutgers.edu/nj-health-statistics/statistics
NY	Yes	https://www.health.ny.gov/statistics/vital_statistics/vs_reports_tables_list.htm
NC	Yes	https://schs.dph.ncdhhs.gov/data/archivedvitalstats.cfm#marriage_divorce_rpts
	Yes	https://schs.dph.ncdhhs.gov/data/vital.cfm
OH	Yes	https://odh.ohio.gov/explore-data-and-stats/published-reports/marriagedivorcedatasourcetable
PA	Yes	https://www.health.pa.gov/topics/HealthStatistics/VitalStatistics/MarriageDivorce/Pages/marriage-divorce.aspx
RI	Yes	https://health.ri.gov/publications/bytopic.php?parm=Vital%20Records
VT	Yes	https://www.healthvermont.gov/stats/vital-records-population-data/annual-vital-statistics-reports
WV	Yes	https://dhhr.wv.gov/HSC/SS/Vital_Statistics/Pages/Vital_Statistics.aspx
VA	Yes	https://apps.vdh.virginia.gov/HealthStats/stats.htm
CA	No	
ID	No	
WY	No	https://health.wyo.gov/admin/vitalstatistics/reports/
UT	No	https://vitalrecords.utah.gov/utah-vital-statistics#marriagesdivorces
CO	No	
MT	No	
SD	No	
ND	No	https://www.history.nd.gov/archives/vitalrecords.html
MN	No	
AR	No	
LA	No	
TN	No	https://www.tn.gov/health/health-program-areas/statistics/health-data/marriage.html
KY	No	
GA	No	
ME	No	https://www.maine.gov/dhhs/mecdc/public-health-systems/data-research/data/index.html
SC	No	https://scdhec.gov/vital-records/sc-vital-records-data-and-statistics
MA	No	https://www.mass.gov/vital-records-data-and-publications
NM	No	https://www.nmhealth.org/about/erd/bvrhs/vrp/

2.13 Appendix C: Weights

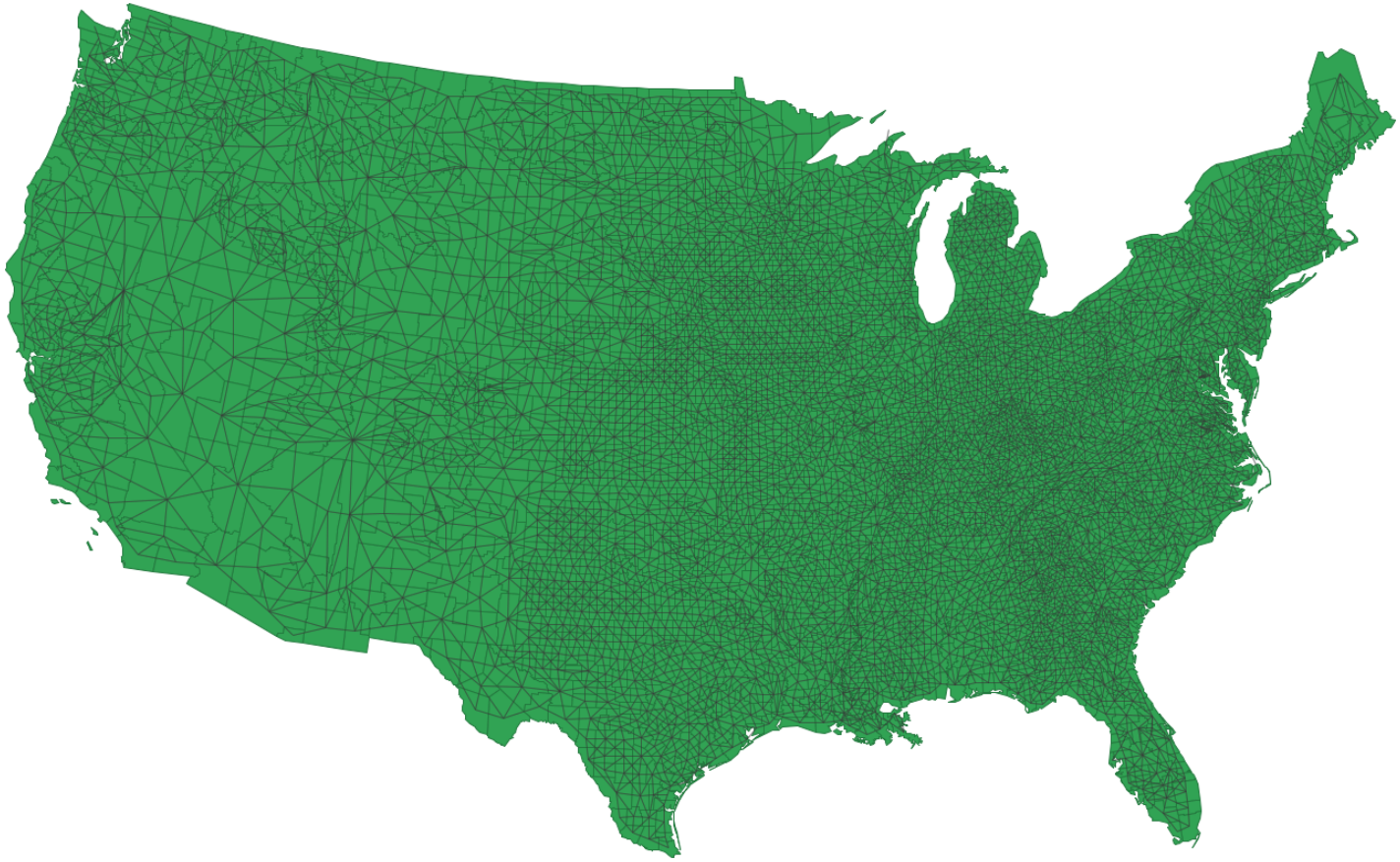
Table 2.20: Weights Statistics for 3,084 Continental U.S. Counties

Weight	Min. Neighbors	Max Neighbors	Mean Neighbors	Median Neighbors	Std. Dev.	% Non-Zero	Counties
Queen 1	1	14	5.89	6	1.4	0.19%	3,084
Queen 2 (inc. lower order)	2	40	18.44	19	4.06	0.60%	3,084
Nearest Neighbors=5	5	5	5	5	0	0.16%	3,084
Nearest Neighbors=6	6	6	6	6	0	0.19%	3,084
Nearest Neighbors=7	7	7	7	7	0	0.23%	3,084
Block Weight: State	0	253	95.63	87	56.82	3.10%	3,084
Distance Band (minimal w/no isolates)	1	85	37.41	37	19.21	1.21%	3,084

When conducting a sensitivity analysis for choice of weight, there are no optimal options, as all weights exhibit certain limitations. A number of baseline rules can be applied. First, isolated units (counties) with no neighbors are to be avoided, as they can then not be incorporated into spatial analysis. This immediately removes the State Block Weight, which is undesirable for other reasons as well – it does not include neighbor counties from other states. Too many, or too few neighbors, i.e., very large very small standard deviations are undesirable for the analysis conducted herein, as the unique geographic location of a county should be incorporated into the analysis. This would suggest that K nearest neighbors weights are not desirable. The remaining weights are queen 1, queen 2 (including lower order), and a minimal distance band (~15k feet) to ensure no isolates.

Map 2.1 includes a connectivity graph of a queen 1 weight: a connecting line between the centroid and the centroid of each neighbor, where a neighbor is defined according to queen 1 designation (every county geographically contiguous to the focal county is considered a neighbor).

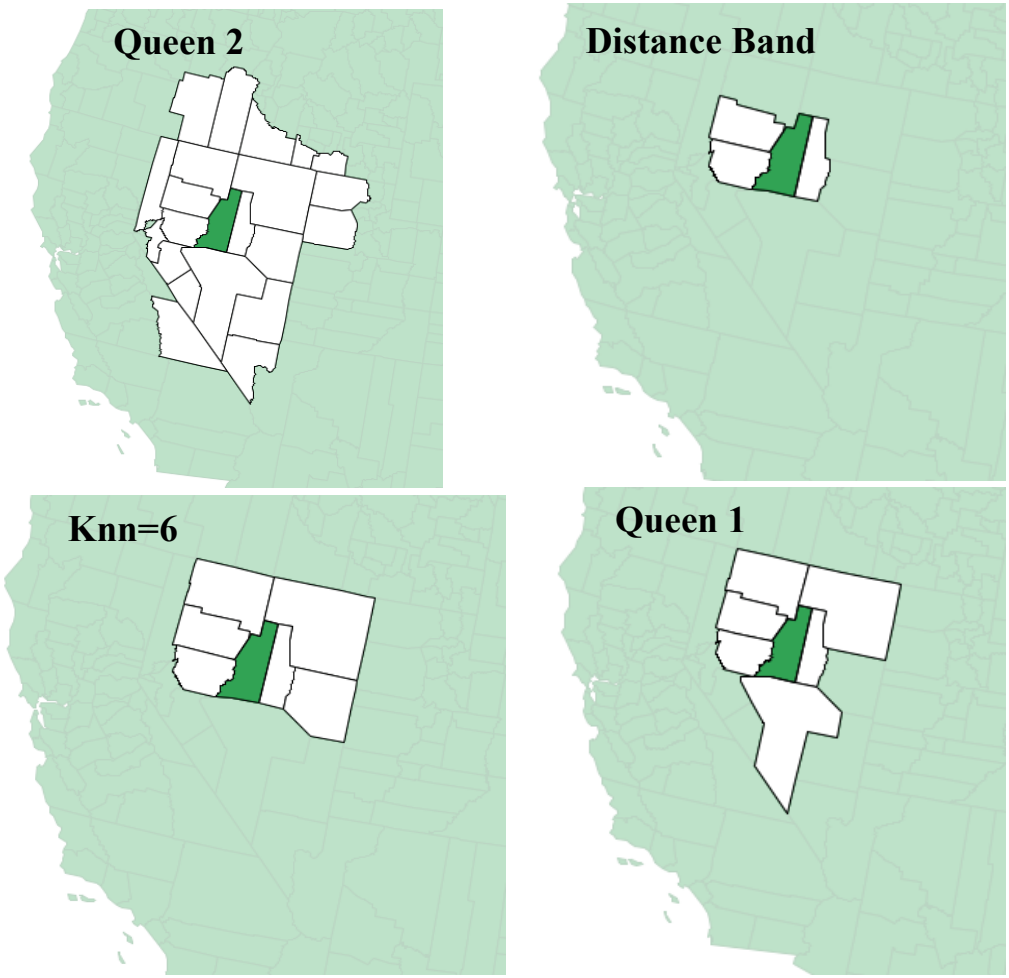
Map 2.1: Queen 1 Connectivity Graph, 3,084 Continental U.S. Counties



Source – Messner et al 2000.
Note – This Map depicts a connectivity graph of all continental U.S. counties, where the geographic centroid of each county is connected to the centroid of its neighbor counties, according to a Queen 1 weight logic.

As can be seen in Map 2.1: Queen 1 Connectivity Graph, the size of counties is highly variable with western counties being larger. Counties in western states (WA, OR, CA, NV, AZ, NM, UT, WY, ID, CO, ND, and SD) have a mean size of 2,467.9 square miles, compared to the remaining counties, mean=682.7 square miles (t-value=93.55, p<0.000). The differences remain significantly different and pronounced when comparing county size by census region (F-test=6880.14, p<0.000). As such, applying different weights across all US counties will yield very different results.

Map 2.2: Different Weights for Lander County, Nevada



Map 2.2: Different Weights for Lander County, Nevada demonstrates the dramatic difference in weights. The distance band is especially undesirable for western states as is includes too few states. Conversely, the queen 2 weight includes too many neighbors – 21 neighbors extending to California, Oregon, Idaho, and Utah. The interaction being modeled here is important to remember: the degree to which legal and population dynamics are spatially autocorrelated. A queen 2 weight is thus introducing units that are too distant in this respect. Pursuant to Tobler's first Law, all counties are related to each other, but the closer counties exhibit a closer relation. This means some theoretical threshold must be adopted to choose a weight. No such optimal threshold exists, but in this case, a queen 1 weight approximates it due to the number of neighbors it generates across the continental United States, and given the interactions modeled.

2.14 Appendix D: Child Support Enforcement Mechanisms

The Following includes a list of the child support enforcement mechanisms identified in State Law, including examples for the unique mechanisms. The list attempts to list unique mechanisms, though there is a certain degree of overlap depending on the level of specificity. Examples are not provided for Enforcement mechanisms that are utilized by most states.

Table 2.21: Child Support Enforcement Mechanisms Identified in Session Laws

#	Enforcement Mechanism	Examples (State, Year, Page/Chapter)
1	Fee or monetary penalty	
2	Lien on Obligor's property	(RI 1979, Ch191)
3	Denying passport for nonpayment of support	(MO 1997, SB361)
4	revocation of driver's license or registration	(VA 1995, Ch 595; CO 1995, Ch 159)
5	garnishing wages	
6	garnishing wages with employer liability AND/OR Make request of obligor's employer (gov't or private) to provide information on obligor/employee (e.g., when employee-obligor was hired or fired)	(OR 1993, Ch753)
7	Obligor prevented from receiving state grants or loans or bid on state contracts	(TX 1993, Ch 816)
8	ineligibility of a delinquent child support obligor to receive state-funded or state-administered student financial assistance	(TX 2003, Ch 437)
9	Withholding from Trust Fund	(RI 1979, Ch191)
10	Withholding from bonuses or commissions	(TX 2007, Ch 972)
11	Levy on bank account of dead Obligor	(TX 2011, Ch 508)
12	Withholding from severance pay	(TX 2007, Ch 972)
13	suspend professional or occupational license - may include commercial driving and fishing, medical license, legal bar, etc. May also include liquor license	(NJ 1996, Ch6; OR 1995, Ch620)
14	Placing restrictions or levy with financial institutions and accounts	(KY 1998, Ch255; OK 1997, Ch402)
15	require security deposit/bond	
16	suspend license to carry weapon	(KY 1998, Ch 417)
17	suspend recreational/sporting license	(WA 2000, Ch 86 - Horse Racing; WA 2013, Ch 102 - Fishing and Hunting License)
18	Lack of support as grounds for divorce	(AR, 1953, ch161)
19	restrictions on relocation/travel	
20	Court ordered medical examination of obligor	(AR 1951)
21	disclosure of financial information (by bank, by obligor, by tax agency, etc.	(VA 1974, Ch 413; NE 1976, Ch926; OK 1993, Ch307)

Table 2.21: Child Support Enforcement Mechanisms Identified in Session Laws Continued

#	Enforcement Mechanism	Examples (State, Year, Page/Chapter)
22	an order to sell certain assets/property (or unclaimed property) to provide support	(NV 2019, Ch 501; NC 1998, Ch176)
23	Conduct investigation (by enforcement body) to determine obligor's status/ability to pay	(OH, 1985, Ch251)
24	reimbursing/paying state welfare body	(TN 1951, C257)
25	reimbursing/paying other state (reciprocal state)	
26	garnishing income from unemployment benefits	(TN 1987. Ch 303; OH 1985, Ch251)
27	Reporting obligor to consumer reporting agencies or financial institutions (credit score influenced)	(OH 1993, Ch72)
28	garnishing income from prison income	(VA 1973, Ch114)
29	Participate in rehabilitation/training program RE parenting/support	
30	Court ordered medical support	
31	reimburse the state agent providing welfare to obligee	(TN 1976, Ch 754; KS 1973, Ch 189)
32	tax returns garnished (federal and/or state)	
33	Misapplying funds meant for child support (by obligee)	(FL 1961, Ch 216)
34	include SSN of obligor so as to cross reference status across state/gov't records	
35	Automatic, immediate, or expedited process to garner wages or create support order	(NC 1993, Ch517; OK 1989, Ch362; IN 1990, Ch155; RI 1990, Ch478)
36	*ex parte* orders to create/modify support order	(VA 1991, Ch183)
37	disclose to potential employer that child support is due	(VA 1993, Ch 165)
38	withholding from prizes such as lottery or gambling	(CO 2007, Ch 379)
39	Work Release Program: Release from jail only on days that person can work, to pay support	(VA 1956, Ch688; TX 1977, Ch 827; NE 1975, Ch212; IN 1963, Ch339)
40	Ordering payment of attorney fees	
41	Shaming: Publication of obligor/delinquent's names in local media outlets or posters (e.g., most wanted list)	(CA 1984, C1702; OH 1991, Ch156; OK 2011, Ch4; PA 1993, Ch62)
42	required to work in "public works" program (e.g., cleaning garbage from highways) in addition to regular job - "work" as punishment, not for additional money	(TN 2003. Ch 189)
43	Retroactive payments of support	(TN 2003, Ch361; UT 1987, Ch 117; NC 2014, Ch77; RI 1981, 320)
44	requiring obligor to provide info on new domicile/job/salary	
45	Continued payment of support even after child majority/death/emancipation if arrearage exists	(AR, 1989, Ch 507)
46	Child support can be taken out of Workers compensation or unemployment benefits	(CT 2017, Ch 27)
47	required to pay child support when incarcerated	(TN 2017, Ch 300; CT 2017, Ch 57)
48	Obligor required to take out life insurance to ensure future alimony/child support, or lump sum payment upon death of obligor	(VA 2017, CH 797; KY 1972, Ch182; OR 1981, Ch775))

Table 2.21: Child Support Enforcement Mechanisms Identified in Session Laws Continued

#	Enforcement Mechanism	Examples (State, Year, Page/Chapter)
49	employ law enforcement agency to assist in collecting support/investigating	(CO 1971, Ch 128; AR 1989, Ch 808)
50	Court may appoint a trustee to manage family assets to ensure proper support for Children	(OR 1971, Ch280)
51	No visitation rights if obligor does not pay support	(WA 1973, Ch157)
52	termination of parental rights of non-custodial obligor	(AR 2001, Ch 1779; SC 1992, Ch476)
53	required participation in work search/training program, or may result in criminal liability	(TN 1967, CH 230; CO 1997, Ch 236; OH 1985, Ch251; SD 1994, Ch201)
54	Delinquent Obligor to pay from any type of award or settlement received via verdict, insurance settlement, etc.	(PA 1997, Ch58; RI 1997, Ch170)
55	Enter order of protection (which can include parent clean, visit, stay away, etc.)	(TN 1967, Ch 230)
56	Bar to receive marriage license	(UT 1969, Ch 73; MT 1963, C232 - repealed 1979, Ch124; WI 1971, C20; ND 1973, Ch122; IN 1941, Ch31 - repealed 1984, Ch131)
57	Statewide employment registry to determine if obligor is employed and when and to keep record of support	(GA 1993, Ch614)
58	contempt of court	
59	Issuing an injunction against Obligor	(NC 1967, Ch1153)
60	Requirements (or liability) placed on Insurer when beneficiary owes child support payments	(NV 2019, Ch 262)
61	Obligor in arrears cannot file wrongful death suit	(RI 1994, Ch180)
62	Delinquent obligor's freedom of movement is restricted	(PA 1953, Ch95)
63	When an adult applies to adopt a child, their history of support payments (and delinquency) can be considered	(SD 1990, Ch186)
64	Direct deduction of support from financial institution (e.g., bank)	(OH 1983, Ch331)
65	misdemeanor/jail/criminal non-support offense	(MT 2003, C286)

2.15 Appendix E: Changes to Family Law, by State

Table 2.22: Changes to Family Law, by State 1950-2019

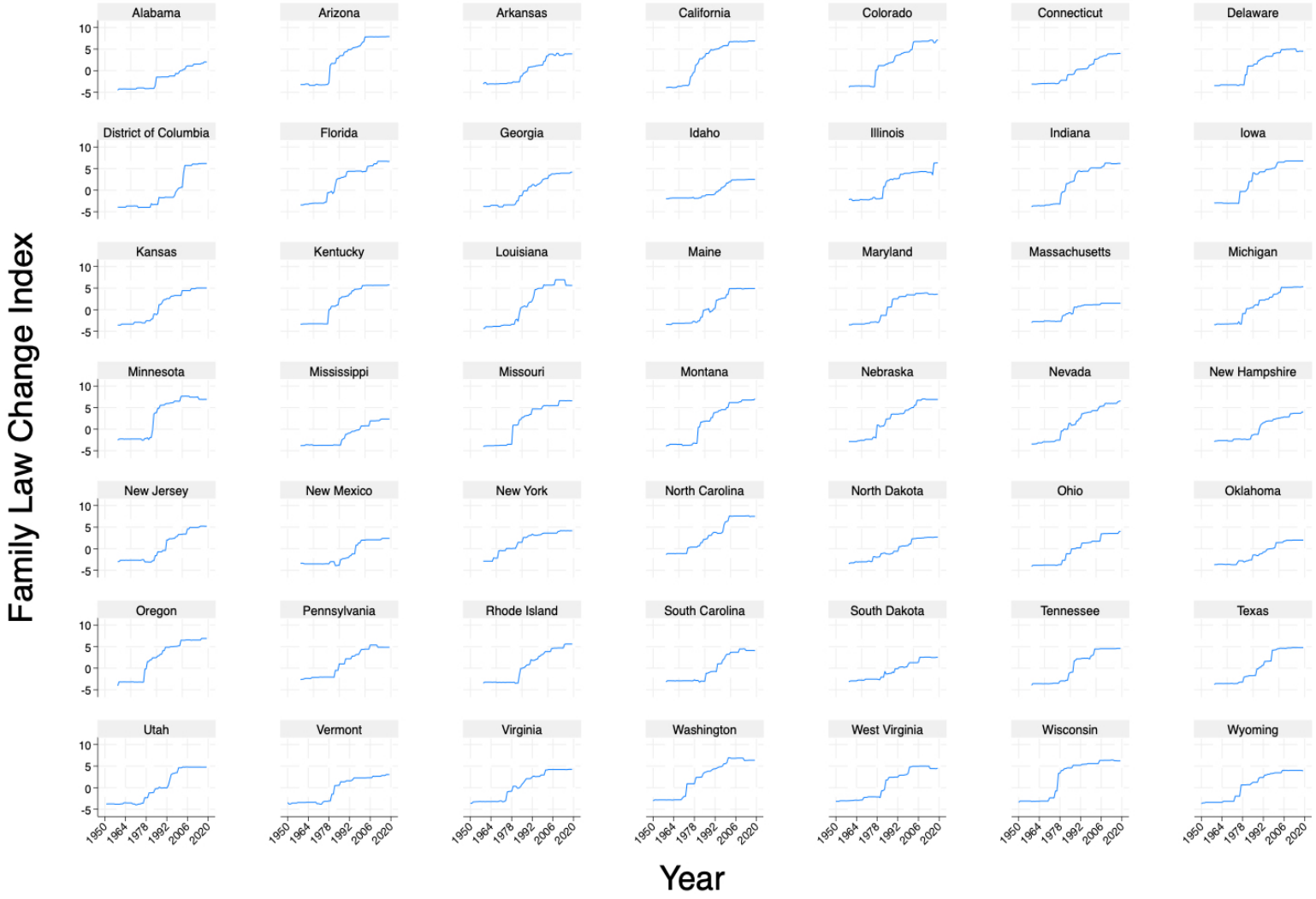
	Changes Before No Fault						Changes After No Fault						
State	Total Changes	Alimony	Divorce	Marriage	Child Custody	Child Support	Total Changes	Alimony	Divorce	Marriage	Child Custody	Child Support	No Fault Enacted	Total Changes
Alabama	12	1	4	4	1	2	73	9	4	15	13	32	1971	85
Arizona	18	0	3	8	0	7	179	14	13	26	32	94	1973	197
Arkansas	107	6	7	25	5	64	75	5	4	18	13	35	1991	182
California	73	11	14	23	2	23	368	36	21	96	59	156	1969	441
Colorado	24	0	6	5	2	11	180	13	12	30	22	103	1971	204
Connecticut	30	0	9	11	0	10	127	8	9	36	20	54	1973	157
Delaware	8	0	2	1	1	4	129	16	18	30	14	51	1968	137
District of Columbia	19	1	3	8	1	6	100	4	9	24	15	48	1977	119
Florida	32	2	10	9	1	10	178	15	7	36	28	92	1971	210
Georgia	57	4	12	27	6	8	204	10	5	39	33	117	1973	261
Idaho	14	0	1	6	0	7	97	7	7	29	16	38	1971	111
Illinois	129	12	22	39	20	36	148	14	18	24	27	65	1985	277
Indiana	34	0	5	16	0	13	178	6	12	46	26	88	1973	212
Iowa	10	1	1	7	0	1	151	9	19	27	28	68	1970	161
Kansas	23	3	4	12	0	4	110	2	15	19	19	55	1969	133
Kentucky	22	1	3	6	0	12	139	10	15	31	18	65	1972	161
Louisiana	74	4	12	28	6	24	197	20	11	44	22	100	1979	271
Maine	21	2	2	2	1	14	126	13	7	23	19	64	1973	147
Maryland	66	7	16	15	2	26	104	3	13	14	11	63	1983	170
Massachusetts	46	7	7	12	0	20	78	4	10	15	11	38	1975	124
Michigan	56	4	8	12	8	24	151	2	10	41	11	87	1972	207
Minnesota	42	4	3	13	4	18	229	13	17	36	37	126	1974	271
Mississippi	24	0	2	11	3	8	114	1	13	12	12	76	1976	138
Missouri	14	1	0	3	0	10	165	10	15	21	29	90	1973	179
Montana	40	0	8	23	0	9	142	9	20	31	26	56	1973	182
Nebraska	27	1	2	10	1	13	154	7	23	23	25	76	1972	181
Nevada	28	1	2	14	1	10	214	18	11	68	34	83	1967	242
New Hampshire	29	2	10	7	1	9	130	16	6	37	19	52	1971	159
New Jersey	25	1	1	14	0	9	155	25	9	34	23	64	1971	180
New Mexico	16	0	2	7	0	7	99	7	4	15	18	55	1973	115
New York	48	3	14	16	4	11	158	15	19	66	10	48	1967	206
North Carolina	33	3	7	11	2	10	179	16	13	39	23	88	1967	212
North Dakota	29	0	6	9	3	11	142	4	8	30	20	80	1971	171
Ohio	59	9	9	12	11	18	112	6	8	13	11	74	1981	171
Oklahoma	2	0	0	1	0	1	218	11	18	35	32	122	1953	220
Oregon	49	3	10	18	4	14	216	21	19	38	23	115	1971	265
Pennsylvania	47	3	3	17	3	21	109	12	13	14	17	53	1980	156
Rhode Island	16	1	7	1	0	7	140	16	13	0	22	89	1975	156
South Carolina	39	1	5	23	2	8	122	12	4	15	19	72	1979	161
South Dakota	60	3	8	19	8	22	89	2	8	9	21	49	1985	149
Tennessee	53	2	12	15	0	24	210	22	22	47	36	83	1977	263
Texas	22	0	5	6	1	10	201	12	13	64	12	100	1969	223
Utah	81	2	12	18	5	44	153	12	8	36	27	70	1987	234
Vermont	33	3	6	7	2	15	119	14	9	25	11	60	1972	152
Virginia	68	3	11	20	0	34	238	27	18	38	22	133	1975	306
Washington	31	0	4	10	0	17	163	12	14	24	19	94	1973	194
West Virginia	37	2	7	16	1	11	163	11	9	24	21	98	1977	200
Wisconsin	70	8	13	19	6	24	84	7	8	20	15	34	1977	154
Wyoming	22	3	1	6	1	11	86	2	9	9	14	52	1977	108
Mean	39.16	2.55	6.55	12.69	2.43	14.94	150.94	11.43	12.04	30.33	21.53	75.61	1973.92	190.10
Yearly Mean	1.00	0.07	0.17	0.33	0.06	0.38	3.87	0.29	0.31	0.78	0.55	1.94		4.87

Source – Original data collected by author from State Session Laws.

Table 2.22 lists changes recorded per state, per topic. These are split into pre- and post-no-fault divorce. The total changes do not necessarily sum to the number of changes per topic, as the total changes include uncoded changes, whereas changes by topic include only coded changes (see Appendix A for more detail). The last column includes all changes made before and after no-fault divorce. The year quoted for no-fault divorce is based on the method constructed by Vlosky and Monroe (2002). The list includes only the lower 48 states and the District of Columbia.

Figure 2.18 includes the change in Family Law Index, by state (see FN72 for more detail on how the index was constructed). As is plainly evident, Family Law change looks very different for each state, further demonstrating the rich interstate variance exhibited in the data. Indeed, the function of change differs among states, so that states exhibit convex, concave, stepwise, and linear change functions. Each implicating a different timing of changes and mode of legislative change.

Figure 2.18: Family Law Index Changes, by State 1950-2019



Source – Original data collected by author from State Session Laws.
Note – This figure presents the Family Law Index, 1950-2019, for each state individually, demonstrating the rich variation in Family Law, as well as the manner in which it evolved in different states.

2.16 Appendix F: Background and Expected Association for all Legal Provisions

2.16.1 Marriage: Minimum Age at Marriage with Consent – Female

Every jurisdiction sets minimum age requirements for marriage, including different age requirements for marriage with and without the consent of a parent or legal guardian, the latter typically corresponding to an older age.[76] The age requirement is differentiated by gender, though this began to change in the mid 1970s. This predictor varies in the sample from 12 to 21 years and is coded as a continuous variable.

Minimum age requirements are directly tied to the cost of marriage (Becker 1991), as they regulate entry into marriage (Hasday 2014; Katz 2015), with one of the considerations being fertility. Indeed, the creation of a separate age requirement with consent – typically including a specific provision allowing underage marriage when the female seeking marriage is pregnant (Syrett 2016) – suggests that the state is signaling its view on the appropriate timing for childbearing, but hedging its restriction to include pregnant teens. Empirically, raising the age of marriage leads to fewer marriages, though couples do take advantage of inter-state variation by marrying in a jurisdiction with lower age requirements (Blank, Charles, and Sallee 2007).[77]

Therefore, an increase in the minimum age is believed to associate with a later decrease in GFR. The effect of a neighbor state increasing its age requirement would be opposite, as this would render the possibility of marrying in a different jurisdiction more costly, encouraging couples to marry in-state, and reproduce.

2.16.2 Marriage: Covenant Marriage

Born of a desire to strengthen family ties and combat rising divorce rates, Covenant Marriage is a unique alternative to 'standard' marriage that makes it a little harder to get married, and much harder to get divorced (Nock et al. 2003). Covenant marriage was first introduced in Louisiana in 1997, and was later taken up in Arizona and Arkansas, but not by any other state despite being introduced on the floor of roughly 30 legislators, and has failed to gain any

[76] In some states, there is an exception to the minimum age of marriage with consent, indicating that a woman may marry if she has not yet attained the minimum age if she is pregnant. Often, these exceptions must be approved by a judge and may have no bottom limit to the age under which a woman is not legally eligible to marry (e.g., see: Act of Mar 9, 1977, Ch. 122, U.T. Laws, 562).

[77] Raising the minimum age of marriage has also been shown to associate with lower teen birth rates (Lepage 2022).

national traction (Spaht 2004). Only about 5% of marrying couples apply for Covenant Marriage (Su, Ledermann, and Fincham 2023). Nevertheless, there is evidence to suggest that divorce rates are lower among couples married via Covenant Marriage, though the bias of selection into Covenant Marriage may play a role as well (Nock, Sanchez, and Wright 2008).

Covenant Marriage can be viewed from the microeconomic perspective as a cost inducing mechanism. The added costs to marriage are far overshadowed by the added costs to divorce (Nock et al. 2003), suggesting that Covenant Marriage both lowers the probability of divorce and extends the duration of marriage, and thus is expected to have a positive association with GFR. Moreover, when the probability of divorce decreases, both spouses have an incentive to invest more relationship-specific capital (Donni 2014; Oosterbeek, Sonnemans, and Van Velzen 2003), which is thought to associate with higher fertility (Becker 1991: 355).

But Covenant Marriage is more than a cost altering mechanism with respect to marriage and divorce; it is a script changing law. The law of Covenant Marriage does not only seek to turn back the clock on marriage law (Grossman and Friedman 2011), but introduces new measures such as premarital counseling (Spaht 2004), and establishes mechanisms to recast marital gender roles in a more traditional form (Baker et al. 2009; Nock, Sanchez, and Wright 2008). The signal sent by the legislator is very strong, striking directly at the heart of the marital bargain. That only three states have adopted this unique legal institution is perhaps the best evidence of how strong the signal really is (within those states), indicating that a shift to Covenant Marriage may be explained via the socio-cultural perspective as well. Therefore, a shift to Covenant Marriage[78] is expected to associate with a later increase in GFR. The effect of a neighbor state adopting Covenant Marriage is expected to have a positive effect on GFR within the focal state, similar to the effect of a neighbor raising to cost of divorce.

2.16.3 Divorce: Residency Requirements

This seemingly mundane requirement – the period of time an applicant must reside within a jurisdiction before becoming eligible to file for divorce – has a fascinating history that demonstrates the concept of "divorce mills" (Riley 1997). Thus, long before Elvis was marrying

[78] There is no '1' designation for Covenant Marriage. This variable was coded with a 0, 1, and 2 scheme to leave open the possibility of a '1' designation for states that were in the process of transitioning into or out of Covenant Marriage. No such states were identified, and thus no states were given the '1' designation (the closest example was South Carolina, where Covenant Marriage passed in one legislative house and thus remained for a time, until eventually dismissed).

and divorcing couples in Nevada, states were tailoring their residency requirements to attract 'divorce tourism' (Bergeson 1935; Hartenstein 2023). Indeed the first divorce mill was Indiana, not Nevada (Hartog 2002). Divorce mills (generating 'migratory divorce'), were made possible by two US Supreme Court cases[79] that reaffirmed the application of the "Full Faith and Credit Clause" of the Federal Constitution,[80] meaning that states had to recognize and validate a divorce granted in a different U.S. state. Over time, residency requirements dropped from a mean of 13.1 months in 1950, to 6.4 months in 2019. Interstate variance was pronounced as this requirement was as high as 36 months in some states (e.g., Massachusetts and Connecticut in 1968) and as low as 6 months in others (Vermont in 1968) within the same region. This predictor was coded as a continuous variable recording the number of months the law requires an applicant to have been domiciled in the state to be eligible for divorce.

Residency requirements are directly linked to the cost of divorce.[81] As mentioned above, when divorce is costlier, the expected result is an increase in fertility. The microeconomic perspective is thus intuitive and direct. However, given the background of divorce tourism, there is also a socio-cultural component to consider. By raising residency requirements in a diverse interstate environment, where some jurisdictions have dramatically shorter residency durations and divorce tourism was frequently utilized (Grossman and Friedman 2011), states were sending an important signal: that they were holding fast to a particular normative view of divorce, possibly even adopting a more stringent view. This may have influenced both attitudes and practices regarding fertility within the regulated community.

Therefore, residency requirements are expected to positively associate with a later increase in GFR. Given the unique dynamic of divorce tourism, a neighbor state's requirements

[79] These are the notorious Williams I and Williams II cases (Williams v. North Carolina, 317 U.S. 287 (1942); and Williams v. North Carolina, 325 U.S. 226 (1944)), in which the State of North Carolina prosecuted a couple that travelled to Nevada to evade the then stringent divorce laws of the state. The couple was convicted in a North Carolina court of bigamy (as both were married prior), and on appeal to the US Supreme Court, the conviction was reversed as it was held that North Carolina was bound by the Full Faith and Credit Clause to recognize the public Law of Nevada, and thus validate the divorce. After two years, the case returned to the Supreme Court, which then affirmed the conviction based on the fact that the defendants did not properly establish their domicile in Nevada. For more background on the Williams cases, see: (Baer 1949). For a more comprehensive background on divorce tourism and its brief foray into the international sphere, see: (Grossman and Friedman 2011: 169-172).

[80] U.S. Const. art. IV, § 1, cl. 1.

[81] Note that residency requirements remain important even after the shift to a no-fault divorce regime as even the laxest no-fault law cannot be enforced when there is no jurisdiction over the applicant.

are expected to have a similar effect, that is, decreasing residency requirements across state lines should offer a cheaper alternative to divorce and thus associate with lower GFR.

2.16.4 Child Custody: Child's Wishes

In making a custody determination, judges are guided by the notoriously vague and indeterminable legal standard 'best interest of a child', that aims to find an optimal solution where there isn't one (Mnookin 2014; Mason 2011; Friedman 2004; Charlow 1987). Adoption of this standard was part of a larger transition that placed a greater emphasis on children and their needs (Ortega-Gaspar, Moreno-Mínguez, and López-Narbona 2022; Hasday 2014; Grossman and Friedman 2011), which corresponds with the transition to the "Child-King era" envisioned as part of the second demographic transition (R. Lesthaeghe 2014).[82] A simple yet crucial aspect of this transition was whether Family Law reserved room for children's wishes when determining custody. Consideration of a child's wishes went from a state of nonexistence in 1950 to near-complete[83] nation-wide adoption today. This predictor ranges from 0-2, where '0' indicates no consideration of a child's wishes, '1' indicates some intermediate consideration or consideration with exceptions, and '2' indicates full consideration.[84]

This legal predictor can be understood to exert its effect through all three of the theoretical frameworks presented here, resulting in competing outcomes. Consideration of a child's wishes presents new costs, thus raising the price of divorce. While this is but one factor added to a long list of factors (Charlow 1987), it introduces a new party into the dissolution process, and necessitates the creation of other mechanisms such as Guardian Ad Litem[85] and child custody evaluators (Atwood 2003).[86] Under the microeconomic approach, increasing the price of divorce is expected to associate with a later increase in GFR.

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[82] For a different view that criticizes the Federal Government's approach to sexual expression at the expense of children and their welfare, see (Alvaré 2018).

[83] For Example, in New York this consideration is borne of case-law and is not officially enacted, see: Gant v. Higgins,111A.D.2d316(N.Y.App.Div.1994).

[84] These laws typically set out certain age presumptions guiding judges as to how old a child must be to voice an opinion regarding custody arrangement post-divorce. The law also differentiates between whether a judge may or must consider the child's wishes in their deliberations (Atwood 2003).

[85] Guardian Ad Litem (GAL) is an attorney representing the child(ren) of a separating couple. The need for GALs arose during custody litigation, where it appeared the interests of the children were being overshadowed by the parents' interests. All states include legislation recognizing GALs or child representatives, that are usually appointed by judges when the need arises (Rio and Bouchard 2003; Playton 2022).

[86] Child Custody Evaluators are mental health experts who perform an in-depth analysis of the child and their environment to provide the judge with a recommendation on what custody arrangement would be in the best interest of the child (Galatzer-Levy, Kraus, and Galatzer-Levy 2009).

A similar outcome is expected when examining the effects of uncertainty. Ostensibly, introducing a new consideration into the equation would bring about more uncertainty. However, the ample evidence indicating that mothers are more likely to be primary caregivers (Ice 2023; Negraia, Yavorsky, and Dukhovnov 2021; Negraia, Augustine, and Prickett 2018; Bianchi 2011), alongside inherent judicial biases in favor of awarding custody to women (Costa et al. 2019; Donohue 2019; Galatzer-Levy, Kraus, and Galatzer-Levy 2009; Nemechek 1997),[87] may suggest the opposite conclusion if children are more likely to indicate a preference for mother rather than father, though this may be a function of the child's age.[88] If this is the case, the expectation would be that higher certainty would associate with increased GFR.

The socio-cultural perspective predicts a different outcome. In adding children's preferences to the custody determination – even with the new costs associated thereto – the state is signaling its investment in children, and is thus presenting a new quality-quantity tradeoff (Becker 1991), leaning towards higher quality, lower quantity. Legislators have amplified this signal as the centrality of children is repeatedly emphasized in unequivocal terms, but only starting in the 1980s, and often later (Atwood 2003; Nemechek 1997).[89] Therefore, the

[87] But, for an opposing view, see: (Jacobs 1996). Eventually, this is an empirical question that can be captured in part by the results. That is, if consideration of child's wishes creates more uncertainty, then the association with GFR may be negative.

[88] Older children in their teenage years may present stronger preferences for father rather than mother as a form of rebellion against the typical primary caregiver (mother) (Weinrib 2023). Note that this is in line with the tender years doctrine (presumption for sole maternal custody when the child is very young), which though repealed by all states, still creates enduring biases among judges (Weinrib 2023; Galatzer-Levy, Kraus, and Galatzer-Levy 2009).

[89] For some examples, see: Act of April 2, 1980, Ch. 26, P.A. Laws, 63 ("The family is the basic unit in society and the protection and preservation of the family is of paramount public concern. Therefore, it is hereby declared to be the policy of the Commonwealth of Pennsylvania to: … (4) Mitigate the harm to the spouses and their children caused by the legal dissolution of the marriage... "; Act of July 8, 1999, Ch. 523, O.R. Laws, 1256 ("In formulating and implementing policies and rules that may have significant impact on family formation, maintenance and general well-being, all state agencies in Oregon shall, to the extent permitted by law, assess such measures in light of the following considerations: … (2) If the action strengthens or erodes the authority and rights of the parents in the education, nurture and supervision of their children…"); Act of May 31, 2007, L.B. 554, N.E. Laws, 1421 ("The Legislature further finds that it is in the best interests of a child to have a safe, stable, and nurturing environment. The best interests of each child shall be paramount, and consideration shall be given to the desires and wishes of the child if of an age of comprehension regardless of chronological age, when such desires and wishes are based on sound reasoning"); Act of October 20, 2015, Ch. 278, N.C. Laws, 1336 ("It is the policy of the State of North Carolina to: (1) Encourage focused, good faith, and child-centered parenting agreements to reduce needless litigation over child custody matters and to promote the best interest of the child…"); Act of May 6, 1975, Ch. 536, M.T. Laws, 1514 ("This act shall be liberally construed and applied to promote its underlying purposes, which are to: … (4) mitigate the potential harm to the spouses and their children caused by the process of legal dissolution of marriage…"); Act of May 29, 2007, Ch. 264, G.A. Laws, 554 ("The General Assembly of Georgia declares that it is the policy of this state to assure that minor children have frequent and continuing contact with parents who have shown the ability to act in the best interests of their children and to encourage parents to share in the rights and responsibilities of rearing their children after the parents have separated or dissolved their marriage or relationship."); Act of July 1, 1992, Ch. 46, C.A. Laws, 160 ("In implementing this guideline, the courts shall further

expectation is that consideration of child's wishes will eventually change attitudes regarding numeracy of children, so that it will associate with a later decline in GFR. In any event, the effects of a neighbor state should be similar, but of a smaller magnitude, as the expressive signal sent by an external jurisdiction will be diminished (McAdams 2015).

2.16.5 Child Support: Enforcement Mechanisms

The history of child support law is a fascinating tale of cat and mouse, which began in the 1930s (Grossman and Friedman 2011). The cat is (typically) the state via mother, and the mouse is (typically) father, also known as the "deadbeat dad" (Dinner 2015), because historically, the most effective tool at dad's disposal was to abandon mom and children (Cott 2002). The main thrust of this subset of Family Law is to "catch" dad to secure a healthy standard of living for children following a divorce (Cammett 2022), so that the state may avoid dipping into its own coffers (Thies and Winn 2023). This is explicitly recognized by states in their legislation,[90] in an effort to privatize dependency (Cossman 2005). The application of child support legislation has important economic consequences, and is severely criticized, particularly with respect to the

adhere to the following principles: … (E) This guideline seeks to place the interests of children as the state's top priority…").

[90] For some examples, see: Act of May 7, 1979, Ch. 612, M.T. Laws, 1674 ("WHEREAS, it is the responsibility of the state through the department of revenue to limit the expenditure of public assistance funds, whenever possible, in order that such funds not be spent if there are private funds available, or which can be made available by judicial process or otherwise, to partially or completely meet the financial needs of the children of this state. The failure of parents to provide adequate financial support and care for their children is a major cause of financial dependency and a con- tributing cause of social delinquency."); Act of July 17, 1979, Ch. 421, O.R. Laws, 514 ("It is the public policy of this state that dependent children shall be maintained, as much as possible, from the resources of the parents, thereby relieving or avoiding, at least in part, the burden often borne by the general citizenry through public assistance programs."); Act of June 9, 1995, Ch. 354, O.K. Laws, 2060 ("The Legislature finds and declares that child support is a basic legal right of the state's parents and children, that mothers and fathers have a legal obligation to provide financial support for their children and that child support payments can have a substantial impact on child poverty and state welfare expenditures. It is therefore the Legislature's intent to encourage payment of child support to decrease overall costs to the state's taxpayers while increasing the amount of financial support collected for the state's children by authorizing the district courts of this state and the Department of Human Services to order the revocation or suspension of an occupational, professional or business license or the driving privilege of or to order probation for a parent who is in noncompliance with an order for support for at least ninety (90) days"); Act of June 2, 1979, Ch. 599, N.V. Laws, 1269 ("WHEREAS, The failure of parents to provide adequate financial sup- port and care for their children is a major cause of financial dependency and a contributing cause to social delinquency; and WHEREAS, The present remedies are slow and uncertain, and result in a burden on the resources of the state, which must provide public assistance for basic maintenance when parents fail to meet their obligations; and WHEREAS, It is the duty of the state to conserve money for public assistance by providing reasonable and effective means to enforce the obligations of persons who are responsible for the care and support of their children…"); Act of July 12, 1986, Ch. 993, N.C. Laws, 351 ("There is a strong public interest in providing fair, efficient, and swift judicial processes for establishing and enforcing child support obligations. Children are entitled to support from their parents, and court assistance is often required for the establishment and enforcement of parental support obligations. Children who do not receive support from their parents often become financially dependent on the State.").

uniformity of its application and the onus it places on women and minority groups (Thies and Winn 2023; Cammett 2022).

The legal predictor used here is a tally of the number of support enforcement mechanisms adopted by law,[91] which exhibit a rich interstate dynamic. Child support enforcement mechanisms in the 1950s were primarily regulated via criminal enforcement (Grossman and Friedman 2011). The average number of enforcement mechanisms in 1950 was 2.5 per state, and by 1955 it already rose to 4.3, signaling what was to come.[92] Enforcement mechanisms continued to mushroom nationwide in volume and diversity, though states adopted mechanisms at a varying pace.[93] By 2019, the mean number of enforcement mechanisms rose to 21.1.[94]

The addition of enforcement mechanisms may chill or incentivize GFR, depending on who bears the cost. On the one hand, more enforcement mechanisms can be thought of as cost or risk enhancing to the non-custodial parent (Becker 1991); on the other hand, additional support enforcement can be thought of as insurance against the risk of marital dissolution and sunken relationship-specific capital invested by the custodial parent (Starnes 2014; Friedman 2004; Waite and Gallagher 2000). In fact, these are two sides of the same gendered coin, as even today women are more likely to be the custodial parent and thus the recipient of support payments (Cancian, Costanzo, and Meyer 2023; Ice 2023; Ponce 2023; Ducanto 2009), though this may vary by SES (Cammett 2022). This sets up competing mom and dad hypotheses to determine how (and if) GFR is influenced by the addition of child support enforcement mechanisms; both are based on the microeconomic approach.

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[91] There are different ways to study the effects of child support. For instance, the independent variable might be how many families are involved in child support arrangements (Cancian, Costanzo, and Meyer 2023), or the number of child support enforcement cases (Solomon-Fears 2005; Thies and Winn 2023). However, the goal here is to examine the effect of law rather than its application; focusing on a study of the application would miss the overlooked dynamic this work seeks to capture, namely, the influence of small changes to Family Law on fertility.

[92] The early 1950s were an important period in particular as these were the years that most states first implemented uniform legislation that allows complete intra- and sometimes inter-state jurisdiction over offenders, who prior to these laws could simply relocate to a different state or county to evade enforcement/prosecution (these were also known as the "Skipping Pappy Acts", (Cott 2002)).

[93] For a list of the many unique child support enforcement mechanisms identified in the data, see **Appendix D**. A few "popular" examples include monetary fines for non-payment, imprisonment, loss of driver's license, loss of professional license (including legal and medical licenses), wage garnishing, publication of personal information on public shaming forums, liens on assets, mandatory participation in public works programs, loss of visitation rights, and notification of employers, financial institutions, and consumer credit bureaus of obligor's debt.

[94] Many of these enforcement penalties were regulated by Federal Law in 42 U.S.C. § 651 et seq. (1975), particularly in § 666, which enumerates various penalties a state must enforce to be eligible for federal funding. Nevertheless, states adopted these measures at different times, and added measures unique to their circumstances (e.g., Washington adopted a mechanism prohibiting an obligor who has not paid support from participating in horse racing, Act of March 24, 2000, Ch. 86, W.A. Laws, 503).

According to the mom hypothesis, the addition of a support mechanism is expected to positively associate with a later increase in GFR. Huang (Huang 2002) found evidence to support this hypothesis, namely, that stricter child support enforcement associates with increased GFR on the state level. The same would be expected from the addition of a support mechanism by a neighbor state, though a much smaller effect. As enforcement mechanisms are cumulatively added over time,[95] and continued to multiply at a relatively stable pace, this association is expected to be relatively small, but significant.

According to the dad hypothesis, the addition of a support mechanism is expected to associate with a later decrease in GFR (Weiss and Willis 1985). This may be due to the diminished probability of remarriage non-custodial fathers exhibit upon strengthening support enforcement (Bloom, Conrad, and Miller 1996), though Anderson (2011) finds that fathers who pay child support are more likely to remarry (as a signal that they invest heavily in children), but less likely to have additional children. The addition of a support mechanism by a neighbor state would similarly associate with later decrease in GFR, though a much smaller effect.

2.16.6 General Law: Change and Reform

Legal change is measured here as the annual number of changes observed in each state's Family Law. Additionally, legal reform is measured as a binary variable indicating whether in any given state-year, the number of changes observed exceeded one standard deviation of that state's mean number of changes.

Legal change is expected to associate with a later decline in GFR. While uncertainty is typically associated with fertility decline (Aassve, Le Moglie, and Mencarini 2021), it can also incentivize fertility (Kreyenfeld 2015); a deciding factor can be the additional costs associated with legal change,[96] which implicate individuals as well as institutional actors (Deffains and Dari-Mattiacci 2007; D'Amato 1983). Thus, within a new or modified regulatory environment, GFR is expected to diminish as legal change begets uncertainty, which introduces new costs.

[95] This is true of nearly all enforcement mechanisms, but not all. The one rare instance in which a support enforcement mechanism was added and then removed is when it barred obligors from obtaining a marriage license; this type of support mechanism was held unconstitutional by the US Supreme court in Zablocki v. Redhail, 434 U.S. 374 (1978). These support mechanisms were enacted, and later repealed in Utah (1969), Montana (1979), Wisconsin (1979), North Dakota (1973), and Indiana (1984).

[96] In addition to the costs of adjusting to a new or modified regulatory system, legal change may entail other costs such as the cost of (re-)balancing between rule and standard (Kaplow 1992; Calfee and Craswell 1984), or (re-)balancing costs of enforcement with benefits of a law (Franzoni 2019).

Similarly, legal reform is expected to associate with a later decline in GFR, though the effect size for reform is expected to be larger. The influence of neighbor states for both change predictors is expected to behave similarly, though the effect size should be smaller. Both predictors are subject function of litigation frequency (Spitzer 2021), so that the size of the state (and population density) may be influential.

2.16.7 General Law: Gender Neutrality

Traditionally, Family Law has been a highly gendered sub-field of law (Weiner 2015). Over time, particularly the second half of the 20th century, Family Law become markedly more gender neutral (Grossman and Friedman 2011), though formidable critique still remains (Frelich Appleton 2019; Brinig 2001). The overall effect of a shift from a legal regime that was entirely gendered (save for a few minor exceptions[97]) to one that is, today, by and large gender neutral, was to enhance the leverage of women within the marital bargain (Cott 2002; Hartog 2002).[98] The best known mechanism employed in Family Law to accomplish this is no-fault divorce (Becker 1991; Jacob 1988), but there are many other unheralded legal mechanisms employed such as rehabilitative maintenance (Lyle and Levy 2004), domestic violence in custody litigation (Jaffe, Crooks, and Bala 2009), and new premarital age and health requirements (Jiang and Lansford 2023; Doroshow 2019). Nevertheless, the lion's share of gender neutral laws passed post no-fault (Katz 2015; Starnes 2014; Bix 2013). For this reason (and others), no-fault divorce is included in analysis as a control variable for all legal predictor, save for gender neutrality.

Gender neutrality exerts its influence via all three of the theoretical frameworks contemplated. In terms of costs, gender neutrality augments women's bargaining power within the marital union, facilitating, among others, greater investment outside the household domain (Becker 1991; Waite and Gallagher 2000), and increased female labor force participation is associated with fertility decline (Easterlin 1966). But a shift to legal gender neutrality and egalitarian gender roles has a more profound effect, as it may also help re-write social scripts and attitudes regarding sex (Simon and Gagnon 2003), union formation and dissolution (Laumann 2002), family formations (Ruggles 2015), and fertility (Brinton and Lee 2016). The core insight

[97] These rare exceptions typically included provisions that placed an equal obligation to support children on mother and father, as an additional redundancy to ensure that children do not become wards of the state (e.g., see: Act of Aug 20, 1955, Ch. 328, M.E. Laws, 261).

[98] Other legal changes are thought to enhance the male position in the marital bargain, such as the shift to a joint custody regime (Dinner 2015).

utilized here is that the Law, via its expressive and/or punitive influence, is a component in the recoding process regarding numeracy of children, as social action takes place in the shadow of the law (McAdams 2015). This socio-cultural understanding of a shift towards gender neutral law would also create an expectation of a later decline in GFR.[99] Finally, transition to law that is more gender neutral may influence the degree of legal uncertainty, as a new or modified legal regime – for instance, requiring a woman to pay Alimony to husband – will require adjustment. As such, a shift towards gender neutrality creates uncertainty and therefore is expected to associate with a later decline in GFR.

Gender neutrality was separately tracked for each topic within Family Law[100] (Alimony, Marriage, Divorce, Custody, and Support) to create an overall index of gender neutrality for each state-year, ranging from 0 (completely gendered) to 10 (completely gender neutral). The expectation is that a shift towards greater gender neutrality will associate with a later decrease in GFR. A similar effect, albeit smaller, is expected for neighbor states.

[99] However, this effect may differ by education, as for women with high levels of educational attainment, the association between gender neutrality and marriage was positive (Pessin 2018), which would suggest higher GFR, though the U.S. has not yet exhibited such evidence (Esping-Andersen and Billari 2015).
[100] More detail on how gender neutrality was coded is included in the coding scheme in **Appendix A**.

2.17 Appendix G: Fixed Effects Spatial Lag Regression Results, by Family Law Topic

Table 2.23: Fixed Effects Spatial Regression Results, Marriage: Covenant Marriage, Minimum Age, and Premarital Health Requirements, 1969-2007

		Estimate	Std. Err.	t-value	p-value
Covenant Marriage					
Lag 1	lambda	0.300***	0.004	73.454	0.000
	county	0.295†	0.153	1.921	0.055
	neighbor	-0.388**	0.134	-2.894	0.004
Lag3	lambda	0.299***	0.004	73.219	0.000
	county	0.569***	0.171	3.324	0.001
	neighbor	-0.065	0.148	-0.440	0.660
Lag5	lambda	0.298***	0.004	73.006	0.000
	county	0.875***	0.204	4.300	0.000
	neighbor	0.318†	0.172	1.845	0.065
Lag6	lambda	0.298***	0.004	72.956	0.000
	county	1.086***	0.233	4.661	0.000
	neighbor	0.532**	0.193	2.758	0.006
Min Marriage Age with Consent - Female					
Lag1	lambda	0.299***	0.004	73.298	0.000
	county	-0.349***	0.064	-5.4127	0.000
	neighbor	0.297***	0.072	4.1289	0.000
Lag3	lambda	0.299***	0.004	73.231	0.000
	county	-0.378***	0.065	-5.774	0.000
	neighbor	0.339***	0.073	4.678	0.000
Lag5	lambda	0.300***	0.004	73.431	0.000
	county	-0.167**	0.064	-2.593	0.010
	neighbor	0.390***	0.072	5.383	0.000
Lag6	lambda	0.300***	0.004	73.558	0.000
	county	0.065	0.064	1.014	0.310
	neighbor	0.472***	0.072	6.543	0.000
Premarital Health Requirements					
Lag1	lambda	0.299***	0.004	73.126	0.000
	county	-0.484***	0.049	-9.779	0.000
	neighbor	0.082	0.051	1.628	0.104
Lag3	lambda	0.299	0.004	73.285	0.000
	county	-0.177***	0.049	-3.607	0.000
	neighbor	0.245***	0.050	4.879	0.000
Lag5	lambda	0.299***	0.004	73.234	0.000
	county	-0.010	0.049	-0.203	0.839
	neighbor	0.255***	0.050	5.133	0.000
Lag6	lambda	0.299***	0.004	73.297	0.000
	county	-0.024	0.049	-0.502	0.616
	neighbor	0.219***	0.050	4.417	0.000
Observations		120,276			

Source – Data for legal provisions were obtained by author from State Session Laws.
Note – Estimates presented were obtained using Fixed Effects Spatial Regression. Each legal provision includes four time lags (1, 3, 5, and 6 years), with the following estimates: 'lambda' – the autoregressive coefficient, 'county' – the coefficient of the association between a legal provision, and the focal county's GFR; and 'neighbor' – the coefficient of the association between a neighbor state's legal provision, and the focal county's GFR.
† $p< 0.1$
* $p< 0.05$
** $p< 0.01$
*** $p< 0.001$

Table 2.24: Fixed Effects Spatial Regression Results, Divorce & Alimony: Standard of Living, Residency Requirements, and Cool Off & Conciliation Requirements, 1969-2007

		Estimate	Std. Err.	t-value	p-value
Alimony: Standard of Living					
Lag 1	lambda	0.300***	0.004	73.384	0.000
	county	0.068	0.066	1.036	0.300
	neighbor	-0.448***	0.062	-7.249	0.000
Lag3	lambda	0.300***	0.004	73.403	0.000
	county	0.418***	0.062	6.712	0.000
	neighbor	-0.460***	0.060	-7.678	0.000
Lag5	lambda	0.299***	0.004	73.380	0.000
	county	0.537***	0.060	8.911	0.000
	neighbor	-0.461***	0.059	-7.850	0.000
Lag6	lambda	0.299***	0.004	73.401	0.000
	county	0.561***	0.060	9.407	0.000
	neighbor	-0.473***	0.058	-8.132	0.000
Divorce: Residency Requirements					
Lag1	lambda	0.294***	0.004	71.777	0.000
	county	0.109***	0.017	6.260	0.000
	neighbor	0.221***	0.016	13.863	0.000
Lag3	lambda	0.297***	0.004	72.572	0.000
	county	0.012	0.015	0.780	0.435
	neighbor	0.174***	0.014	12.410	0.000
Lag5	lambda	0.298***	0.004	73.054	0.000
	county	-0.105***	0.014	-7.378	0.000
	neighbor	0.118***	0.013	9.188	0.000
Lag6	lambda	0.299***	0.004	73.147	0.000
	county	-0.139***	0.014	-10.101	0.000
	neighbor	0.085***	0.013	6.791	0.000
Divorce: Cool Off and Conciliation					
Lag1	lambda	0.299***	0.004	73.322	0.000
	county	0.491***	0.076	6.472	0.000
	neighbor	0.419***	0.070	5.975	0.000
Lag3	lambda	0.299***	0.004	73.386	0.000
	county	0.406***	0.071	5.742	0.000
	neighbor	0.618***	0.068	9.079	0.000
Lag5	lambda	0.299***	0.004	73.310	0.000
	county	0.571***	0.067	8.466	0.000
	neighbor	0.761***	0.066	11.469	0.000
Lag6	lambda	0.299***	0.004	73.356	0.000
	county	0.518***	0.066	7.822	0.000
	neighbor	0.754***	0.066	11.485	0.000
Observations		120,276			

Source – Data for legal provisions were obtained by author from State Session Laws.
Note – Estimates presented were obtained using Fixed Effects Spatial Regression. Each legal provision includes four time lags (1, 3, 5, and 6 years), with the following estimates: 'lambda' – the autoregressive coefficient, 'county' – the coefficient of the association between a legal provision, and the focal county's GFR; and 'neighbor' – the coefficient of the association between a neighbor state's legal provision, and the focal county's GFR.
† $p< 0.1$
* $p< 0.05$
** $p< 0.01$
*** $p< 0.001$

Table 2.25: Fixed Effects Spatial Regression Results, Child Custody: Child's Wishes and Joint Custody, 1969-2007

		Estimate	Std. Err.	t-value	p-value
Custody: Child's Wishes					
Lag 1	lambda	0.302***	0.004	74.121	0.000
	county	0.562***	0.058	9.627	0.000
	neighbor	0.865***	0.059	14.622	0.000
Lag3	lambda	0.301***	0.004	73.916	0.000
	county	0.286***	0.057	5.023	0.000
	neighbor	0.756***	0.058	13.093	0.000
Lag5	lambda	0.301***	0.004	73.764	0.000
	county	0.093†	0.056	1.656	0.098
	neighbor	0.519***	0.056	9.204	0.000
Lag6	lambda	0.301***	0.004	73.711	0.000
	county	-0.026	0.056	-0.462	0.644
	neighbor	0.366***	0.056	6.536	0.000
Custody: Joint Custody					
Lag1	lambda	0.296***	0.004	72.330	0.000
	county	-1.122***	0.075	-14.888	0.000
	neighbor	-0.831***	0.073	-11.380	0.000
Lag3	lambda	0.294***	0.004	71.890	0.000
	county	-1.242***	0.074	-16.725	0.000
	neighbor	-0.957***	0.072	-13.372	0.000
Lag5	lambda	0.295***	0.004	72.206	0.000
	county	-1.221***	0.074	-16.567	0.000
	neighbor	-0.859***	0.071	-12.167	0.000
Lag6	lambda	0.297***	0.004	72.680	0.000
	county	-1.069***	0.073	-14.554	0.000
	neighbor	-0.716***	0.070	-10.204	0.000
Observations		120,276			

Source – Data for legal provisions were obtained by author from State Session Laws.
Note – Estimates presented were obtained using Fixed Effects Spatial Regression. Each legal provision includes four time lags (1, 3, 5, and 6 years), with the following estimates: 'lambda' – the autoregressive coefficient, 'county' – the coefficient of the association between a legal provision, and the focal county's GFR; and 'neighbor' – the coefficient of the association between a neighbor state's legal provision, and the focal county's GFR.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 2.26: Fixed Effects Spatial Regression Results, Child Support: Child Support Enforcement Mechanisms and Child Support Jurisdiction, 1969-2007

		Estimate	Std. Err.	t-value	p-value
Support: Enforcement Mechanisms					
Lag 1	lambda	0.299***	0.004	73.129	0.000
	county	0.162***	0.016	10.315	0.000
	neighbor	-0.123***	0.016	-7.659	0.000
Lag3	lambda	0.295***	0.004	72.160	0.000
	county	0.244***	0.015	15.881	0.000
	neighbor	-0.041**	0.016	-2.625	0.009
Lag5	lambda	0.292***	0.004	71.321	0.000
	county	0.244***	0.015	15.999	0.000
	neighbor	0.025†	0.015	1.653	0.098
Lag6	lambda	0.291***	0.004	70.914	0.000
	county	0.249***	0.015	16.328	0.000
	neighbor	0.040**	0.015	2.627	0.009
Support: Jurisdiction					
Lag1	lambda	0.291***	0.004	71.181	0.000
	county	-2.674***	0.111	-23.985	0.000
	neighbor	-1.969***	0.111	-17.714	0.000
Lag3	lambda	0.295***	0.004	72.261	0.000
	county	-1.951***	0.110	-17.711	0.000
	neighbor	-1.200***	0.110	-10.914	0.000
Lag5	lambda	0.299***	0.004	73.295	0.000
	county	-0.755***	0.109	-6.941	0.000
	neighbor	-0.124	0.109	-1.134	0.257
Lag6	lambda	0.299***	0.004	73.306	0.000
	county	-0.396***	0.108	-3.661	0.000
	neighbor	0.259*	0.109	2.383	0.017
Observations		120,276			

Source – Data for legal provisions were obtained by author from State Session Laws.
Note – Estimates presented were obtained using Fixed Effects Spatial Regression. Each legal provision includes four time lags (1, 3, 5, and 6 years), with the following estimates: 'lambda' – the autoregressive coefficient, 'county' – the coefficient of the association between a legal provision, and the focal county's GFR; and 'neighbor' – the coefficient of the association between a neighbor state's legal provision, and the focal county's GFR.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 2.27: Fixed Effects Spatial Regression Results, Legal Change & Gender Neutrality: Number of Changes, Legal Reform, and Gender Neutrality, 1969-2007

		Estimate	Std. Err.	t-value	p-value
Legal Change: Number of Changes					
Lag 1	lambda	0.297***	0.004	72.687	0.000
	county	-0.057***	0.007	-8.065	0.000
	neighbor	-0.059***	0.007	-8.119	0.000
Lag3	lambda	0.298***	0.004	73.035	0.000
	county	-0.042***	0.007	-6.056	0.000
	neighbor	-0.039***	0.007	-5.379	0.000
Lag5	lambda	0.299***	0.004	73.367	0.000
	county	-0.017*	0.007	-2.518	0.012
	neighbor	-0.016*	0.007	-2.152	0.031
Lag6	lambda	0.300***	0.004	73.475	0.000
	county	0.017*	0.007	2.397	0.017
	neighbor	0.006	0.007	0.808	0.419
Legal Change: Legal Reform					
Lag1	lambda	0.298***	0.004	72.915	0.000
	county	-0.578***	0.080	-7.241	0.000
	neighbor	-0.646***	0.082	-7.902	0.000
Lag3	lambda	0.299***	0.004	73.145	0.000
	county	-0.352***	0.080	-4.378	0.000
	neighbor	-0.450***	0.082	-5.500	0.000
Lag5	lambda	0.299***	0.004	73.293	0.000
	county	-0.214***	0.080	-2.664	0.008
	neighbor	-0.291***	0.082	-3.538	0.000
Lag6	lambda	0.300***	0.004	73.476	0.000
	county	0.114	0.081	1.409	0.159
	neighbor	-0.074	0.083	-0.893	0.372
Gender Neutrality					
Lag1	lambda	0.314***	0.004	77.297	0.000
	county	-0.283***	0.025	-11.348	0.000
	neighbor	-0.137***	0.025	-5.542	0.000
Lag3	lambda	0.316***	0.004	78.028	0.000
	county	-0.130***	0.024	-5.500	0.000
	neighbor	-0.043†	0.024	-1.842	0.066
Lag5	lambda	0.316***	0.004	78.057	0.000
	county	-0.045*	0.023	-1.964	0.050
	neighbor	-0.041†	0.023	-1.809	0.070
Lag6	lambda	0.316***	0.004	78.030	0.000
	county	-0.022	0.023	-0.976	0.329
	neighbor	-0.038†	0.022	-1.720	0.086
Observations		120,276			

Source – Data for legal provisions were obtained by author from State Session Laws.
Note – Estimates presented were obtained using Fixed Effects Spatial Regression. Each legal provision includes four time lags (1, 3, 5, and 6 years), with the following estimates: 'lambda' – the autoregressive coefficient, 'county' – the coefficient of the association between a legal provision, and the focal county's GFR; and 'neighbor' – the coefficient of the association between a neighbor state's legal provision, and the focal county's GFR. Legal Reform was designated '1' if the number of changes exceeded one standard deviation for the state mean number of changes, and '0' otherwise. Gender Neutrality ranged from 0-10, see 2.16.7 for detail on how this index was constructed.
† $p< 0.1$
* $p< 0.05$
** $p< 0.01$
*** $p< 0.001$

3 'CONSTITUTING' POPULATION STUDIES: FERTILITY IN THE SHADOW OF NATIONAL CONSTITUTIONS

Abstract: Are key population dynamics such as fertility, migration and mortality shaped by Constitutional Law? Despite a veritable wealth of theory and data linking the socio-economic realms to population dynamics, very little is known about if and how countries' national constitutions play a role in shaping populations. As national constitutions directly address topics of great import to demographers, inter alia, marriage & divorce, sex, and contraception, there is good reason to believe they do. This essay explores how country-level fertility is associated with National Constitutions. Employed herein is a semi-original dataset composed of 193 national constitutions and various economic and demographic measures totaling 13,632 country-years, 1950-2020. Spatial regression using space and time lags demonstrates that national constitutions are significantly associated with countries' Total Fertility Rates (TFR). In doing so, this work establishes an empirical link between Law and Demography and illustrates that national constitutions interact with fertility via (i) constitutional content (e.g., type of rights included); and (ii) constitutional design (e.g., length and flexibility). Results are robust to a country's regime type (e.g., Authoritarian vs. Democratic), religiosity, economic development, or regional turmoil. This line of inquiry adds new data and a novel perspective of study, and can contribute to long-standing demographic debates (e.g., innovation vs. adjustment) as well as provide much needed, yet oft-overlooked legal context to the study of populations.

3.1 Introduction

The forces shaping populating dynamics have markedly changed over the past couple centuries, from Malthusian Natural Forces such as famine and disease (Malthus 1888; Notestein 1945) to a more human-made form of intervention such as politics and war (Livi-Bacci 2021). These latter exogenous pressures arise during large-scale social processes such as the industrial revolution (Chesnais 1992), exceptional settings such as World War 2 (Nakachi 2021), or economic recessions (Guzzo 2022). At times, populations become the direct target of a governing body, the metaphorical analysand of a therapist seeking to treat a patient (Nehru 1982; Foucault 2003). Interventions come directly or indirectly (McNicoll 2001), but inevitably, they always come.

However, there are also more 'mundane' forms of population-shaping interventions; this essay explores the seemingly less dramatic, slow burning influence of Law and the legal system, particularly national constitutions. Not through shock, but grind. While less rousing than war or economic collapse, legal regulation is near guaranteed to have *some* effect on population dynamics (McNicoll 2001), because social action takes place in the shadow of the law (Weber 1954; Simmel 1964); in other words, individuals and communities orient their action to the Law, or their imagined version of the Law (McAdams 2015; Perry-Hazan and Birnhack 2016; Van Rooij 2021). Law can exert population-shaping pressure indirectly, as part of a larger-scale legal process (Geoffrey R. Stone 2017), or it too can seek a direct route to population dynamics, though such a course may produce unintended consequences (Judith Blake 1994; May 2012).

Constitutional Law presents a unique opportunity to examine the glacial pressure of Law on population dynamics. The primary function of a national constitution is to lay out the foundation of state governance, while also creating (and reflecting) a certain shared sense of

identity among the denizens of a sovereign entity (Rousseau and Cranston 1968; Anderson 2006). In doing so, national constitutions often penetrate the deepest reaches of a population's blueprint, with the intention of shaping the basic building blocks that comprise a society (Barnett 1982; Barnett and Reed 1985; Opeskin and Nwauche 2013). Over the past century, national constitutions have been doing so on an increasing basis (Boli-Bennett and Meyer 1978; Law and Versteeg 2010). Furthermore, national constitutions occupy a special position within the legal hierarchy in that they are entrenched to a higher degree than state law or local ordinances (G. R. Stone et al. 2013), and are therefore buffered to a degree from social change.

Appealing in theory but scant in practice, national constitutions are underexplored in population studies. Here, a unique semi-original dataset comprised of recently available data on national constitutions is employed alongside various demographic and economic measures to study if and how national constitutions are associated with Toal Fertility Rates (TFR). These data include 193 sovereign entities, 1950-2020, for a total of 13,632 county-years. Analyses employ a fixed effects spatial lag model (Anselin and Rey 2014; Anselin 2022), allowing for the control of the spatial effects present in constitutional legal dynamics (Tom Ginsburg, Chernykh, and Elkins 2008; Crowley 2012; Tom Ginsburg and Versteeg 2014).

The association between national constitutions and TFR is expected to occur via two constitutional features. First is the content of the constitution, i.e., what type of rights are included. For instance, based on Bongaarts' framework (1978), marital status is a proximate determinants of fertility and likely implicated by a constitutional right to marriage. Second is the manner in which a constitution is designed, also referred to as constitutional form. This may include a constitution's flexibility (how easy it is to amend and thus adapt to changing social circumstances) and specificity (how much is left for lower-level judges and legislators to

interpret in their application of the constitution) (Z. Elkins, Ginsburg, and Melton 2009). Constitutional design implicates constitutional change, an event often linked to social change (Goldberg 2006; NeJaime 2012), and population change (Barnett and Reed 1985). Constitutional design and change are linked to fertility via the uncertainty they create.

The link between constitutions and fertility runs through social theory. The Law casts a shadow over social action (Simmel 1964; Weber 1954), and can shape individual preferences and social norms (Sunstein 1996; McAdams 2015; Geoffrey R. Stone 2017). This also applies to population dynamics, where Law can alter the calculus underlying family life (Becker 1991), or it can shape norms and attitudes regarding coupling and reproduction (McNicoll 1992; 2001). The form Law takes (e.g., how vague or specific) is inherently linked to its longevity, applicability, and interpretation (Z. Elkins, Ginsburg, and Melton 2009), and is therefore tied indirectly to the shaping of norms and preferences. Furthermore, when the form of Law – its design – is suboptimal, it engenders change and uncertainty in the legal system (Sampford 1979; Banting and Simeon 1985; Griffin 1995), which may also bear on preferences and norms regarding fertility (J. A. Trinitapoli 2023).

This paper introduces national constitutions to population studies, and generally advances knowledge on the interaction between legal systems and population dynamics. In doing so, three theoretical approaches to fertility, microeconomic, sociocultural, and uncertainty, are complemented with theoretical perspectives on constitutional change and constitutional design. This theoretical framework supplements rather than supplants existing knowledge on fertility. As no single perspective can provide exhaustive answers to all fertility related inquiries (Mason 1997), the addition of the new legal perspective can contribute to population studies and further promote the pluralistic approach to demographic theory (Hauser 1959; Gutman 1960).

3.2 Theoretical Background

3.2.1 The Long Shadow of the Law

The theoretical links between Law & Demography are inherently tied to the role of Law in society (Calavita 2016). Early sociologists as well as legalists had a very clear notion on the role of Law: it directs behavior and coordinates social interactions (von Jhering and Lalor 1879). This means that the very letter of the Law serves as powerful motivator (or prohibitor) to perform certain social actions (Holmes 1897). Sociologists of Law voiced a similar sentiment; for instance, Weber (1954) discusses actors' adherence to Law due to its legitimacy, a sense of duty, and fear of penalty for violation. Durkheim (2014) explained that the Law differentiates between socially acceptable and socially deviant behavior, urging individuals to comply with Law.

While Law directly prohibits certain behaviors (e.g., via Criminal Law), it also directly encourages other behaviors as well (e.g., via tax and welfare) (Keirsbilck, Claes, and Devroe 2009). However, not all Law proscribes or prescribes behavior; there is a range of human autonomy, thought to be regulated by morality and informal social norms (Osiel 2019). And even within that wide range of autonomy, Law still casts its shadow, implicating various spheres of social life, population dynamics included (L. T. Lee and Gardiner 1971; Barnett 1982; Opeskin and Nwauche 2013).

In analyzing legal conflict, Simmel (1964) discusses the unseen influence of the shadow of the law: as it is known to all members of society, it will influence their behavior *a priori*, and may encourage unity, i.e., Law regulates not only the legal conflict itself, but also individuals' behavior prior to (or during) the interaction that may result in legal conflict. Mnookin and Kornhauser (1979) conceptualized this as "*Bargaining in the Shadow of the Law*": upon

negotiating a settlement during divorce, the litigants will be constrained by their expectations of what the law would dictate and how the judge would adjudicate the conflict. Thus, one step removed from the Law, individuals are nevertheless orienting their decisions in its shadow. This intuition has since been applied to other areas such as Criminal Law (Bibas 2004), Antitrust Law (Biasi 2018), Privacy Law (Perry-Hazan and Birnhack 2016), and obtaining legal services (Gilson and Mnookin 1994; Cornwell, Poppe, and Bea 2017).

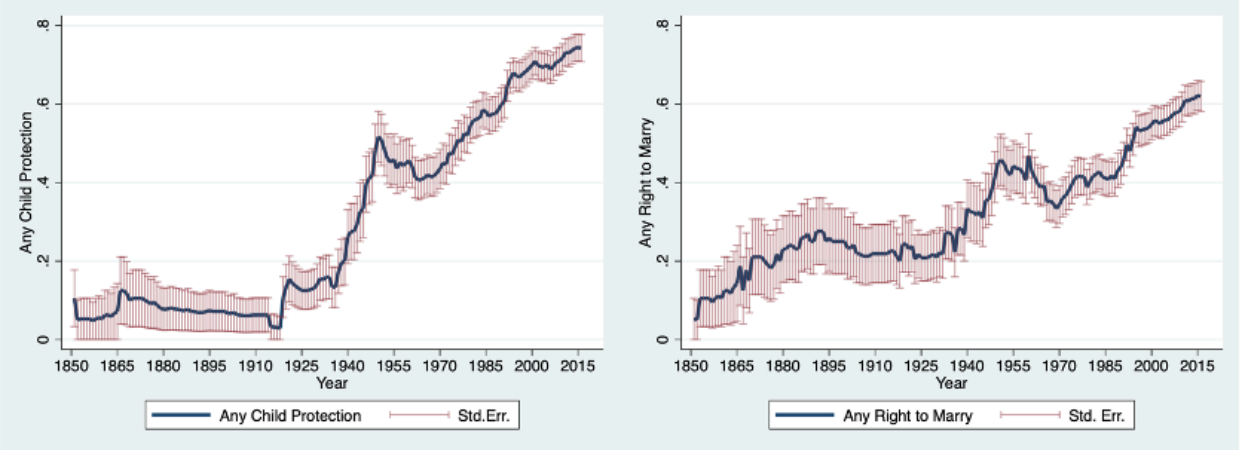
Importantly, an accurate knowledge of Law is not required for it to cast its shadow, as even an "imagined" version of law will be influential (Van Rooij 2021; Perry-Hazan and Birnhack 2016). Though people exhibit substantial gaps in their knowledge of the legal system (Franklin and Kosaki 1995; Gibson and Caldeira 2009), they will often fill in these gaps using personal or community norms to create a more complete version of Law (Van Rooij 2021), which is not necessarily a conscious or even rational process (Mnookin 2021).

Constitutions play a pragmatic role in regulating population dynamics such as fertility, migration, and mortality via four primary domains of constitutional legislation: political, socio-economic, ethno-cultural, and scientific (Opeskin and Nwauche 2013).[1] Bongaarts' proximate determinates of fertility (1978) illustrate this point well, for at least three (marriage, contraception, and abortion), are directly regulated by national constitutions. For instance, roughly 60% of the world's national constitutions currently in force have specific provisions regarding marriage (see Figure 3.1). Lutz's theory of demographic metabolism (Lutz 2013a) further explicates the inherent role constitutions may play in population change, as constitutions

[1] (1) *Political Domain* – structural issues about gov't and representation; (2) *Socio-Economic Domain* – effecting individuals economically and socially, thus bearing on decision-making regarding fertility, mortality, and migration; (3) *Ethno-Cultural Domain* – addressing issues of population diversity; and (4) *Scientific Domain* – how gov'ts acquire knowledge about populations, and how this informs other domains (2013, 455–56).

both facilitate and hinder the transition of individuals to and from the various building blocks constituting a population. For instance, about 70% of modern-day constitutions set out special procedures for children, thus establishing (among others) a constitutional boundary between the age of majority and minority (see Figure 3.1).

Figure 3.1: Inclusion of Any Child Protection (left) & Any Right to Marry (right) 1850-2020



Source – Comparative Constitutions Project.
Note – The left panel depicts the mean proportion of national constitutions that have enacted any form of child protection. The right panel depicts the mean proportion of national constitutions that have enacted a constitutional right to marry (broadly defined). Whiskers signify the standard errors. Both panels illustrate how national constitutions have become more involved in the regulation of family life.

3.3 National Constitutions – Part I: Buffered from the Environment

While the influence of Law is independent of its enforcement and legitimacy (McAdams 2015, 6), it is not independent of the forces that drive legal change in the first place. Law may only be mediating the "real" cause of behavioral change, which can be attributed to social movements (NeJaime 2012; Geoffrey R. Stone 2017), interest group politics (Geoffrey R. Stone 2017), or national politics (Connelly 2008; May 2012; Solinger and Nakachi 2016), which are themselves constrained by various social forces (Barnett 1982; Opeskin 2010).

But Law may still influence behavior, independent of these underlying drivers of legal change. This is because any legislative body is best described as a "they" rather than an "it", the

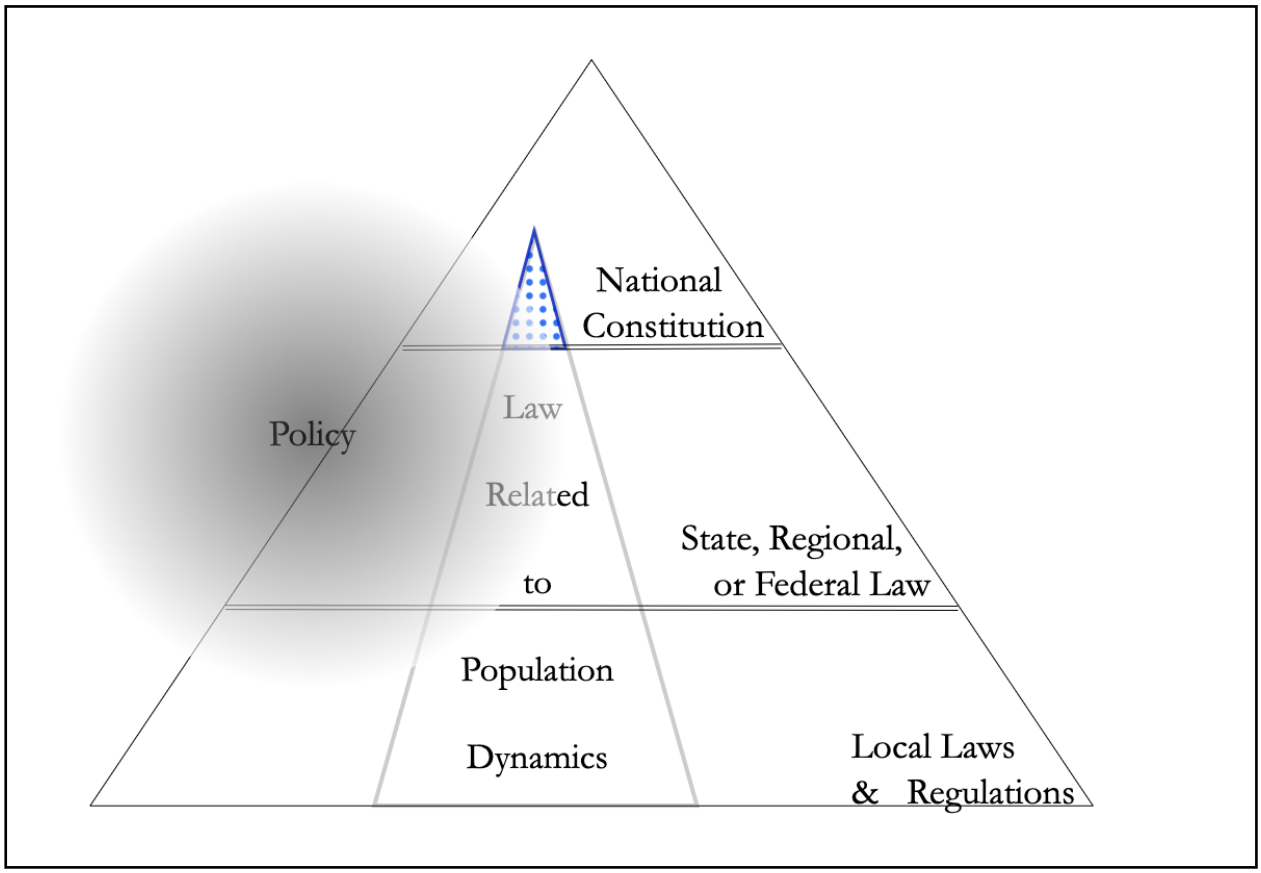
idea being that Law is a product of negotiation and logrolling, susceptible to the dynamics of transitivity, human interaction, and randomness (Shepsle 1992). In other words, the social forces pressuring legislators are not perfectly reflected in the Law produced, nor will they accurately reflect the position of the median constituent (Stearns and Zywicki 2009). At times, the Law actually reflects the position of a population very poorly; this typically occurs (a) in legal systems where the legislative body is less accountable to, or unbound by the constituency (Z. Elkins, Ginsburg, and Melton 2009), or (b) in instances of regulatory capture when powerful, yet small and centralized interest groups exist (Osiel 2019), and are able to secure Law that is favorable to them, but not to the population (R. A. Posner 2011).[2]

Constitutional Law sits alone atop the legal hierarchy and is relatively isolated from social noise/pressures compared to lower edicts and policy (Figure 3.2). This is for two pragmatic reasons: entrenchment and constitutional design. First, national constitutions are legally entrenched bodies of law (to varying degrees), meaning that they are harder to amend and thus less susceptible to social forces driving legal change as well as the whims of a ruling administration (Merryman and Pérez-Perdomo 2018). As such, constitutional change entails a complex and costly negotiation process whereby a diverse array of actors battle to maximize their returns (Stearns and Zywicki 2009), even in states with little or no democracy (Biagi, Frosini, and Mazzone 2020). Therefore, the final product (new law/constitution) does not perfectly reflect any particular interest, but rather a host of competing interests in a tangled political environment (Strauss 2001). Put differently, if constitutional change serves as a mediator for underlying social forces, it is near impossible to detangle the various forces that led

[2] This is well illustrated by Selznick's case of the Tennessee Valley Authority (1953): private interests groups coopted leadership and control within a gov't agency established to promote the interests and well-being of the valley's mostly rural, agrarian population, so that the policy eventually created was narrowly tailored to promote the goals of said private interest groups rather than those of the population at large.

to the constitutional change (Z. Elkins, Ginsburg, and Melton 2009). This is similar to the concept of "*Hollow Core*" (Laumann and Knoke 1987) where there is no single body directing policy over time. Consequently, national constitutions are far from being a perfect mediator for social change and should be studied as an independent determinant of population dynamics.

Figure 3.2: Hierarchy of Law



Note – this figure illustrates a general typology of the hierarchy present in most legal systems. At the top of the hierarchy, and constituting the smallest body of law, is Constitutional Law. This need not be an official document or even a codified document (Z. Elkins, Ginsburg, and Melton 2009). The second level is the intermediate level of legislation which includes regional laws for various administrative entities such as states and districts, and finally the local level including administrative units such as arrondissements and counties. Each level is nested within the level above, such that the higher the level, the broader the application of the law. Additionally, in the case of a conflict of laws, the higher-level laws always supersede any lower-level laws. Policy may contain laws from either of the levels but does not typically include Constitutional Law (Barnett 1982). Policy may also contain regulation that emanates from outside the legal system, for instance, the rules and regulations of an international body such as the UN (L. T. Lee 1974). Within the legal hierarchy, laws pertaining to the regulation of populations exist on all three levels. This paper focuses on the dotted blue triangle – Constitutional Law linked to population dynamics.

However, constitutions are by no means disconnected from the zeitgeist and are sensitive to their environment (social or otherwise).[3] Therefore, constitutions do reflect social change to a degree (Strauss 2001), as well as population change (Barnett and Reed 1985).[4] If this was not the case, there would be little use in studying the association between constitutions and fertility. Nevertheless, compared to lower forms of Law, national constitutions broadcast a stronger signal in the noise. This is doubly true when contrasting national constitutions with population policies.

Law (and particularly Constitutional Law) is different from politics; it both contains and is contained by politics. A constitution dictates the legal and political environment within which policy, lower-level-law and other interventions occur (Breslin 2009; Opeskin and Nwauche 2013), but at the same time is not immune to the political process – it is still shaped by it and is dependent upon it (Biagi, Frosini, and Mazzone 2020). Furthermore, policy and constitutions are subject to different pressures: population policy is typically shaped in the crucible of contemporary political battle (Solinger 2016; May 2012; Connelly 2008) while constitutions are shaped/designed via a slow-developing complex negotiation process that is undertaken behind a quasi-veil of ignorance (G. R. Stone et al. 2013). This is like the difference between the shaping force of a flood and a glacier.

Moreover, policy is typically shaped at the meso level of law-making, as Constitutional Law is usually too entrenched to allow for ebbs and flows that shift with the change of governing

[3] Environmental pressures driving constitutional change include but are not limited to: regime or leadership change (Z. Elkins, Ginsburg, and Melton 2009), global or bloc norms (Go 2003), inter- and intra-state conflict (Nzelibe and Yoo 2006; E. A. Posner and Vermeule 2007), economic crisis (Contiades 2016; Zlatic 2019), technological innovation (Cath 2018; Nemitz 2018), the composition of a polity (Ordeshook 1992), and of course the type of governance (democracy vs. dictatorship) (Przeworski 2004).

[4] An additional environmental pressure to which constitutions are subject are population pressures and demographic change (Barnett 2006).The question of constitutional change in the shadow of population pressures is outside the scope of this paper, but serves as an intriguing avenue for future research.

bodies, and local-level changes are too nuanced to be considered in policy initiatives.[5] Further consider that while policy interventions need not always be officially sanctioned by law or a governmental organization, they are nevertheless facilitated or at least enabled by Law (May 2012; Berger and Carlson 2020), so that Law can exist without policy, but not the other way around. Lastly, policy sends a "dirtier" signal compared to constitutions. Even if legislators (or NGOs) narrowly tailor policy to achieve certain goals,[6] spillover and policy drift are unavoidable (Hacker 2004; Béland, Rocco, and Waddan 2016), especially as they pertain to population dynamics (McNicoll 2001). Again, the study of constitutions presents the advantage of greater isolation of signal from noise with respect to politics and policy.

3.4 National Constitutions – Part II: Variability

Perhaps surprisingly, national constitutions exhibit marked variability across time and space. Moreover, they are a relatively recent development in the global community, having become popular only after World War II. National constitutions have a short life expectancy at birth. A comprehensive study of 224 national constitutions (including now defunct states) from 1790 to 2006 concluded that, on average, a constitution will endure for 19 years (Z. Elkins, Ginsburg, and Melton 2009).[7] When focusing on any type of constitutional event,[8] the picture

[5] At times, policy may include Laws from the top and bottom of the legal hierarchy. This typically occurs when a policy is very long-standing and has attained a high degree of penetration (L. T. Lee 1974; L. T. Lee et al. 1976; Barnett 1982).

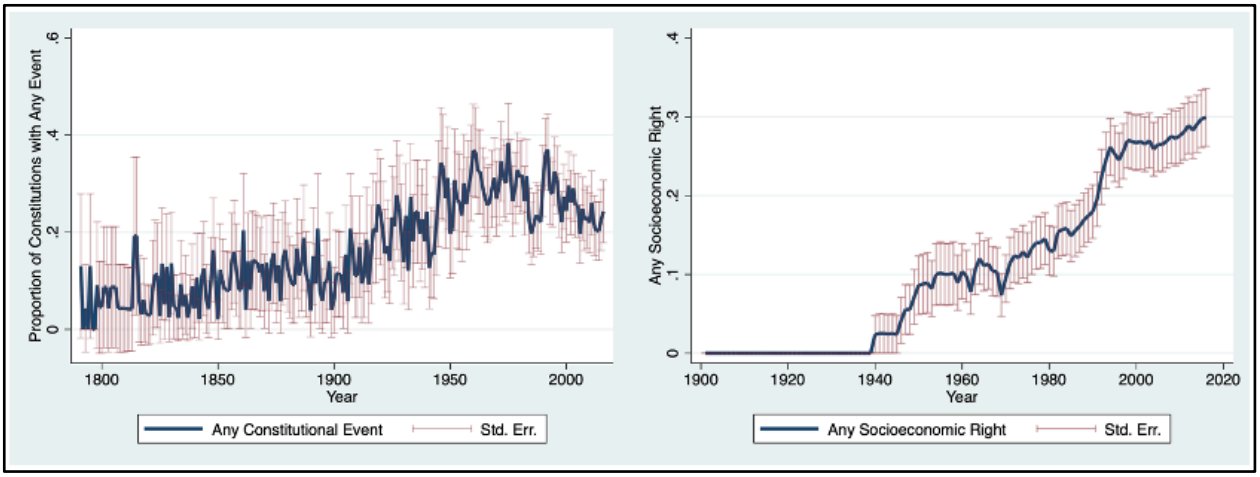
[6] This is a very big '*if*'; a great deal of ink has been lavished to show that policy makers (and legislators) are rather crummy when it comes to designing population policies to obtain particular goals (Solinger and Nakachi 2016; Connelly 2008; Hartog 2002; McDonald 2002; McNicoll 2001; Judith Blake 1994; J. Blake 1969).

[7] Death in this instance, is achieved when (a) over 50% of the original document is amended; or if (b) the constitution is suspended; or if (c) a new constitution is put in force.

[8] A constitutional event can include (1) adoption of a new amendment; (2) adoption of an interim constitution; (3) adoption of an entirely new constitution; (4) reinstating an old constitution; (5) suspending an existing amendment; or (6) suspending an existing constitution.

presented is one of a highly dynamic body of law, whereby roughly one quarter of national constitutions experience an event every year (Figure 3.3).

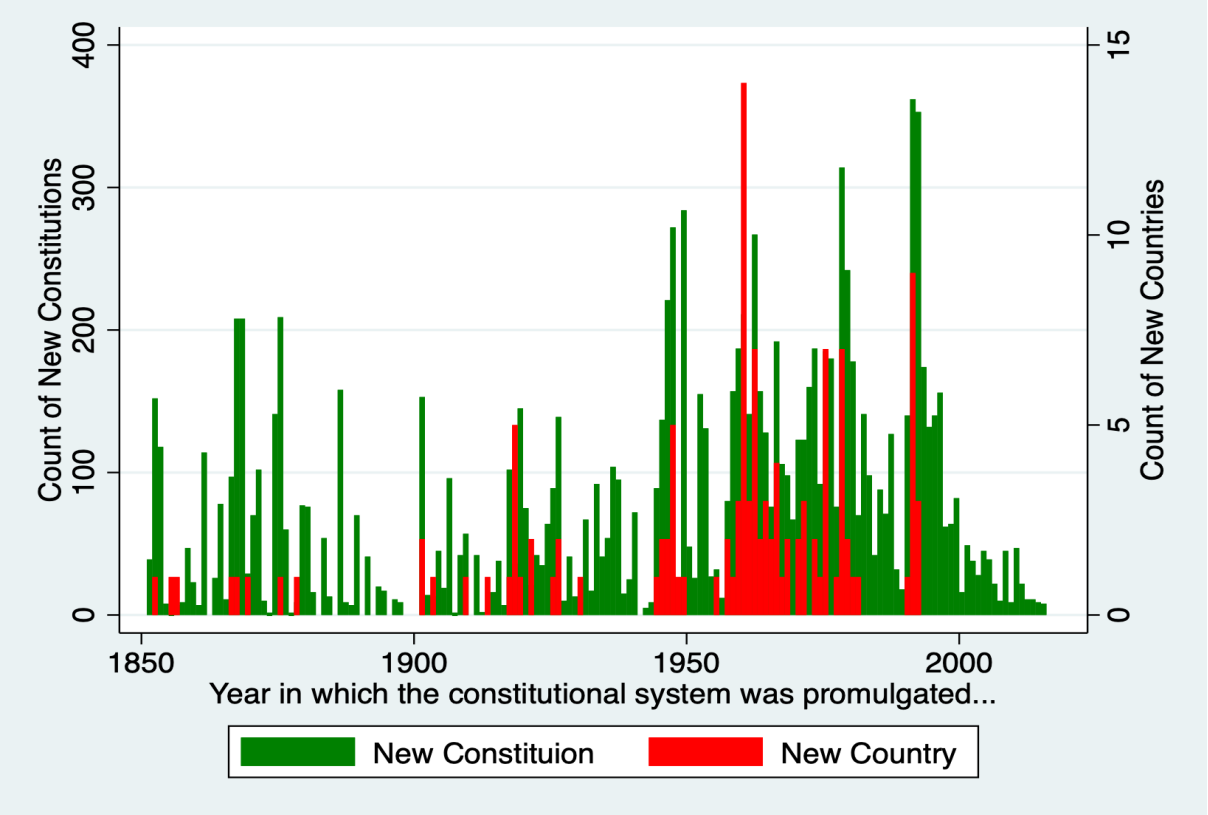
Figure 3.3: Any Constitutional Event (left) & Any Socioeconomic Right (right), 1800-2020



Source – Comparative Constitutional Project.
Note – The left panel depicts the proportion of national constitutions to have undergone any event (e.g., new constitution or amendment, repeal of amendment, suspension of constitution, etc.). The right panel depicts the proportion of national constitutions to include any type of socioeconomic right. Whiskers signify standard errors. Both panels demonstrate the dynamic nature of national constitutions, across time and space, as well as their increasing intervention in social life.

The volatility of national constitutions presents much potential for the study of population dynamics, as changes to particular topics or rights, as well as constitutional change in and of itself, may be linked to population dynamics. Variability is expressed in the data across time, country, and region. In other words, national constitutions change considerably over time, but they are also very different from each other. These new data are part of a general 'empirical turn' in the study of national constitutions (Shaffer and Ginsburg 2012), as they allow a closer and more accurate quantitative study of constitutional change, which was limited until roughly one decade ago.

Figure 3.4: New Constitutions & New Countries, 1850-2020



Source – Comparative Constitutions Project.
Note – This figure depicts a count of new countries created alongside a count of new constitutions promulgated, indicating that constitutionalization is closely linked to post WW2 nation building.

As the intensity and frequency with which they penetrate the social life has increased over time, national constitutions are now more relevant to population studies than ever before. Constitutions can be thought of as a technology of governance, i.e., they continually seek to improve overtime such that their functions are better preformed, modified, or changed altogether (Negretto 2012; Gardner 2016; Engstrom and Ho 2020). This suggests that national constitutions continue to improve, and subsequently change. In fact, constitutions are becoming more involved in the regulation of populations and family life (Barnett 1982; Barnett and Reed 1985). For instance, between 1870-1970, national constitutions included more provisions distinguishing childhood (Boli-Bennett and Meyer 1978); this is also supported in Figure 3.1, whereby

constitutions have gone from a state of no inclusion of children's rights or marriage, to the majority of constitutions addressing these rights. Similarly, inclusion of socio-economic rights in a constitution, many of which directly relate to personal choices regarding fertility (Freedman 1979; R. Lee 2003; McLanahan 2004; Ruggles 2015), has seen a major increase in recent years as well (Figure 3.3).

National constitutions have grown in popularity throughout the 20th century, particularly after World War II (Figure 3.4) and have remained fashionable ever since. While it is true that some constitutions are very long enduring (e.g., the U.S. constitution 'alive' since 1790[9]), roughly 75% of the world's national constitutions were created post WWII.[10] The adoption of national constitutions coincides with another important trend: demographic transitions. The convergence of low fertility and mortality has been most prominent around the globe following World War II (Caldwell and Caldwell 2006; Wilson 2011), though not all transitions were undertaken in a similar manner (Thornton 2013), nor were they timed synchronously (Caldwell 1976; Freedman 1979). Delventhal, Fernández-Villaverde, and Nezih Guner (2021) focused on the location and timing of transitions around the globe to show that transitions shifted into high gear following World War II.

This is not to say that demographic transitions are caused by constitutionalization, only to show that they are both part of a larger process and are plausibly associated. In other words, as populations transitioned over time, the Law has evolved to meet various demands created by transitioned populations (or vice versa[11]), and within this macro process, national constitutions

[9] In this respect, the American Constitution is the exception, not the rule. For instance, the joke among French Legal Scholars is that the French constitution should be located in the 'Periodicals' section in the library, as it is so oft to change (Z. Elkins, Ginsburg, and Melton 2009).
[10] This would also suggest that the adoption of a constitution generally, or particular provisions therein, is subject to a spatial process whereby isomorphisms or spatial autocorrelation can be observed (Crowley 2012). For this reason, spatial regression is the method employed.
[11] See above FN4.

play a role in shaping population dynamics. The macro trend can be thought of as a larger social shift towards 'modernity' or, the tail end of the industrial revolution around the globe (Chesnais 1992). Empires have risen and fallen (Mann 2012), healthcare has remarkably improved (Omran 2001; K. Harper 2021), humanity has even changed biologically (Fogeel 1994), and has touched the stars. To say that the constitutionalization observed in the latter half of the 20th century is independent of these developments is folly. Quite to the contrary, the fact that national constitutions have risen to such popularity, and the fact that they are plausibly intertwined with population processes such as demographic transitions, suggests that they are a crucial element that must be appreciated in the study of populations. And given constitutions' increased penetration into social life, their influence on population dynamics is likely to expand in the future.

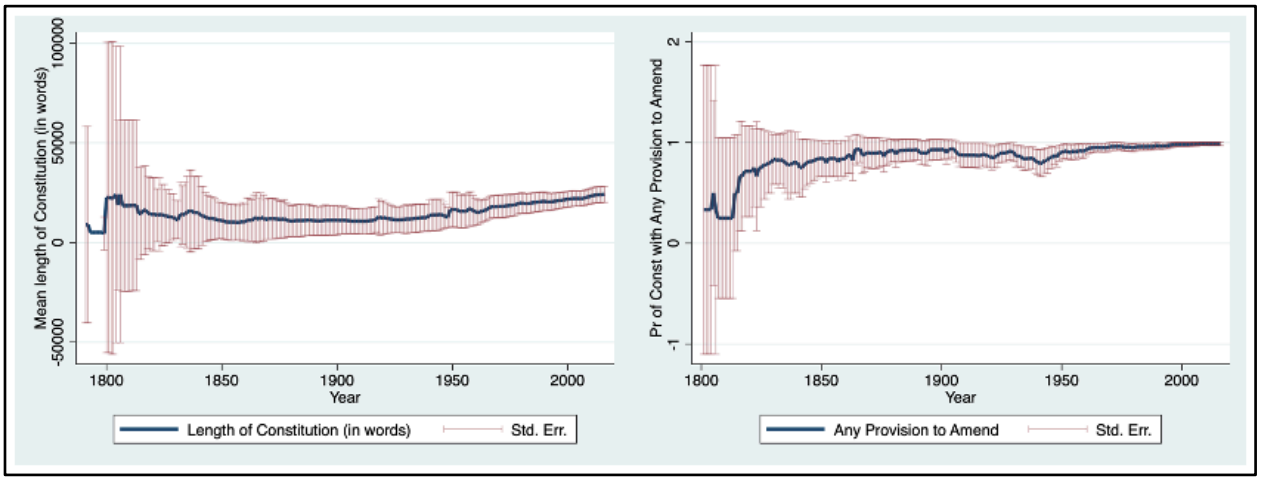
3.5 National Constitutions – Part III: Constitutional Design

The form, not just content, of a national constitution is a third element making constitutions a unique body of Law that is particularly amenable to population studies. Constitutional form (or design, used interchangeably) is immensely important to a constitution's success, longevity, and practical implementation (T. Ginsburg 2012). Two central factors in constitutional design are its length and specificity as well as its flexibility.

Specificity and length of a constitution implicate the constitutional-specific investment made by various interest groups and social movements (Z. Elkins, Ginsburg, and Melton 2009). Much like relationship-specific investments (Waite and Gallagher 2000), long and specific wording binds parties to an agreement in the future, as opposed to vague provisions. Too specific/long a constitution risks being impractical or inapplicable. Flexibility (the ease with which amendments can be made) also has an optimal point, for too rigid a constitution may no

longer be able to fulfill its functions given various environmental changes, whereas too flexible a constitution may lend to the whims of incumbent powers (Z. Elkins, Ginsburg, and Melton 2009). Both features are ideologically neutral, as long/short or flexible/rigid constitutions are not inherently tied to any form of governance, geographic region, or historical legacy (Merryman and Pérez-Perdomo 2018). Furthermore, both features (Figure 3.5) stabilized over time, as states became proficient in drafting constitutions that are of an optimal length and flexibility. As constitutional design is empirically linked to its life-course and application by lower courts and legislators (T. Ginsburg 2012), it may also be linked to population dynamics (Barnett 1982).

Figure 3.5: Length (left) and Flexibility (right) of Constitutions, 1800-2020



Source – Comparative Constitutions Project.
Note – The left panel depicts the mean number of words in a constitution (an indicator for length). The right panel depicts the mean of constitutional flexibility, defined as '-1' when the constitution has entrenched segments that are unamendable; '0' no provisions relating to amendment; '1' when a constitution includes provisions that allow constitutional amendment AND provisions that entrench certain segments as unamendable; and '2'when a constitution has provisions providing for constitutional amendment, but no unamendable segments. Whiskers signify standard errors. Both panels demonstrate how constitutional length and flexibility have stabilized over time.

3.6 How National Constitutions influence Fertility – General Mechanisms:

The link between Law & Demography has been theoretically explored in the literature by legalists, particularly with respect to population dynamics (L. T. Lee and Gardiner 1971; Barnett

and Reed 1985). This link has also been recognized by demographers (Notestein 1945; Woolf 1977), but rarely are the two disciplines considered together. Recent studies have linked constitutions to the development of norms regarding the family (Arsic and Jerinic 2024), and fertility (Pizzarossa and Perehudoff 2017), but do not provide longitudinal analysis nor establish a theoretical link between the two. This segment marries (pun intended) insight from Population Law and Constitutional Law with the theoretical underpinnings of fertility. Two general mechanisms for constitutional influence on fertility are explored: (a) constitutional *content*; and (b) constitutional *design*. These constitutional mechanisms implicate the microeconomic (Becker 1991) and sociocultural approaches to fertility (Coale and Watkins 1986; Cleland and Wilson 1987; Thornton, Axinn, and Xie 2007), as well as uncertainty demography (J. A. Trinitapoli 2023).

The most intuitive and straight forward influence a constitution may have on fertility is via its content, i.e., what rights it protects, what duties it demands, and to what degree.[12] Opeskin and Nwauche (2013) suggested that national constitutions target population dynamics via identifiable legal domains: political, socio-economic, ethno-cultural, and scientific.[13] These domains are then theoretically linked to various population dynamics such as fertility, mortality and migration. Specifically, a link is established by identifying *intervention variables* (May 2012, chap. 3): instances where the output of the Law becomes the input of demography.

For example, within the socio-economic domain, constitutions interact with fertility via legal valves such as marital status or contraceptive use (Opeskin and Nwauche 2013, 461), two

[12] The question of "intention" remains unanswered here. While it is possible to attribute intent to constitutional law via objective markers such as preambles to the constitution, external materials (e.g., notes from negotiation process), titles, and expressed intent, the data as currently constructed do not allow for a systematic examination of intent. Furthermore, recall the problem of legal bodies being a "THEY" rather than an "IT" (Shepsle 1992): negotiating dynamics such as logrolling make it difficult to track the 'actual' objective intent of the lawmaker.
[13] See above, FN1.

direct determinants of fertility (Bongaarts 1978). An explicit provision in a national constitution (or lack thereof) will therefore be plausibly linked to fertility. The link is established not only by entrenching marriage rights or allowing/disallowing contraceptive use, but by creating a new regulatory environment of lower level Laws and enforcement by courts and administrative agencies at all levels of government due to the hierarchical nature of legal systems. The regulatory environment "*cannot not"* influence fertility (McNicoll 2001, 139), though this may happen in unexpected ways (J. Blake 1969).

In this way, constitutions can shape individual and community norms (Sunstein 1996; Breslin 2009; McAdams 2015), particularly with respect to fertility (Barnett and Reed 1985). From the microeconomic perspective, a constitutional change can mean a substantial change in costs implicating personal preferences. For instance, a constitutional right to marry may lower the cost of marriage for certain populations such as same-sex (Geoffrey R. Stone 2017) and interracial couples (Grossman and Friedman 2011), and easier access to marriage is associated with higher fertility (Becker 1991). From the sociocultural perspective, a constitutional right to marry might help in re-shaping cultural scripts regarding who is eligible to marry (Laumann 2002; Simon and Gagnon 2003).

The reverse can be true as well, so that the lack of a right, or inclusion of legal provisions that restrict rights for certain populations raise costs or shape attitudes against marriage or contraception (Geoffrey R. Stone 2017). For instance, constitutional restrictions on women's rights in Africa and the Middle East may include limited participation in the political process or absence of choice in selecting a marriage partner (Charrad 2001; Kelly 2010). Restrictions on same-sex marriage still exist in Europe; some countries have recently enacted such restrictions in seeming opposition to the western attitudes towards same-sex marriage (S. Siegel and Wang

2018), as the constitutional right of marriage still varies substantially within the region (Molnár 2021).

The addition, subtraction, or omission of constitutional rights that serve as determinants of fertility will likely have some effect on fertility, whether via individual preferences or community norms. This may include marriage, contraception, and abortion, among others. A right to marriage, as stated above, can shifts costs and social attitudes. But a constitutional right may also implicate the bargaining position between men and women, itself a central factor in fertility (Becker 1991). In the U.S., the constitutional regulation of contraception and abortion helped to break the monopoly marriage has over sex and fertility (Cott 2002), thus establishing new pathways to parenthood (Smock and Greenland 2010) and implicating fertility.

Constitutional content can also include elements that are ancillary to fertility, such as legal provisions pertaining to the intermediate and contextual determinations of fertility (Bongaarts 1978).[14] This secondary group is inherently problematic, as its boundaries are fuzzy. Nevertheless, there are some adjacent elements that are known to have a strong and significant association with fertility; Axinn and Yabiku (2001) discuss a number of such elements: work, consumption, schooling, transportation, residence, leisure, healthcare, ethnicity, and more. Some of these elements are regulated by national constitutions. For instance, a constitutional edict prohibiting sex-based discrimination can promote female labor force participation (Carlson 2007; R. B. Siegel 2017), which increases the female bargaining position and results in lower fertility (Becker 1991). This means that certain constitutional rights not directly tied to the determinants of fertility are nevertheless influential.

[14] The chain of propinquity is theoretically limitless, as elements seemingly distant from fertility may nevertheless have *some* effect. For instance, the regulation of Environmental issues or Military Service may have a non-trivial effect. While these types of effects – third-order regulation – are intriguing and potentially important, this is outside the focus of this study.

In terms of numbers and visibility, these ancillary rights are receiving more constitutional attention (Law and Versteeg 2010). Roughly 40% of all national constitutions have provisions for healthcare today, up from about 10% in 1950, and roughly 75% of all national constitutions have provisions for education today, up from about 25% in 1950. Note once more how the penetration deepens over time. It stands to reason, that greater involvement in the shaping of a regulatory context adjacent to fertility will have some effect on fertility, though perhaps a lesser effect.

Constitutional design may similarly have an indirect influence on fertility. As mentioned above, constitutional design includes elements such as the length and specificity, as well as the flexibility of the document, which may have a small, but significant effect on population dynamics. This is because the constitution is the foundation upon which an entire legal system is built, and even seemingly small quirks or features can yield certain outcomes in the regulation of a population and thus its demographic behavior. Put differently, constitutional design influences the general social context in which decisions regarding fertility are made.

Consider the constitutional design elements of length and specificity, which are crucial to the longevity and success of a constitution (Z. Elkins, Ginsburg, and Melton 2009). A specific constitution may behold interest groups present during its drafting, encouraging future investment in and adherence to the constitution (Z. Elkins, Ginsburg, and Melton 2009), whereas too vague a constitution can be swayed by the prevailing interpretation of the time (G. R. Stone et al. 2013). In many ways, this is like relationship-specific investment (Waite and Gallagher 2000), that stabilizes and encourages future investment in a relationship (Becker 1991). Similarly, a constitution can be more or less welcoming of change, depending on its flexibility (or rigidity); each bearing different costs. A flexible constitution can enable legal (and social) change, that will relieve built-up social pressure and allow it to adapt as necessary (Z. Elkins,

Ginsburg, and Melton 2009), while too rigid a constitution can be used "abusively" to entrench autocratic and other non-democratic powers (Landau and Dixon 2015); a rigid constitution will generally create a gap between prevailing norms and the Law, often resulting in social turmoil (Z. Elkins, Ginsburg, and Melton 2009).

Constitutional length, specificity, and flexibility engender legal change (Z. Elkins, Ginsburg, and Melton 2009), and legal change leads to uncertainty in the legal system (Sampford 1979; Banting and Simeon 1985; Griffin 1995), making uncertainty demography (J. A. Trinitapoli 2023) an enticing theoretical approach. Uncertainty is an omni-present phenomenon that pervades individual and community outcomes (Baker, Bloom, and Terry 2024), as well as population dynamics, fertility included (Aassve, Le Moglie, and Mencarini 2021). However, uncertainty can chill or incentivize fertility (J. A. Trinitapoli 2023). For instance in Europe and the U.S., economic uncertainty brought on by the Great Recession had a chilling effect on fertility (Schneider 2015; Matysiak, Sobotka, and Vignoli 2021), whereas uncertainty tied to infant mortality had an incentivizing effect in rural Nepal (Sandberg 2006).

Constitutions are subject to environmental pressures (see FN3),[15] though ill-fated constitutional design can also contribute to such environmental pressures (T. Ginsburg 2012; Merryman and Pérez-Perdomo 2018). Even if a constitution's design is "optimal", history has shown that constitutions are relatively dynamic – ¼ of constitutions experience some form of change every year (Z. Elkins, Ginsburg, and Melton 2009).

Legal change mirrors uncertainty as defined by Trinitapoli (2023, 76): it is specific, observable and measurable (Z. Elkins, Ginsburg, and Melton 2009), while relating to past

[15] Well-documented determinants of constitutional change are economic crises and war (Z. Elkins, Ginsburg, and Melton 2009); for this reason, both these environmental factors are controlled in the data when testing the association between constitutional design and a later change in TFR.

circumstances and future events (Sorensen 2015). Constitutions, like uncertainty, are highly variable across time and space (Tom Ginsburg, Chernykh, and Elkins 2008; Zachary Elkins 2010; Law and Versteeg 2010), and implicate both the individual (Geoffrey R. Stone 2017) and institutional levels (Breslin 2009). Lastly, constitutions do not apply equally to regulated denizens just as uncertainty is unevenly distributed across populations (Goldsworthy 2006). As such, legal change serves as a good proxy for uncertainty.

Uncertainty created in the legal system via constitutional design and legal change can manifest in two ways. First, uncertainty in Constitutional Law pertains to its application (D'Amato 1983; Deffains and Dari-Mattiacci 2007). When the constitution changes, this impacts the entire regulatory environment, including lower level laws and their enforcement. The adaptation process generates uncertainty as both regulator and regulated must to adjust to the new system or its modifications (Jung and Deering 2015; Geoffrey R. Stone 2017; Marshfield 2017). As such, uncertainty can be understood as a cost-inducing mechanism. When a legal regime undergoes reform, it will entail adjustment and interpretation costs (Calfee and Craswell 1984). This occurs at both the institutional level (e.g., courts), and the individual level (e.g., litigant and attorney).

Uncertainty can also impact social norms and attitudes on the macro level. Extended and continuous periods of constitutional change and adaptation may result in "unsettled times" (Swidler 1986), which can potentially destabilize established social and constitutional norms (Z. Elkins, Ginsburg, and Melton 2009) and lead substantial shifts in governance (Jung and Deering 2015). As the basic blueprint of society (Breslin 2009), wishy-washy constitutions make it difficult to nail down stable norms. In other words, individuals and communities cannot orient to the Law if it is sending a cacophony of signals (McAdams 2015); when the Law changes –

especially when it changes too often – the shadow it casts is weak. This can lead to a rise in the importance of informal social norms (J. Trinitapoli and Richou 2015) and private ordering (Bernstein 2001).

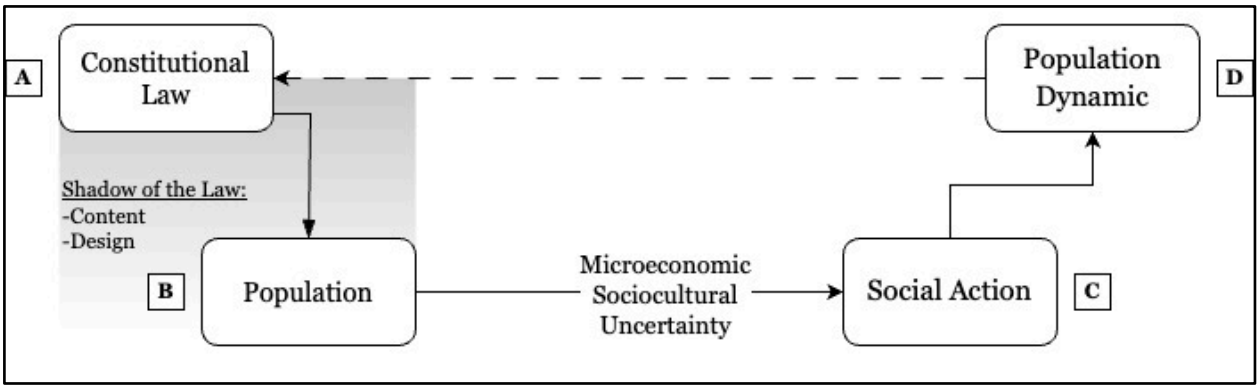
The association between constitutions and fertility varies in time and space. First, the relatively recent trend towards constitutionalization (Z. Elkins, Ginsburg, and Melton 2009), alongside the proliferation of constitutional rights as well as their increasing penetration into the social domain (Law and Versteeg 2010), suggest that the role of constitutions has changed over time, and thus their interaction with fertility. Second, countries, sub-regions and even regions vary substantially in their constitutional content and design (T. Ginsburg 2012).

Due to legal, cultural, and socioeconomic inter-regional variation, the association between constitutional content or design and fertility in disparate regions may exhibit opposite results. This is because extant social and community norms regarding fertility vary wildly across regions (Cheng et al. 2022). In practice, this means that a constitutional right is limited by the context in which it is enacted. For example, a constitutional right of contraception can be received differently by disparate populations: (a) it may signal a new prevailing attitude abhorring state involvement in the bedroom, a view that promotes privacy (Geoffrey R. Stone 2017, chap. 15), paving the way for extra-marital sex, cohabitation, and non-marital birth (Thornton, Axinn, and Xie 2007); or (b) it may signal to an individual or a community that the risks associated with contraceptive use (e.g., health risks or reputation costs) are now acceptable (D'Souza et al. 2022), lending to a lower fertility, especially in developing countries (Cleland et al. 2012).

The theoretical model, constructed in the spirit of Coleman's theory of social action (1990), is presented in Figure 3.6. Constitutional Law casts a shadow on individual and

community norms through its content and design. In orienting to the Law, individual preferences and social norms may adjust as well, so that a change is observed in country-level fertility rates. While this model includes four chronological stages, only stages A and D are observed, leaving a data gap in the model. The segment below on Data and Hypotheses attempts to fill in this gap by offering a number of plausible concrete mechanisms to explain what happens in stages B and C with respect to specific constitutional rights/content and design elements, and what the expected fertility outcomes may be by geographic region. Nevertheless, the specific mechanisms remain suggestive.

Figure 3.6: Theoretical Model - Constitutional Law and Population Dynamics



3.7 Data & Methods

Four datasets are merged to create a semi-original dataset: (I) the Comparative Constitutional Project (CCP),[16] including data on national constitutions; (II) Demographic Transition data (DT) (Delventhal, Fernández-Villaverde, and Guner 2021), including historic data on crude birth and crude death rates, as well as GDP per Capita; (III) Correlates of War data (COW) (Palmer et al. 2022), including information on political and military conflict; and (IV)

[16] Elkins, Zachary and Tom Ginsburg. 2021 "Characteristics of National Constitutions, Version 3.0." *Comparative Constitutions Project.* Last modified: May 20, 2021. Available at comparativeconstitutionsproject.org.

U.N. Population division data on demographic markers (United Nations 2022).[17] The resulting dataset includes 13,632 country-years for 193 countries between the years 1950-2020. The time window was limited by the availability of the UN data, but descriptive exploration was conducted on the CCP and DT data, ranging back to 1789. The dependent variable examined is the Total Fertility Rate (TFR), for which no data were missing.

3.7.1 Predictor Variables

The first set of predictor variables includes constitutional content that directly targets the core elements determining fertility: the constitutional right to marriage and child support (typically monetary). Marriage, the most common legal lever in the study of populations (Woolf 1977; Becker 1991) can be intricately regulated in regional or local law, but a constitutional right to marriage sends an undeniable signal to the regulated population regarding the primacy of that institution, and the role the state will serve in the matrimonial bond. This variable is ordinal, ranging from 1-4, where a higher designation corresponds to a stronger right.[18]

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[17] *United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022: Data Sources. (UN DESA/POP/2022/DC/NO. 9).*

[18] The CCP data include comments written by the legal experts who coded the constitutions. The comments include a numerical code to indicate the type of right: (1-general right; 2-limited; 3-no right; 90-left to non-constitutional law, and 96-other). Experts' codes and comments allow for a qualitative differentiation in the strength of the right to marry. The coding scheme employed: '1' indicates no constitutional right to marriage exists. This may include a passing reference to marriage (e.g., Haiti, 1987: "recognizes protection of family constituted within the bonds of marriage", Chad 2018: "prohibits premature marriages"), or reference made only to family rather than marriage (e.g., Kyrgyz Republic, 2003, Madagascar, 1959); '2' includes country-years where marriage is directly mentioned as a social institution, but is to be regulated by lower level law (e.g., Algeria 1989 "general rules pertaining to marriage belong to the domain of the law"; Niger, 1989 "law establishes regulations regarding matrimonial laws", North Korea 1948 "state protects marriage"); '3' includes country-years where the right to marry is explicit, but restricted in some form (e.g., Hungary 2011 "Hungary shall protect the institution of marriage as the union of a man and a woman", Democratic Republic of the Congo 1960 "subject to restrictions mandated by non-constitutional federal and provincial law and custom", Honduras 2005 "only marriages conducted by competent official and with conditions required by law are valid; same sex marriages expressly prohibited; same sex marriages conducted or recognized in other countries have no validity in Honduras"); '4' includes country-years with a general right to marry with no restrictions (e.g., Guatemala 1982 "state shall create such conditions and arrangements as will permit marriage to be contracted easily and at low cost", Columbia 1991 "family is the basic nucleus of society; it is formed on the basis of natural or legal ties through the free decision of a man and woman to contract matrimony; forms of marriage the age and qualifications to contract it the duties and rights of the spouses their separation and the dissolution of the marriage ties are determined by law").

Child support can be included in the constitution as a form of general or financial support. Support to children can send various signals to a population, though consequences with regards to fertility can be notoriously difficult to predict (Judith Blake 1994; McNicoll 2001; Solinger and Nakachi 2016). The form of support provided, while typically monetary, can still vary markedly based on countries' welfare goals (Henderson and White 2004; García-Faroldi 2015). This constitutional right was coded as binary, to liberally include any form of support. Examples include support to mothers (e.g., Montenegro enacted in 2007, Morocco enacted in 2011), pregnant women (e.g., Serbia and Montenegro 2003, Uruguay 1985), families (e.g., Panama 1972, Poland 1997), and adolescent or youths (e.g., Peru 1993, Senegal 1963, Thailand 2007).

The second set of predictors captures elements of constitutional form; used here are the flexibility of a constitution (how easy to amend), and length of the constitutional section on rights. Flexibility is an ordinal measure, where '0' includes a constitution with no clear procedure to amend but does include certain provisions that are especially entrenched against future change; '1' includes constitutions that have both entrenched provisions and clear amendment procedures; and '2' includes constitutions with no entrenched provisions and a clear amendment procedure. Words in rights section is a count variable, tallying the number of words present in a constitution's section devoted to rights.

Additionally, a predictor for constitutional change is included as well: enactment of a new constitution. Constitutional change[19] signifies change, though this change may be associated with various environmental pressures, such as democratization (Jung and Deering 2015), or

[19] A Constitutional event can include: (1) adoption of a new amendment; (2) adoption of an interim constitution; (3) adoption of an entirely new constitution; (4) reinstating an old constitution; (5) suspending an existing amendment; or (6) suspending an existing constitution

expanding constitutional rights (Law and Versteeg 2010; Goderis and Versteeg 2014). A new constitution is typically associated with regime change and political turmoil (Z. Elkins, Ginsburg, and Melton 2009). However, war, regime change, and economic crisis (in the focal country or its neighbors) are controlled, so that the association between a new constitution and TFR can be tested independent of known confounders. Enactment of a new constitution is a binary variable; its occurrence is relatively infrequent (roughly 4% of country-years) but does occur in every region across all years.

Table 3.1: Descriptive Statistics - Constitutional Predictors, 1950-2020

	Obs.	Mean	Std. dev.	Min	Max	Pre-impute Miss %
Right to Marriage	13,632	1.594	0.796	1	4	29.56
Right to Marriage (Nbrs)	13,632	1.591	0.418	1	3.567	29.56
Child Support	13,632	0.391	0.449	0	1	29.56
Child Support (Nbrs)	13,632	0.388	0.220	0	1	29.56
Words rights section	13,632	2467.336	2525.607	44	15799	29.56
Words rights section (Nbrs)	13,632	2472.502	1820.111	99	11140	29.56
Flexibility	13,632	1.575	0.520	0	2	29.56
Flexibility (Nbrs)	13,632	1.577	0.298	0	2	29.56
New Constitution	13,632	0.048	0.183	0	1	29.56
New Constitution (Nbrs)	13,632	0.047	0.072	0	0.678	29.56

Source – Comparative Constitutions Project.
Note – All constitutional predictors were imputed. Nbrs (Neighbor variable) – the mean value of a focal country's geographic neighbors

3.7.2 Control Variables

Three groups of control variables are included to isolate signal from the noise of socio-economic variables, turmoil such as war and recession, and controls for the type of governance. Socio-economic control include includes GDP per capita (logged), population density, sex ratio (number of males per 100 females), median age, annual population growth rate, crude death rate, life expectancy at birth, infant mortality rate, net migration rate, and dependency ratio. For each control, a spatial lag is constructed; this is the mean value of a variable for a country's neighbors. Choice of weights and imputation will be elaborated upon below.

Table 3.2: Descriptive Statistics – Demographic, Economic, and Legal Controls, 1950-2020

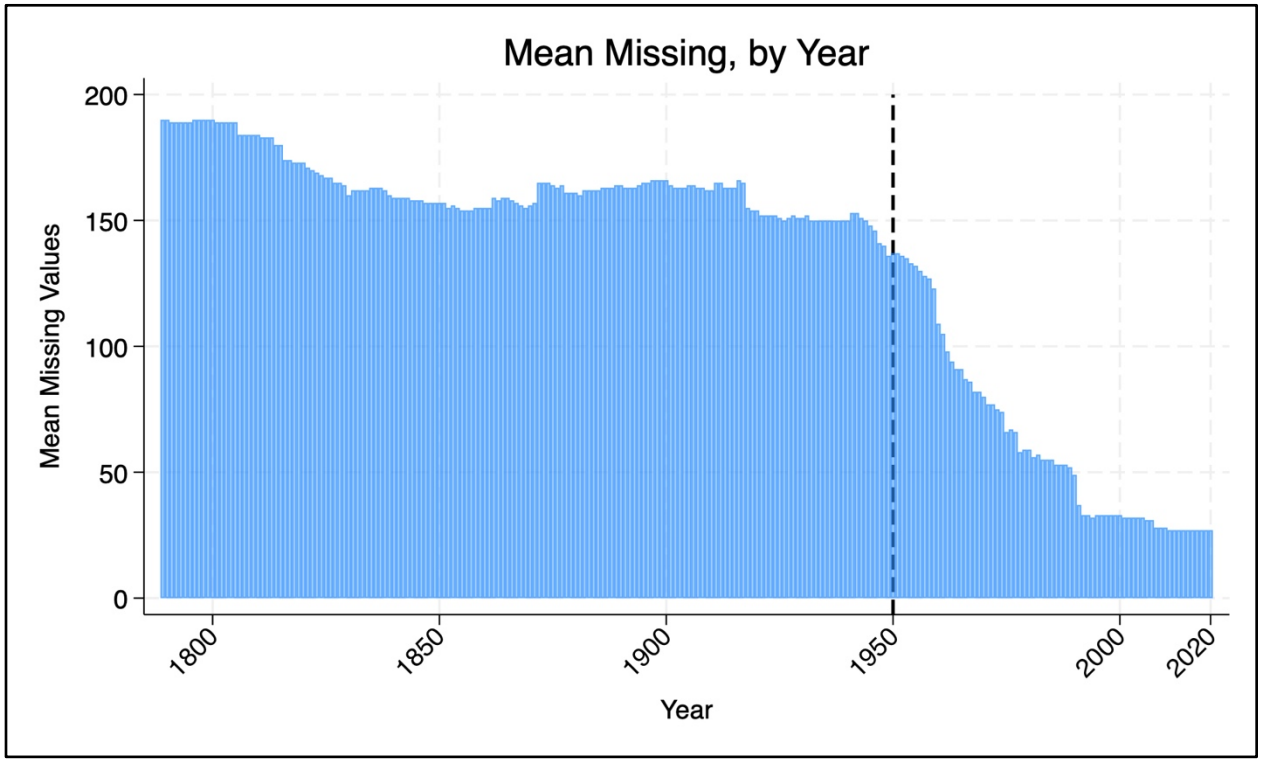
	Obs.	Mean	Std. dev.	Min	Max	Pre-impute Miss %
Year	13,632	1987.344	18.273	1950	2016	0
Total Fertility Rate	13,632	4.190	2.048	0.887	8.864	0
Total Fertility Rate (Nbrs)	13,632	4.190	1.832	1.233	7.303	0
Population Density	13,632	228.630	1432.454	0.502	24879.53	0
Population Density (Nbrs)	13,632	228.630	512.274	1.064	3350.066	0
Sex Ratio	13,632	105.095	1.936	96.700	128.2	0
Sex Ratio (Nbrs)	13,632	105.095	1.443	102.300	109.96	0
Median Age	13,632	23.006	7.614	13.078	54.457	0
Median Age (Nbrs)	13,632	23.006	6.930	14.215	43.875	0
Population Growth rate	13,632	1.816	1.834	-71.689	36.299	0
Population Growth rate (Nbrs)	13,632	1.816	1.053	-2.153	5.55	0
Crude Death Rate	13,632	11.793	6.428	0.795	103.534	0
Crude Death Rate (Nbrs)	13,632	11.793	5.277	4.202	36.883	0
Life Expectancy at birth	13,632	62.269	12.293	11.995	86.542	0
Life Expectancy at birth (Nbrs)	13,632	62.269	11.039	34.821	84.324	0
Infant Mortality Rate	13,632	63.814	56.098	1.149	400.643	0
Infant Mortality Rate (Nbrs)	13,632	63.814	48.951	2.242	235.642	0
Net Migration Rate	13,632	-0.095	14.594	-526.32	415.239	0
Net Migration Rate (Nbrs)	13,632	-0.095	5.814	-31.381	39.824	0
Dependency Ratio	13,632	72.082	20.239	16.200	123.300	0
Dependency Ratio (Nbrs)	13,632	72.060	17.062	37.917	121.600	0
GDP per Capita (log)	13,632	8.677	1.164	5.063	12.930	0
GDP per Capita (log) (Nbrs)	13,632	8.923	0.949	6.741	11.069	0
Economic Crisis	13,632	0.389	0.487	0	1	0
Economic Crisis (Nbrs)	13,632	0.395	0.253	0	1	0
Hostility Level*	13,632	0.755	1.381	0	5	24.01
Hostility Level (Nbrs)*	13,632	0.745	0.747	0	5	24.01
Judicial Independence*	13,632	0.725	0.413	0	1	29.56
Judicial Independence (Nbrs)*	13,632	0.724	0.231	0	1	29.56
Executive Independence*	13,632	0.083	0.256	0	1	29.56
Executive Independence (Nbrs)*	13,632	0.084	0.118	0	0.792	29.56
Religiosity Index*	13,632	2.608	1.685	0	7	29.56
Religiosity Index (Nbrs) *	13,632	2.612	1.109	0	5.673	29.56
Mentions of Democracy*	13,632	5.420	7.002	0	71	29.56
Mentions of Democracy (Nbrs) *	13,632	5.441	3.614	0	19.364	29.56
Reference to Socialism*	13,632	0.134	0.310	0	1	29.56
Reference to Socialism (Nbrs)*	13,632	0.131	0.157	0	0.940	29.56
Reference to Free Market (Nbrs) *	13,632	0.152	0.332	0	1	29.56
Reference to Free Market (Nbrs) *	13,632	0.149	0.160	0	1	29.56

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Asterisk (*) indicates Imputed variables. Nbrs (Neighbor variable) – the mean value of a focal country's geographic neighbors.

The second group of controls seeks to measure turmoil by including a binary variable for war and economic crisis. War is an ordinal variable measuring the level of political hostility

within a country, ranging from '0' (no activity) to '5'(war). Economic crisis is a binary variable indicating if GDP fell by more than 2.5% compared to the year before. Each of these variables includes a spatial lag as well, so that the effects of a neighbor experiencing war or economic

Figure 3.7: Missing Comparative Constitutions Project Data, 1791-2020



Source – Comparative Constitutions Project.
Note – This figure depicts the mean number of missing values for each country included in the sample of national constitutions, by year. Notably, the mean missingness markedly drops after 1950, and remains consistently low from the 1990s to present.

crisis are controlled as well.

The third group includes institutional controls regarding a country's type of governance/authority. This includes a binary variable to indicate whether a constitution provides for an independent judiciary, a continuous variable that measures the number of mentions of the term "democracy", a binary variable indicating references to "Socialism" and a binary variable

indicating references to “Free market”.[20] Finally, a religiosity index measures the intensity of religious reference in a constitution.[21] The religiosity index ranges from ‘0’ (very low religiosity) to ‘7’ (very high).

3.7.3 Dependent Variable

Fertility on the country-level is measured using Total Fertility Rates (TFR). These are the sum of the age-specific fertility rates for women in their reproductive window, ages 10-50. TFR indicates the mean number of children borne by a woman who lived through her reproductive window, having been exposed to varying age-specific fertility rates throughout. This provides a strong measure for overall fertility in an administrative unit (country), as TFR generally indicate population trends. When TFR is consistently above replacement (roughly equal to 2, or 2.1 to allow for infant mortality), reproducing couples are replacing themselves with more than 2 children indicating that a population is growing, whereas a TFR consistently under replacement level (TFR<2) would suggest a population that is diminishing in size (Preston, Heuveline, and Guillot 2001). Both Age-Specific Fertility Rates and their sum are available in the data published by the UN Population Division. TFR is constructed as such:

$$\mathrm{TFR}_{it} = \sum_{a=10}^{49} ASFR_a \times 5$$

Where:

TFR is the sum of all age specific fertility rates (ASFR) for age-groups based on a 5-year interval, beginning at age 10 (=α), and ending at age 49, for country *i* in year *t*.

[20] At times, “socialism” and “free market” are referenced together: Albania 1976-1990; China 1954-2016; Croatia 1991-2016; Cuba 1976-2016, Ethiopia 1987-1990; Guyana 1970-2016; India 1976-1977, 1992-2016; Mongolia 1950-1989; Myanmar 2008-2016; Poland 1952-1991; Russia 1950-1992; and Sudan 1971-1972.
[21] This index combines the following indicators: (a) reference to God; (b) role of religious law; (c) official religion; (d) repugnancy clauses (law contradicting religion is void); and (e) separation of religion and state.

There is a portion of data that is missing from the CCP and COW data, necessitating imputation. CCP data were restricted to 1950-2020, as there is a precipitous decline in missingness around 1950 (Figure 3.7); moreover, this is the earliest year of availability for country-level data from the UN Population Division. The missingness however, varies considerable by region (Table 3.3), especially as some regions, Sub-Saharan Africa in particular, have multiple states that gained sovereignty in the late 20th century. For this reason, some regions were left-censored by years, to reduce missingness to a level adequate for meaningful imputation, and later analysis.

Table 3.3: Missing Observations and Left Censoring of Data, by Region

Region	Countries	Observations	Missing	Missing %	Left Censored Year
Sub-Saharan Africa	45	2070	357	17.25	1975
West Europe + N. Am.*	30	2130	340	15.96	1950
East Europe	22	1320	505	38.26	1960
East Asia	25	1775	395	22.25	1950
Central Asia	14	840	282	33.57	1960
MENA	23	1380	444	32.17	1960
Latin Am. + Caribbean	33	2272	447	19.67	1950

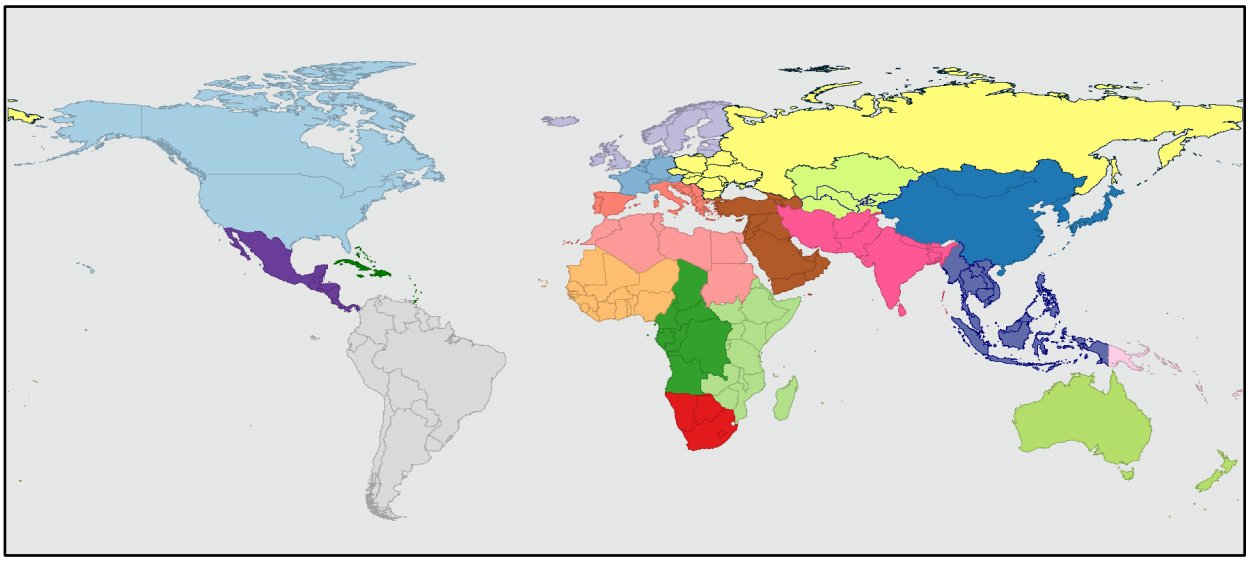
Source – Comparative Constitutions Project.
Note – Indicates data missingness per region after left censoring, as well as the number of countries and country-years included in each region.
*Includes Australia and New-Zealand as well; for ease of reference, they are not included in the region's name.

The spatial structure of the data and the underlying autocorrelation across space and time make predictive mean matching (PMM) particularly useful method for imputation (Morris, White, and Royston 2014), as it relies on predefined 'donor' observations to impute the value of the missing observation. PMM imputation can use donors that are closer in time and space to the missing observation, by limiting the imputation to specific geographic regions and time periods. The relative size of the pool from which donors are selected reflects the tradeoff between

variance and bias (Schenker and Taylor 1996). Following trial and error, imputation was conducted using the following parameters:

- k=10 donors, as is within the recommended range donors (Schenker and Taylor 1996).
- grouped by geographic Region: as described in Table 3.3.
- grouped by time: 3 time periods were created for each region (from restricted year t0 2020), to ensure sufficient observations from which to draw donors.
- m=30 iterations performed for each variable separately (missingness ~ 30%).

Map 3.1: Countries in Sample, by Subregion



Source – UN Population Division.
Note – This map depicts the countries analyzed (n=193), grouped into subregions according to the UN M-49 classification, for a total of 22 subregions.

Data were analyzed using spatial regression. National constitutions are amenable to spatial regression as they exhibit robust spatial dynamics such as diffusion and transplantation (Spector 2008; Horwitz 2009); Law, like social facts, is spatially located (Abbott 1997) – the geographic component is crucial. This method utilizes the underlying structure of spatial panel data to control for autocorrelation across space and time (Rey and Franklin 2022). Both space

and time lags are created to control for the influence of surrounding countries' constitutional, demographic, political, and economic characteristics.

Block weights were created; these blocks represent the UNs subregional categorization of countries. That is, a focal country's neighbors are all the countries in its subregion, excluding the focal country. Given the scale, geographically contiguous weights and distance-based weights yield bi-modal distributions for neighbors, and either a marked number of isolates (countries with no neighbors), or countries with too many neighbors. For this reason, a theory based weight was preferable, one that identifies neighborship based on constitutional and social interaction between countries. The UN's subregions[22] are composed "*to obtain greater homogeneity in sizes of population, demographic circumstances and accuracy of demographic statistics*".[23] Furthermore, while not all countries within a subregion are geographically contiguous (e.g., Australia and New Zealand), they are located in the same geographic region; Leveraging Tolbler's first law of Geography (Tobler 1970),[24] the socio-economic and spatial proximity serve as a good foundation to model constitutional interactions between neighbors within a subregion. In other words, focal country A, is likely to interact more closely with countries B and C in its subregion, compared to countries D and E located on a different continent. No single choice of weight is perfect, so that this becomes a process of trial and error to find a weight that is qualitatively and quantitatively justifiable.[25]

[22] https://population.un.org/wpp/DefinitionOfRegions/.
[23] https://unstats.un.org/unsd/methodology/m49/
[24] "*I invoke the first law of geography: everything is related to everything else, but near things are more related than distant things*." (Tobler 1970, 236)
[25] Sensitivity analysis tested alternative weights, including queen first-, second- and third-order, K-nearest neighbor weights (k=3, 4, 5, 6), distance bands, and similarity based on cluster analysis to create even more homogenous subregions. After trial and mostly error, the original UN subregional designation was far superior to all alternatives, quantitatively (most appropriate number of neighbors, mean=10.16, sd=4.6) and qualitatively (most justifiable identity of neighbors, with respect to demographic and economic homogeneity).

Following identification of neighbors, spatial lags were constructed. A spatial lag represents the mean value of a variable, calculated for all countries in a subregion, excluding the focal country. For example, each country has a variable indicating its own GDP per Capita for year T, as well as a variable indicating the mean value of its neighbors' GDP per Capita, for the same year T (Anselin 2022). Spatial lags are constructed for each control variable, as well as for the dependent variable, TFR. Spatial lags are constructed to isolate the focal country's TFR from the influence of neighboring countries' confounding variables, as well as its own. Similarly, spatial lags are constructed for the constitutional predictors to isolate the state of constitutional law in a focal country from the noise of neighbors' constitutions.

Lastly, a time lag is constructed for both constitutional predictors and their spatial lag to create 10 time lags of 1-10 years.[26] This is to facilitate the exploration of the association between constitutional predictors and a later change in country TFR. Selection of these time lags is grounded in theory regarding the temporal effects of Constitutional Law (Z. Elkins, Ginsburg, and Melton 2009; T. Ginsburg 2012; Goderis and Versteeg 2014). The final dataset includes: (I) spatial lags for each variable (controls, predictors, and dependent variable); and (II) time lag variables (1-10 years) for each constitutional predictor and its spatial lag.

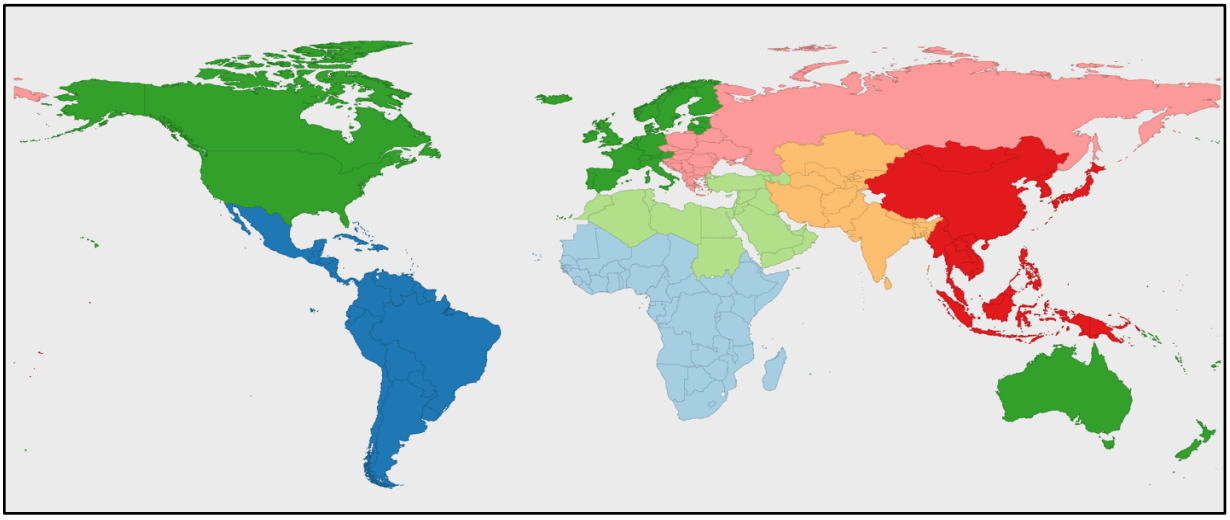
3.7.4 Regionality

Much like the demographic transition, constitutionalization and legal systems generally, are a spatially dependent process that vary in time and space in a non-linear process (Law and Versteeg 2010; T. Ginsburg 2012; Tom Ginsburg and Versteeg 2014; Goderis and Versteeg 2014). For the same reason that the demographic transition must be studied in context, where no single

[26] As the CCP data range from 1789-2020, time lags can be created for constitutional provisions without introducing missing observations into the complete dataset (1950-2020).

theory fits all regions (Thornton 2013), so must constitutions. To do this, countries needed to be clustered into certain regions. Clustering, part art, part science (Garip 2012), seeks to maximize homogeneity within a cluster, while also maximizing differences between clusters (L. Kaufman and Rousseeuw 2009). Clustering can be theory- or data-driven, or both, as is the case here. The goal is to balance between the within region constitutional similarity, the between region constitutional dissimilarity, while still maintaining geographically contiguous regions that include a large enough number of observations to perform meaningful analysis. To paraphrase the great Asimov, this is like balancing a beach ball on 1,000 needles (Asimov 1988).

Map 3.2: Countries in Sample, by Region



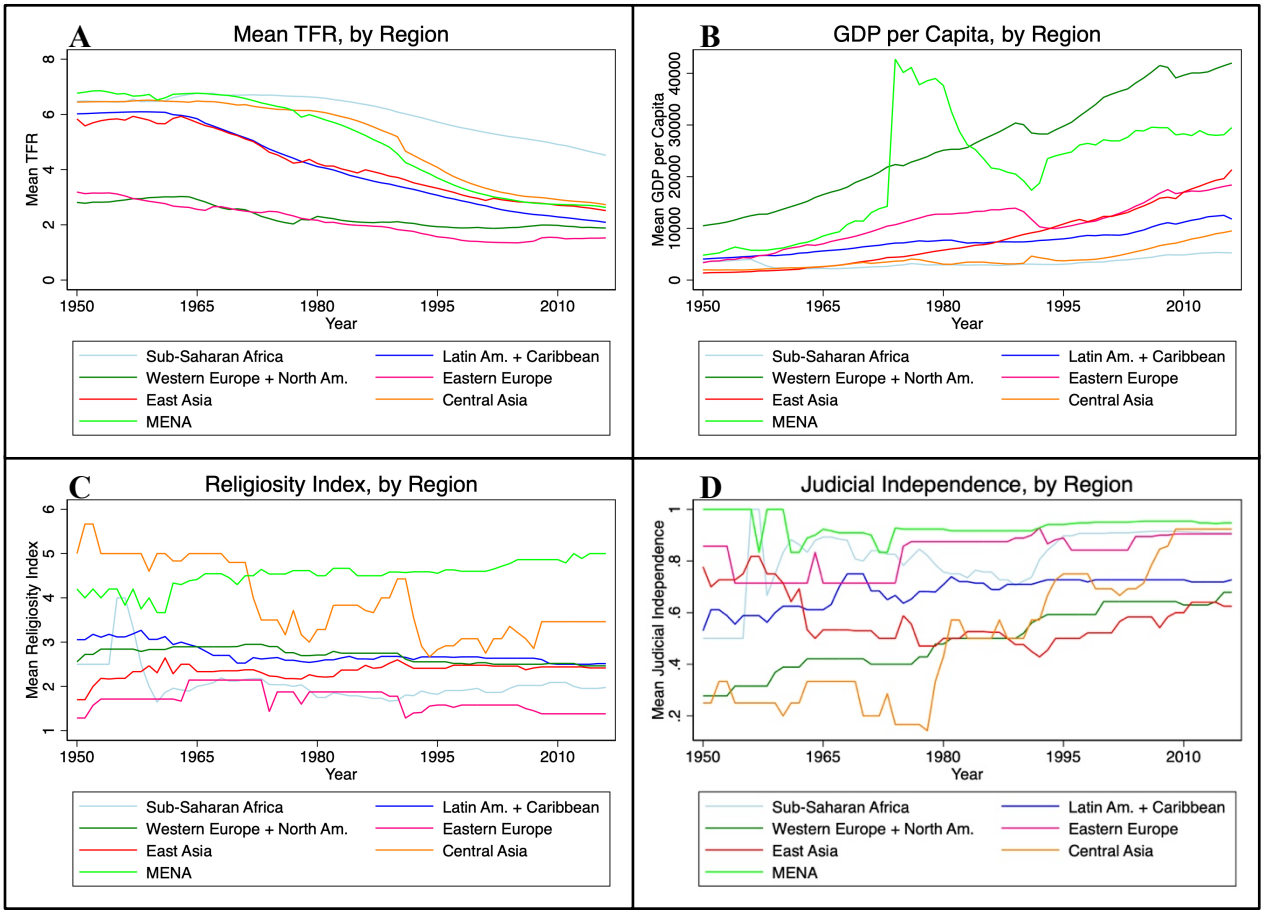
Source – UN Population Division.
Note – Regional composition: Region #1: North America, Western Europe, and Oceania; Region #2: Latin America and the Caribbean; Region #3: MENA; Region #4: Sub-Saharan Africa; Region #5: Eastern Europe; Region #6: East Asia; and Region #7: Central Asia.

Clustering yielded 7 regions, appearing in Map 3.2.[27] In identifying countries for each cluster, the UN designation for subregions was utilized to maintain the integrity of subregions

[27] Two alternative clustering schemes were created, one larger (four regions), the other smaller (10 regions). These clustering schemes are not comparable with regard to estimates as the units are different, however, the large regions combining smaller regions in Map 3.2, yielded estimates similar in direction. The smaller clustering scheme yielded too few observations. A sensitivity analysis of weights and regions is presented in ***Appendix A***.

and geographical contiguity to the extent possible. Subregions were attached to create larger clusters based on (1) whether the constitution explicitly indicates affiliation with a particular

Figure 3.8: TFR, GDP, Judicial Independence, and Religiosity, by Region 1950-2020



Source – Comparative Constitutions Project, UN Population Division, and the Demographic Transition Data (2021).
Note – Each of the four panels present the mean regional value of a unique variable: panel A – Total Fertility Rate; panel B – GDP Per Capita; panel C – Religiosity Index; and panel D – the degree of Judicial Independence. While some overlap is observed, the panels together demonstrate that each region is different from the others (marked inter-cluster dissimilarity).

region (e.g., Ghana 1960, "Union of African States", or France 1992 "European Community/Union"); (2) the type of governance as proxied by the existence of an independent judiciary; and (3) the strength of religious law in the constitution using a religiosity index constructed for this project (see FN21). In one lone instance a country was detached from its subregion, Papua New Guinea and included in the East Asia region rather than Oceania.

In Figure 3.8, differences between the regions can be seen. While the differentiation (inter-cluster dissimilarity) is not perfect, it is apparent. This is true for intra-cluster similarity as well, as a number of outliers are evident from observing Map 3.2. Israel for instance, is located squarely within the MENA region, though it is quite dissimilar to its neighbors in various legal and social facets. Furthermore, complete geographic contiguity is not obtained, as demonstrated by the region including Western Europe and North America.

The base model utilized is a fixed effects spatial lag model using maximum likelihood estimation (Anselin 2022):[28]

$$Y=\rho WY+X\beta+\varepsilon$$

Where:

Y is the dependent variable.

ρ is the spatial autoregressive coefficient.

W is the spatial weights matrix.

X is the matrix of independent variables (including spatial lags).

β is the coefficient vector for the independent variables.

ε is the error term.

[28] Prior to analysis, 5 tests were performed to determine the most appropriate method given the possibility of panel/time and spatial autocorrelation (Baltagi et al. 2007). Baltagi, Song and Koh LM-H one-sided joint test for $\lambda=0$ (spatial autoregressive coefficient) and $\sigma^2\mu=0$ (panel autoregressive coefficient) resulted in $p<0.000$; Baltagi, Song and Koh SLM1 marginal test for $\sigma^2\mu=0$, assuming $\lambda=0$, resulted in $p<0.000$; Baltagi, Song and Koh LM2 marginal test for $\lambda=0$, assuming $\sigma\mu^2=0$, resulted in $p<0.000$; Baltagi, Song and Koh LM*- μ conditional LM test (assuming $\lambda >= 0$) resulted in $p<0.000$; and Baltagi, Song and Koh LM*- λ conditional LM test (assuming $\sigma^2\mu>= 0$) resulted in $p<0.000$. Therefore, the data exhibited both spatial and panel effects – which is to be expected. A Hausman test yielded $p<0.000$ indicating that random effects regression is not appropriate. As such, a fixed-effects spatial lag model was employed.

This model is then modified to include time lags and the exogenous legal provisions:

$$Y_{t0}=\rho WY_{t0}+X_{t0}\beta+Z_{t0\text{-}y}\,\delta+\varepsilon$$

Where:

Y is the dependent variable, at time t_0.

ρ is the spatial autoregressive coefficient, at time t_0.

W is the spatial weights matrix.

X is the matrix of control variables (including spatial lags), at time t_0.

β is the coefficient vector for the control variables.

Z is the matrix for the tested constitutional predictor (including spatial lags), at time t_{-y}, where y is the number of lagged years.

δ is the coefficient vector for the tested constitutional predictor.

ε is the error term.

Constitutional predictors and their spatial lags and are tested individually, such that the association between the Law at time t-y, and the observed fertility at t0 can be tested. This will yield a separate model for each constitutional predictor at each time lag. Control variables and their spatial lags are held at t0, as is TFR and its spatial lag (neighbors' mean TFR). Five constitutional predictors (with their spatial lags), across ten time lags and seven regions, yield 350 models in toto.

3.8 Hypotheses

This segment discusses the five constitutional predictors to be tested, and how they may be associated with a later change in TFR. Expectations regarding the direction of this association will be informed by current demographic theory on fertility and reproduction, as well as by theory on constitutional change. As there is little guidance in the literature on how constitutions

interact with population dynamics, and as the underlying mechanisms linking constitutions to observed changes in fertility are not observed, expectations regarding the manner in which constitutions are associated with TFR are only suggestive of plausible mechanistic pathways.

The constitutional predictors were selected based on their presence across regions, their variability over time, and their uniform meaning. Some constitutional rights are highly particular (e.g., protection from libel), while others may have a very different meaning depending on the cultural context (e.g., property rights), and are therefore not included in the analysis. Nevertheless, due to regional variation, the relatively uniform constitutional predictors interrogated here can still be associated with TFR in opposite directions in different regions. Whether this occurs in practice serves as a general hypothesis that will be tested. Given the possibility of associations in both directions, plausible mechanisms to explain either direction will be discussed.

To streamline discussion on expectations, the seven regions will be addressed in terms of their population and economic development, as is set out in Table 3.4. This is a crude grouping meant only for the purpose of easy reference; if regions could easily be grouped, they would be combined into one region.

Table 3.4: Generalized Grouping of Regions, by GDP and TFR

Group	***Traits***	***Region***
Most Developed	High GDP, Low TFR	W. Europe/N. Am., E. Europe
Intermediate	Moderate to low GDP, Moderate to high TFR	East Asia, Latin Am./Car, MENA
Least Developed	Low GDP, High TFR	SS Africa, Central Asia

3.8.1 Constitutional Content: Right to Marriage

A constitutional right to marriage is a recognition by nation of the importance of the social institution of marriage: "*family is the basic natural unit of society; marriage is the legitimate support of it; they are placed under the particular protection of the state*" (Gabon

1991). In practice, this constitutional right can lower costs to marriage by removing barriers and enabling access to the institution. In the U.S., the constitutional right to marry was extended to interracial couples (Hartog 2002), same-sex couples (Geoffrey R. Stone 2017), prisoners (*Turner v. Safley*[29]), and even blood relations above a certain age (Grossman and Friedman 2011). But this signal sent by the state can also shape social attitudes regarding marriage. For instance, evidence from Europe suggests that extending the right of marriage to same-sex couples significantly improved attitudes towards same-sex marriage (Aksoy et al. 2020).

As marriage remains the premier social institution for childbearing (Cherlin 2020), strengthening it – via lowered costs or improved attitudes – should increase fertility. However, this may depend on two regional factors: the prevalence of cohabitation and the baseline bargaining position between men and women. Cohabitation has generally increased in Latin America (Covre-Sussai et al. 2014), the U.S. (Heuveline and Timberlake 2004), Europe (Sánchez Gassen and Perelli-Harris 2015), and Sub-Saharan Africa (Odimegwu et al. 2018; Popoola and Ayandele 2019), with the exception being the Middle-East (Puschmann et al. 2015). The rise of cohabitation was not uniform, as interregional and intraregional variation is clearly observed (Di Giulio, Impicciatore, and Sironi 2019; Sassler and Lichter 2020), especially as countries in the west typically exhibit a greater prevalence of cohabitation (Heuveline and Timberlake 2004; Thornton, Axinn, and Xie 2007). When cohabitation – an alternative to marriage – is more prevalent, easier access to marriage becomes less influential, as does the importance of strengthening the institution and attitudes toward it.

A constitutional right to marry can also influence lower level laws regarding marriage, to reshape the bargaining position between men and women (Becker 1991), as well as gender roles

[29] *Turner v. Safley* 482 U.S. 78 (1987).

within marriage (Goldscheider and Waite 1991), both of which are linked to fertility (Mason 1997; Waite and Gallagher 2000), and can also be linked to the Second Demographic Transition (SDT) (Lesthaeghe 2014).[30] However, as with cohabitation, bargaining positions and gender roles within marriage vary considerably by region (Thornton 2013). In countries exhibiting a more egalitarian balance of bargaining power and gender roles, a constitutional right to marry may further entrench or even empower women by promoting the already egalitarian institution; this may result in increased female labor force participation, delayed birth, and/or a preference for quality over quantity, all of which are associated with lower fertility (Morgan and Taylor 2006). In countries exhibiting a less egalitarian balance of bargaining power and gender roles, this right may have a lesser impact or none at all, as the institution promoted may further entrench gender disparity.

Taken together, in more developed regions with a higher prevalence of cohabitation and more gender parity, enactment of a constitutional right to marry is expected to be associated with a later decrease in TFR. In lesser developed regions with a lower prevalence of cohabitation and more gender disparity, enactment of a constitutional right to marry is expected to be associated with a later increase in TFR. High prevalence of cohabitation alongside gender disparity (or the reverse) are challenging to identify and cannot be tested without more exacting data. The East Asian and Latin American regions occupy an intermediate position with respect to both factors, so that generating expectations is difficult.

[30] The Second Demographic Transition generally mirrors the move towards constitutionalization and deeper penetration of socioeconomic rights (Z. Elkins, Ginsburg, and Melton 2009; Law and Versteeg 2010), and illustrates – at least in some regions – a marked shift in social norms associated with marriage and fertility.

3.8.2 Constitutional Content: Support for Children

Child support is directly linked to the question of numeracy (Van De Walle 1992) and the quality vs. quantity tradeoff (Becker 1991; Mason 1997). But once more, the signal sent can either encourage quality or quantity, depending on regional context. Generally speaking, the cost of rearing a child serves as a barrier to fertility, especially in countries with low fertility rates (Gauthier 2016), but evidence on the actual impact of support to children – especially financial – is inconclusive.

In South Africa, the Child Support Grant (CSG) is enabled by Section 28 of the National Constitution; it has yielded mixed results, as some have found no significant association between exposure to CSG and fertility (Rosenberg et al. 2015; Bidzha et al. 2023), while others have found that exposure was associated with more birth attempts and higher fertility (Tanga, Oyeleke, and Gutura 2015; Oyenubi and Kollamparambil 2022), and possibly higher teen birth rates (Udjo 2009). In a number of developed East Asian countries such as Japan, South Korea and Taiwan, there has been only limited evidence to suggest that financial support is positively associated with TFR (Suzuki 2009; Jeong et al. 2022), however the evidence is more pronounced in developed countries where TFR is above 1.5, i.e., not the lowest low (Zhang et al. 2023), and even strongly positive in western countries (Cowan and Douds 2022). Conversely, the literature has also identified instances, such as the Conditional Cash Transfers enacted in Peru ("Juntos"), where these transfers were negatively associated with fertility (Laszlo, Majid, and Renée 2024), explaining the decrease in fertility in terms of a preference for quality over quantity, an empowerment of women, and greater exposure to family planning facilitated by exposure to cash transfers (Becker 1991; Das 2005; Laszlo, Majid, and Renée 2024).

In short, it is difficult to form expectations regarding the association between constitutionally enabled child support and a later change in TFR. Therefore, this can be left as an open question: does inclusion of constitutional support for children associate with a later change in TFR, and does this association differ across more and less developed regions?

3.8.3 Constitutional Design: Flexibility

National constitutions are fluid (Figure 3.3). This can be measured in *de facto* terms, i.e., how often a constitution experiences an event (rate of change), or in *de jure* terms, i.e., the rigidity and flexibility of a constitution, i.e., its potential for change (Z. Elkins, Ginsburg, and Melton 2009). Too rigid a constitution will be unable to adapt to the changing environment and will (a) impose an ill-fitting regulatory scheme; (b) give rise to an unofficial and unsanctioned regulatory scheme; and/or (c) require constitutional turmoil (or replacement) to adequately reflect demand (Z. Elkins, Ginsburg, and Melton 2009). In instances (a) and (b), there are typically no systemic shocks, legal[31] or demographic (Livi-Bacci 2021), but rather a slow developing shift in norms producing new adaptations that can create an unofficial yet binding and enforceable set of social norms (DiFonzo 1997; Bernstein 2001), even with special regard to fertility (Johnson-Hanks 2007; J. Trinitapoli and Yeatman 2018; Aassve, Le Moglie, and Mencarini 2021).

Formal amendment processes serve as a valve to release social pressures, align extant social norms with the Law, and facilitate progress (Z. Elkins, Ginsburg, and Melton 2009). Constitutional amendments provide a route to change Law, but also fulfill a declarative purpose, i.e., signal that Law can be changed if need be (Strauss 2001). When the Law can readily adapt

[31] For an iconic case study of an ill-fitting legal regime that remained rigid and unchanged for nearly a century, consider the American experience with the "duality of Family Law" (Hartog 2002). In this instance, there was an astonishing gap between "law in the books" and "law in action", giving rise to a completely contrived, often corrupted regulatory regime pertaining to divorce, which bred intolerable levels of uncertainty (DiFonzo 1997).

and relieve pressure, [32] uncertainty is created, and community norms are forced to re-adapt to the new state of Law.

A new amendment can create uncertainty as it requires institutional adaptation to, and new interpretation of, the new regulatory regime (D'Amato 1983; Calfee and Craswell 1984; Deffains and Dari-Mattiacci 2007). Consider the changes necessitated by amending a constitution to include child protections such as limitations on child labor, age limits, or legal liability (Boli-Bennett and Meyer 1978; Duncan 2008; Mishchenko and Letuta 2023). Such an amendment may require change to lower levels of Law in diverse topics such as family, labor, tax, criminal and torts law, and they may also necessitate new institutional bodies such as commissions or a juvenile court. While these may be welcomed changes, they increase uncertainty in the short run, and as a result, may encourage fertility decline (J. A. Trinitapoli 2023).

Constitutions can help shape social norms regarding family and fertility (Pizzarossa and Perehudoff 2017; Arsic and Jerinic 2024). When a constitution is flexible, it is not only adaptable to its citizens, but to the constitutional environment in which it is embedded (Beck et al. 2019). This is the spatial or diffusive effect of constitutions, achieved by borrowing from each other to become more similar (Goderis and Versteeg 2014; Tom Ginsburg and Versteeg 2014), or by adopting International Treaties and International Law (Tom Ginsburg, Chernykh, and Elkins 2008; Zachary Elkins 2010). As there has been a notable increase in constitutional rights pertaining to family, marriage, and children (Duncan 2008; Law and Versteeg 2010), a flexible constitution is more likely to align with the prevailing trends promoting the atomistic family unit,

[32] The measure employed here does not allow to capture an excessive level of flexibility, which may also be associated with negative outcomes. Therefore, the actual number of amendments is included as a control.

love marriage, and quality over quantity, though this is region and context dependent (Thornton 2013; Lesthaeghe 2014).

Therefore, flexible constitutions are expected to be linked to lower levels of TFR, compared to more rigid constitutions (that either entrench their provisions, or do not have formal amendment procedures, or both). The association is expected to apply uniformly to all regions, with the possible exception of regions that are less involved in the global diffusion of rights due to habitual violation of international rights such as MENA (Z. D. Kaufman 2018), or sub optimal application such as Sub-Saharan Africa (Ssenyonjo 2018).

3.8.4 Constitutional Design: Words in Rights Section

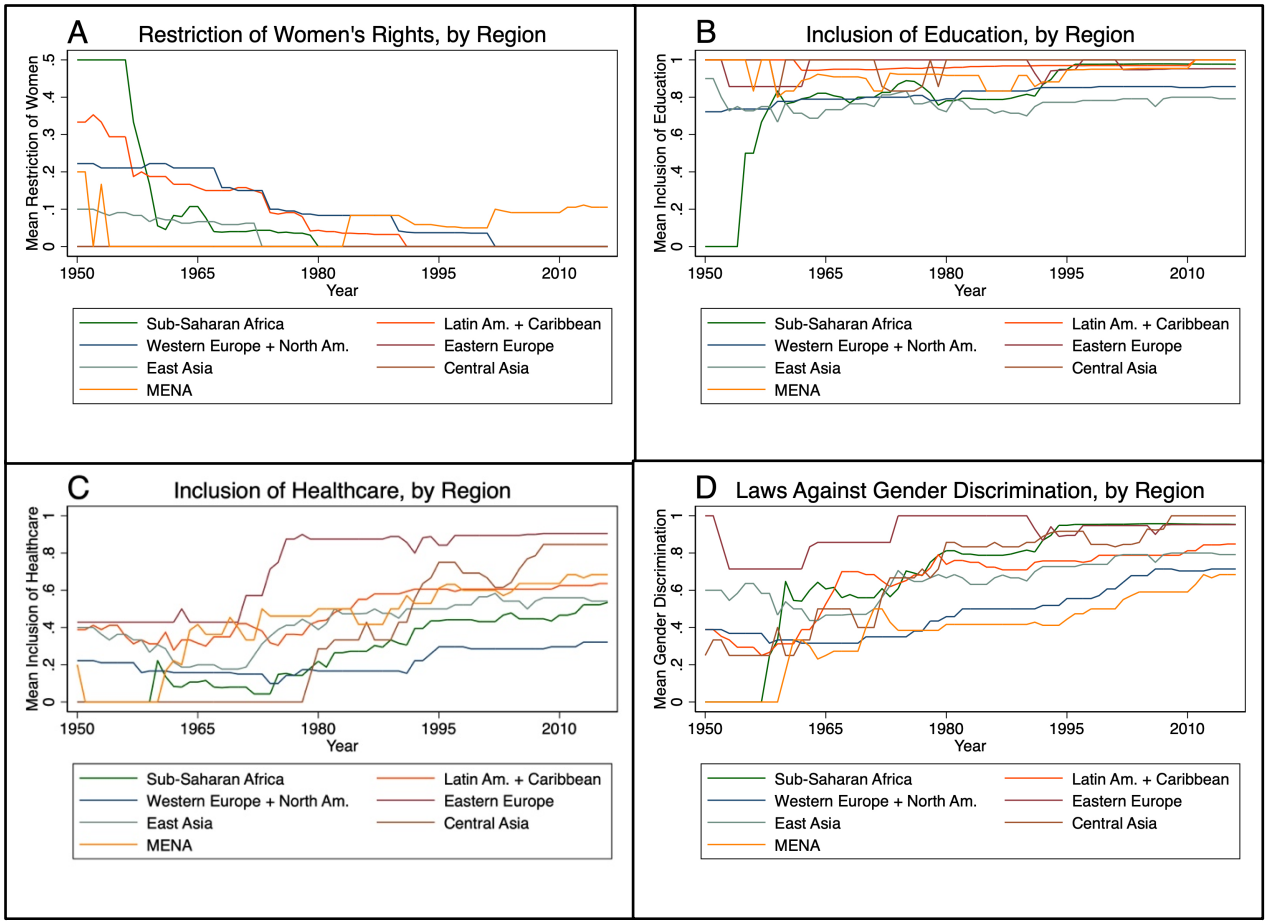
The negotiation and preparation stage of a constitution (or a constitutional amendment) are crucial as they determine the type and level of investment between and among contracting parties/bodies (Brown 2008; Tom Ginsburg, Elkins, and Blount 2009). Importantly, the level of inclusion of various social groups and interests is crucial as wide-ranging inclusion means a larger portion of a society is invested in the endurance of a constitution (Z. Elkins, Ginsburg, and Melton 2009). It also means that the constitution is more reflective of the population so that tensions arising from an ill-fitting legal regime are attenuated.

Similarly, the specificity of a constitution – how vague or precise its provisions are – ties groups involved in the drafting process to the constitution in the future, as more specific language is the product of costly negotiations, and represents a sunk cost in the constitution, or greater investment. This is very similar to the concept of relationship-specific capital, where greater levels of investment serve to increase the endurance of a marriage (Becker 1991; Waite and Gallagher 2000). Inclusion and specificity have a mutually enhancing relationship such that one typically encourages the other (Z. Elkins, Ginsburg, and Melton 2009).

Inclusion and specificity can be proxied by the number of words in rights segments. When the rights section of a constitution is longer, it signals greater inclusion and greater specificity, indicating that the interests of the population are better reflected in the constitution, and creating for more people a stake in its survival. With respect to fertility, an important aspect is the presence of women in the constitutional bargaining process. While representation of women in politics remains relatively low, it has increased significantly over time and around the globe, with special efforts being made to increase participation further, especially in lesser developed countries (Bush 2011; Kumar 2014).

As a result, the overall status of women has improved in the past 70 years, in all regions. For instance, Figure 3.9 illustrates the development, by region, in three constitutional rights linked to women's well-being and fertility: education, health, and discrimination (Bateup 2000; Axinn and Yabiku 2001; Balbo, Billari, and Mills 2013). The first panel includes the negative example, constitutions restricting women's rights. All four of these constitutional rights are significantly associated with the length of a rights section (restricted rights negatively so).

Figure 3.9: Evolution of Constitutional Rights Linked to Women Status: Restricted Rights, Education, Healthcare, and Gender Discrimination, by Region 1950-2020



Source – Comparative Constitutions Project.
Note – These panels depict four constitutional rights that are linked to the status of women, by region 1950-2020: panel A – proportion of constitutions restricting women's rights; panel B – proportion of constitutions including Education Rights; panel C – proportion of constitutions including healthcare provisions; and panel D – proportion of constitutions including anti-gender discrimination provisions. While all four panels illustrate a general trend (increase in education, healthcare and anti-discrimination rights; decrease in rights restriction), there is still a notable regional difference in the mean levels and evolution of each constitutional right.

Longer rights sections may capture a more diverse group of people who have a greater stake, primarily women, so that more words are expected to be associated with lower fertility, across all regions.

3.8.5 Constitutional Change: New Constitution

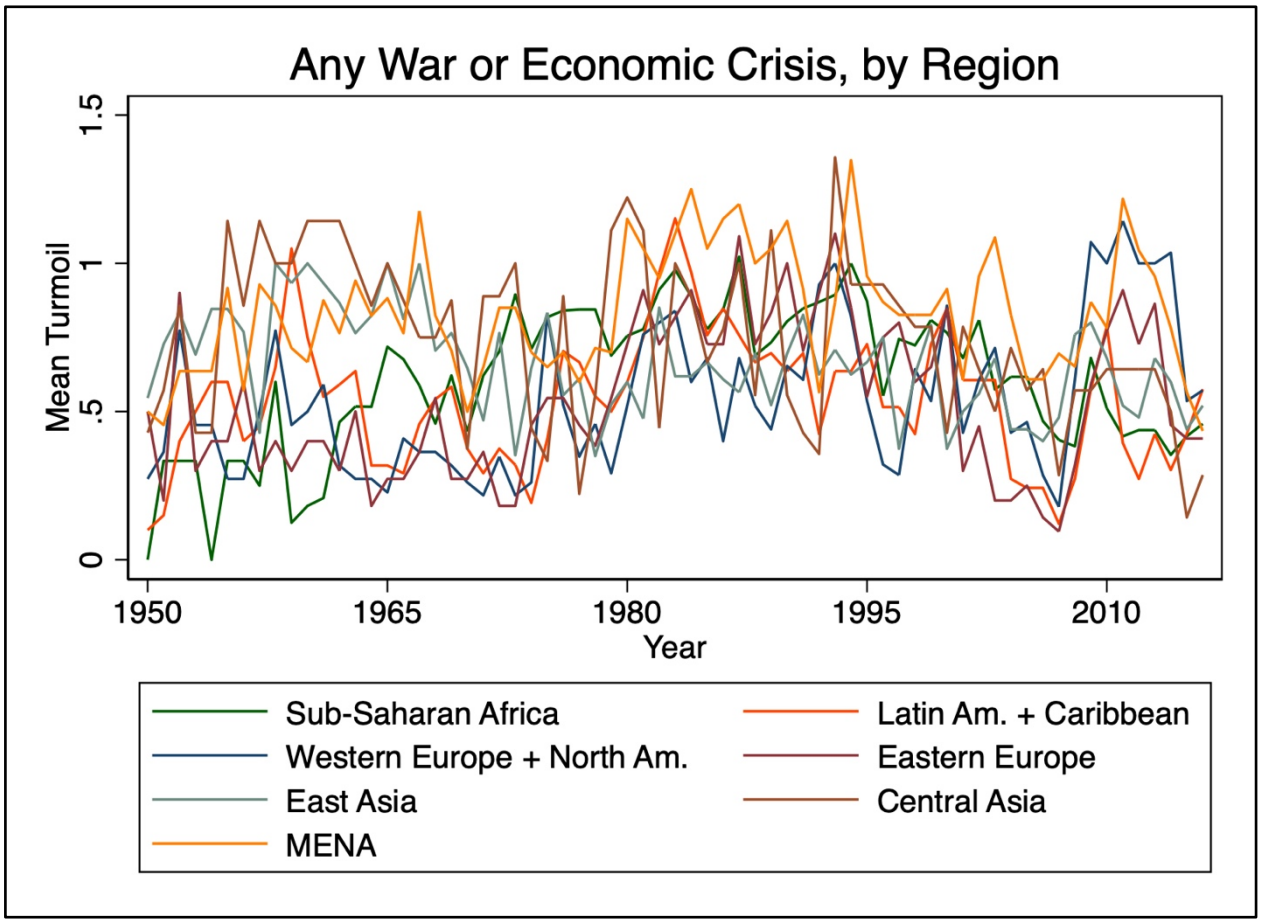
The enactment of a new constitution is closely linked to a regime change and/or a political revolution (Z. Elkins, Ginsburg, and Melton 2009), and can be considered a shock (Livi-Bacci 2021). In controlling for both war and economic crisis, it is expected that new constitutions will still bring about uncertainty, and a decrease in fertility rates, in all regions. Aside from the uncertainty created by adaptation and interpretation costs associated with new Law (D'Amato 1983; Calfee and Craswell 1984; Deffains and Dari-Mattiacci 2007), an entirely new constitution may reshape the implied bargain between citizen and state (Rousseau and Cranston 1968), the form of governance applied (Jung and Deering 2015), or the institutions and administrative apparatus employed to govern (Breslin 2009). These entail a deep level of uncertainty, linking this constitutional change to lower fertility.

However, an individual's, or populations' response to systemic macro level uncertainty can actually encourage fertility. Trinitapoli discusses personal uncertainty being a driving factor in fertility (2023), pointing out studies conducted in disparate regions (Nepal, Malawi, U.S.) demonstrating how exposure to violence and mortality increase the desire to become pregnant (Sandberg 2006; Weitzman et al. 2021; Smith-Greenaway, Yeatman, and Chilungo 2022). Personal uncertainty or "*the shadow of the future*" (J. A. Trinitapoli 2023, 66) become murkier in the immediate years following constitutional revolution, and while this is a macro event, it can

trickle down to the individual level through violence and mortality created during the transition of power (Z. Elkins, Ginsburg, and Melton 2009).

Furthermore, literature on the link between war and fertility may be instructive. While

Figure 3.10: Any War or Economic Crisis, by Region 1950-2020



Source – Correlates of War.
Note – This figure depicts the mean level of turmoil, by region 1950-2020. Turmoil is defined as a combination of economic crisis (a drop of more than 2.5% in annual GDP compared to the previous year), and/or political tension (which ranges from diplomatic tension to all-out war). Each of economic crisis and war are coded as '1', so that a country-year in which both are present is coded as '2', and country-year with only one of economic crisis or war is coded '1', and a country-year with neither, is coded as '0'. This figure demonstrates a higher degree of regional overlap, meaning that all regions experience some turmoil, although some regions (e.g., MENA) experience more turmoil compared to others (e.g., Eastern Europe).

war is typically associated with lower fertility, this is not always the case (Cetorelli 2014). The "Insurance Effect" has been observed in instances of high uncertainty such as war or social turmoil, whereby parents hedge against an instable future by having more children.

Constitutional change is tested here while controlling for war and economic crisis, meaning that this is an opportunity to explore a different type of shock, and how it is associated with fertility. As is demonstrated in Figure 3.10, all regions have experienced some turmoil,[33] so that any region can be a candidate for increased fertility following constitutional change.

Table 3.5: Summary of Hypotheses

		Link to TFR	
Type	**Predictor**	Positive	Negative
Content	Right to Marriage	Less Developed	More Developed
	Child Support	?	?
Form	Flexibility	Less Developed	More Developed
	Length of rights section	--	All Regions
Change	New Constitution	?	?

**General Hypothesis*: regional variance for same predictor

3.9 Results

This segment will present results for each of the constitutional predictors tested, by region. Regions in which no significant association was obtained are omitted from the presentation; for the sake of clarity, spatial lags (coefficient of neighbors' values) are omitted as well. Focus will be placed on the direction of the association between constitutional predictors and TFR and will then shift to the size and substantive significance of the association. Presentation of the results will begin with discussion on the association between the control variables and TFR.

3.9.1 Regression Results: Base Model

Regression results for the base model including control variables by region (sans constitutional predictors) is presented in Figure 3.11. These controls remain stable in direction and significance for the various constitutional predictors and are therefore not reported for each

[33] This is a combination of any war and any economic crisis: '0' – no war and no economic crisis for that country-year; '1' – war OR economic crisis; and '2' – war AND economic crisis.

predictor-region combination, nor are the value of spatial lags (neighbors' values).[34] Figure 3.11 demonstrates both inter-regional similarities and differences. First, the variable identified as Lambda, the spatial autoregressive coefficient for the dependent variable, i.e., neighbors' TFR, is strongly positively correlated with focal countries, as expected. The sole exception is the MENA region, possibly due to relatively low intraregional homogeneity.

Other controls that feature a positive association with TFR, as would be expected include the population growth rate, crude death rate, Infant mortality rate, religiosity, and dependency ratio (S. Harper 2016). Life expectancy at birth is associated negatively with TFR, as expected. Net migration Rate is also negative, though this may be surprising given that the results are uniform across all regions (Alho 2008; Bagavos 2019).

Inter-regional variation is exhibited in a number of cases. First, sex ratio at birth (number of males born per 100 females), is significantly negative only for MENA, but positively associated with TFR in Central Asia and Latin America suggesting different gender preferences – not all countries have a preference for males, some prefer daughter, as is suggested in previous findings (Rahman and DaVanzo 1993; Fuse 2010; Sharaf, Rashad, and Mansour 2019). Similarly, the median age of population, is associated negatively only with Latin America, while positively associated with East and West Europe + North America, and Central Asia. Interestingly, the median age of a population, its TFR, and its migration rate interact to stabilize a declining population, and or to lower its median age (Alho 2008; Parr 2021). Finally, while some regions exhibit the traditional negative association between GDP and TFR (Sub-Saharan Africa, East Europe), other regions exhibit a positive relationship (East Asia, MENA), which aligns

[34] A full report of regression results, by region, is included in ***Appendix B***.

partially with recent findings and contributes to the now burgeoning debate on the changing character of the GDP-TFR relationship (Fox, Klüsener, and Myrskylä 2019; Cheng et al. 2022).

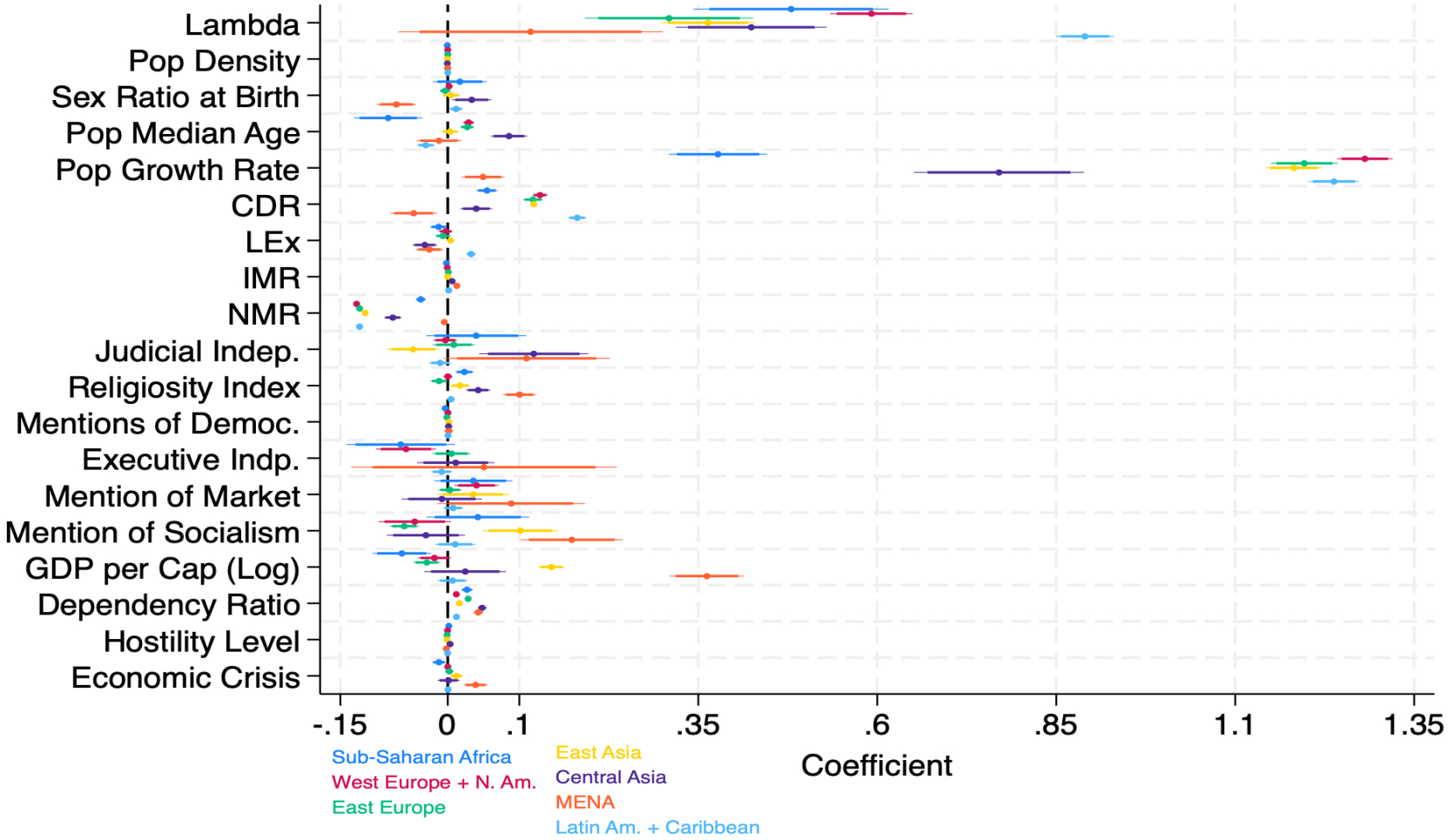
With respect to the constitutional controls, the religiosity index, as mentioned, is positively associated with TFR, and in some regions, judicial independence and mentions of socialism are also positively associated with TFR (Asia, MENA). Mentions of socialism also exhibits a negative relationship with TFR in Europe. Overall, the type of regime seems to present region-specific relationship with TFR, as no apparent trends can be identified, holding all else constant.

3.9.2 Regression Results: Constitutional Design

Figure 3.12 depicts the coefficient plot for constitutional flexibility on TFR, including spatial lags for years 1-10. Results yielded significant estimates for 6 of the 7 regions. As expected, nearly all regions exhibit a negative association with TFR, such that a shift to a more flexible constitution – eliminating entrenched provisions that cannot be amended, or including formal amendment procedures, or both – are associated with a decline in TFR. That this association is exhibited across nearly all regions provides some evidence to support the creation of short term uncertainty following a transition from a rigid to a flexible constitution.

Furthermore, it may also indicate that flexible constitutions are more attuned to global trends meaning that the constitution is mediating between social factors underlying fertility decline and actual decrease in TFR. However, even as many of these underlying factors are controlled – life expectancy, age, dependency ratio, gdp, etc. – this constitutional element still exhibits a significant association, suggesting that while a flexible constitution may create uncertainty and mirror global trends, its literal design element (flexibility in this case), still implicates TFR independently.

Figure 3.11: Fixed Effects Spatial Regression Results – Coefficient Plot for State-Level Total Fertility Rates – Control Variables Only (Base model, no legal predictors), 1950-2020



Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – This figure depicts the coefficient for TFR for each control variable, by region (color coded in legend above). The wide whiskers represent a 95% CI; thin whiskers represent 90% CI.

The odd region out is East Europe, a relatively more developed region, which is unexpected, as a shift to a more flexible constitution was positively and significantly associated with TFR in all 10 years tested. This may be due to region-specific dynamics within eastern Europe; perhaps the fall of communism and creation of ties with the west relieved a high level of existing uncertainty so that the transition to a flexible constitution in this instance was associated with higher TFR.

Figure 3.13 depicts the coefficient plot for number of words in the rights section of a constitution (scaled to 1,000 words) on TFR, including spatial lags for years 1-10. Results yielded significant estimates for 6 of the 7 regions. As expected, nearly all regions exhibit a negative association with TFR, such that longer rights sections are associated with lower fertility, possibly by way of inclusion and specificity creating constitutional-specific investments by diverse interest groups, including women and children.

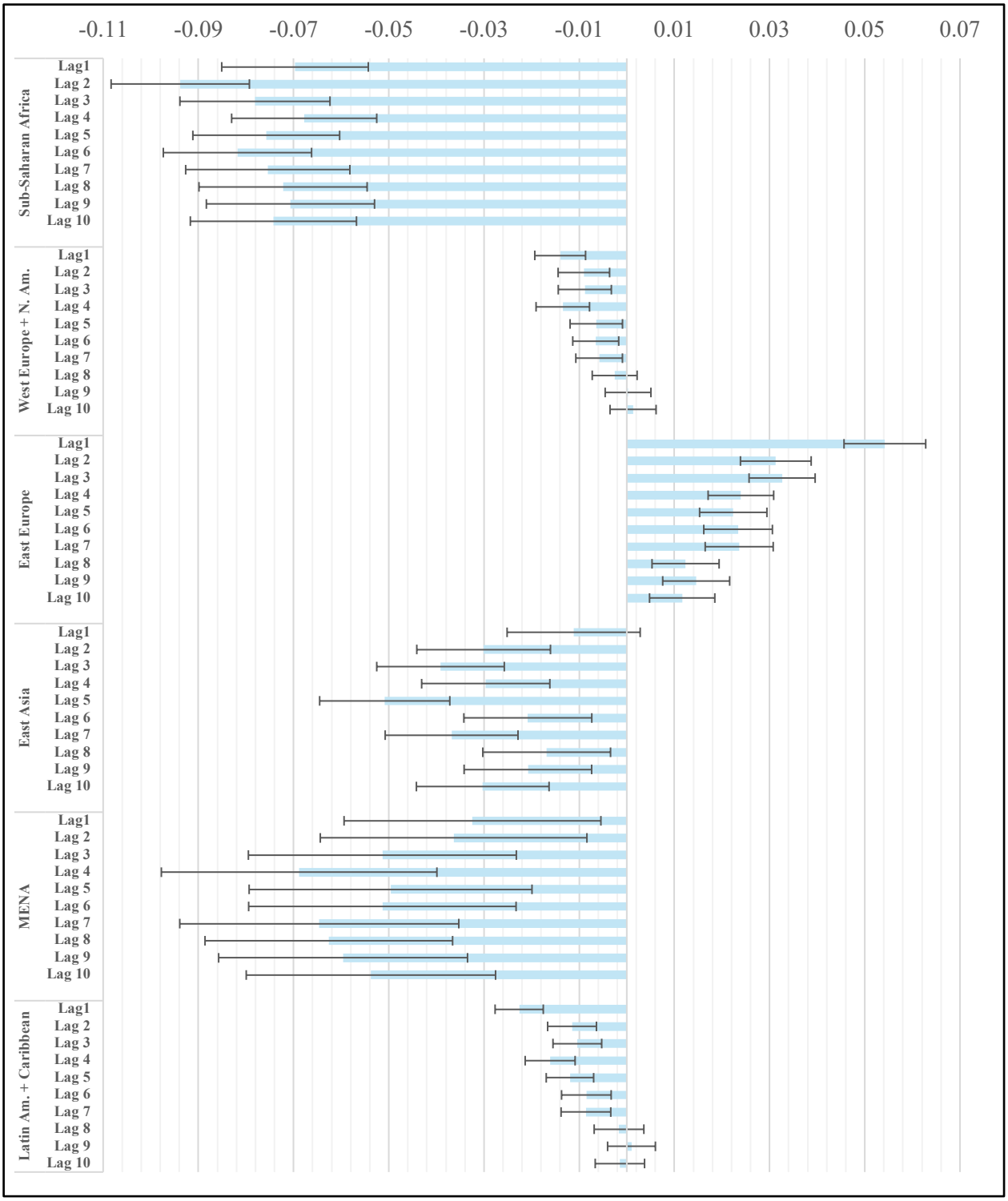
Interestingly, the two regions exhibiting a positive relationship between the length of rights sections and TFR are the most developed region of West Europe + North America, and the relatively less developed region of MENA. Regarding the latter, while there have been marked advancements in the status of women in the Middle East, this still remains a generally restrictive region for women (Kelly 2010), and it is the only region in the 21st century that still has constitutional restrictions on women (roughly 10% of country-years post the year 2000). Therefore, it may be that the hypothesized mechanism of inclusion and specificity fails with regard to MENA, as women are still somewhat excluded from the constitutional bargaining process (Tom Ginsburg, Elkins, and Blount 2009).

Inclusion and specificity may also fail to correctly predict the association between length of rights section and TFR in western Europe and North American because of the character of the

rights included. Concerns over below-replacement TFR levels in this region have spurred a great deal of pro-natal policies (Van De Kaa 2008). These policies must have some legal anchor, such as constitutional provisions. For instance, Kleyner (2023) finds that the UK, Germany, France and Italy have all included constitutional provisions to protect Artificial reproductive technology, and that these protections have had a real impact. Similar rights regarding the family or child support (Duncan 2008; Arsic and Jerinic 2024) may achieve a similar result, especially when underpinned by a pro-natal agenda.

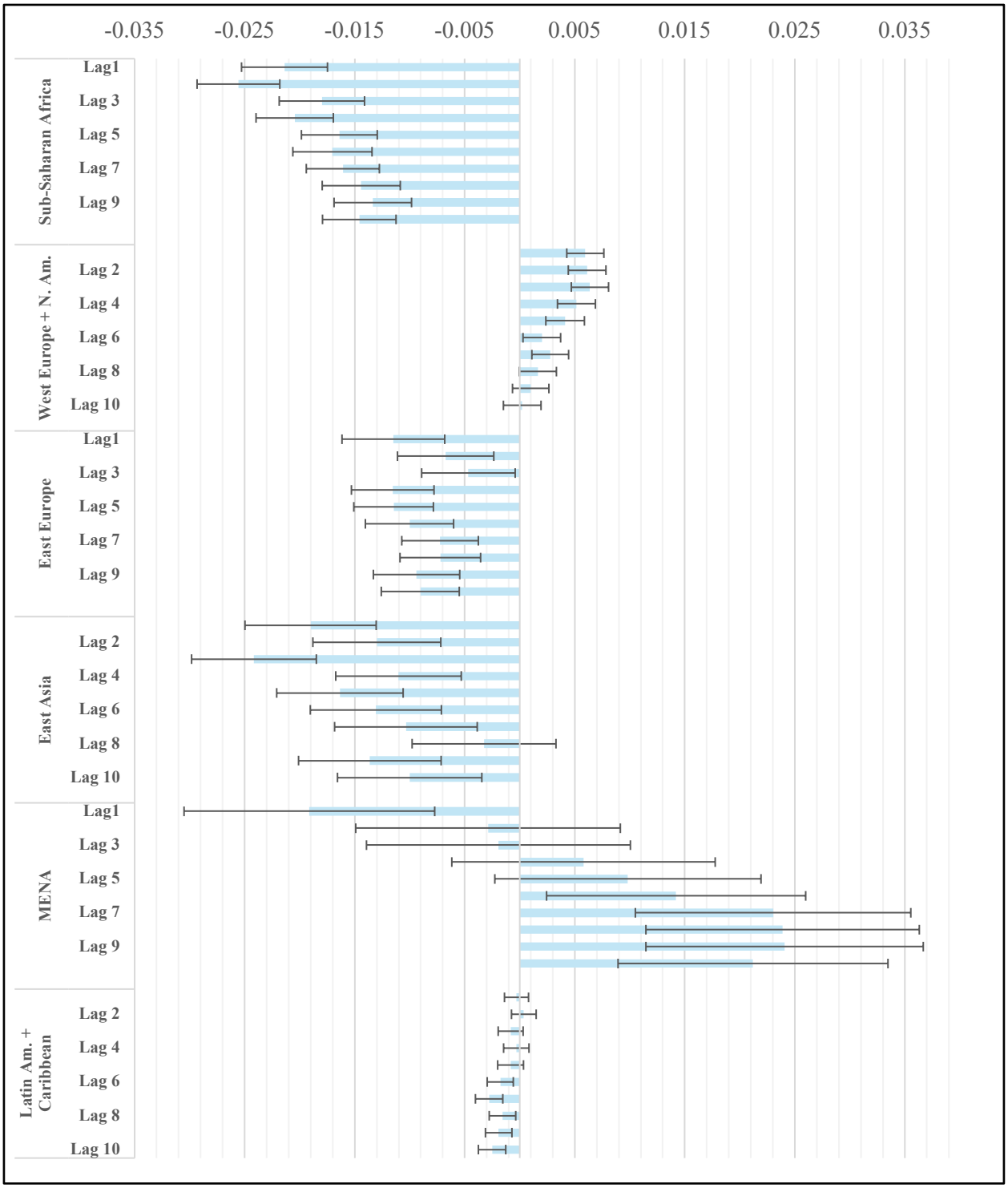
Both constitutional design elements – flexibility and length – have yielded significant results, mostly as expected. The mechanisms hypothesized remain suggestive, though results provide some initial evidence, making a direct study of the mechanisms more attractive. More importantly, both design elements, when holding all else constant (including the influence of neighbors), are significantly associated with a later change in TFR. This is not intuitive, and should raise many more questions regarding other design elements (e.g., whether a constitution is "multi-textual" (Albert 2023), i.e., is composed of disparate documents), and other lower level laws as well.

Figure 3.12: Fixed Effects Spatial Regression Results, Constitutional Flexibility – Coefficient Plot for State-Level Total Fertility Rates, by Region 1950-2020



Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Coefficient plot of constitutional flexibility on TFR, by region, over 1-10 year lags; spatial lags are omitted for clarity. Whiskers represent the 95% CI.

Figure 3.13: Fixed Effects Spatial Regression Results, Words in Rights Section – Coefficient Plot for State-Level Total Fertility Rates, by Region 1950-2020



Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Coefficient plot of words in rights section (scaled to 1,000 words) on TFR, by region, over 1-10 year lags; spatial lags are omitted for clarity. Whiskers represent the 95% CI.

3.9.3 Regression Results: Constitutional Content

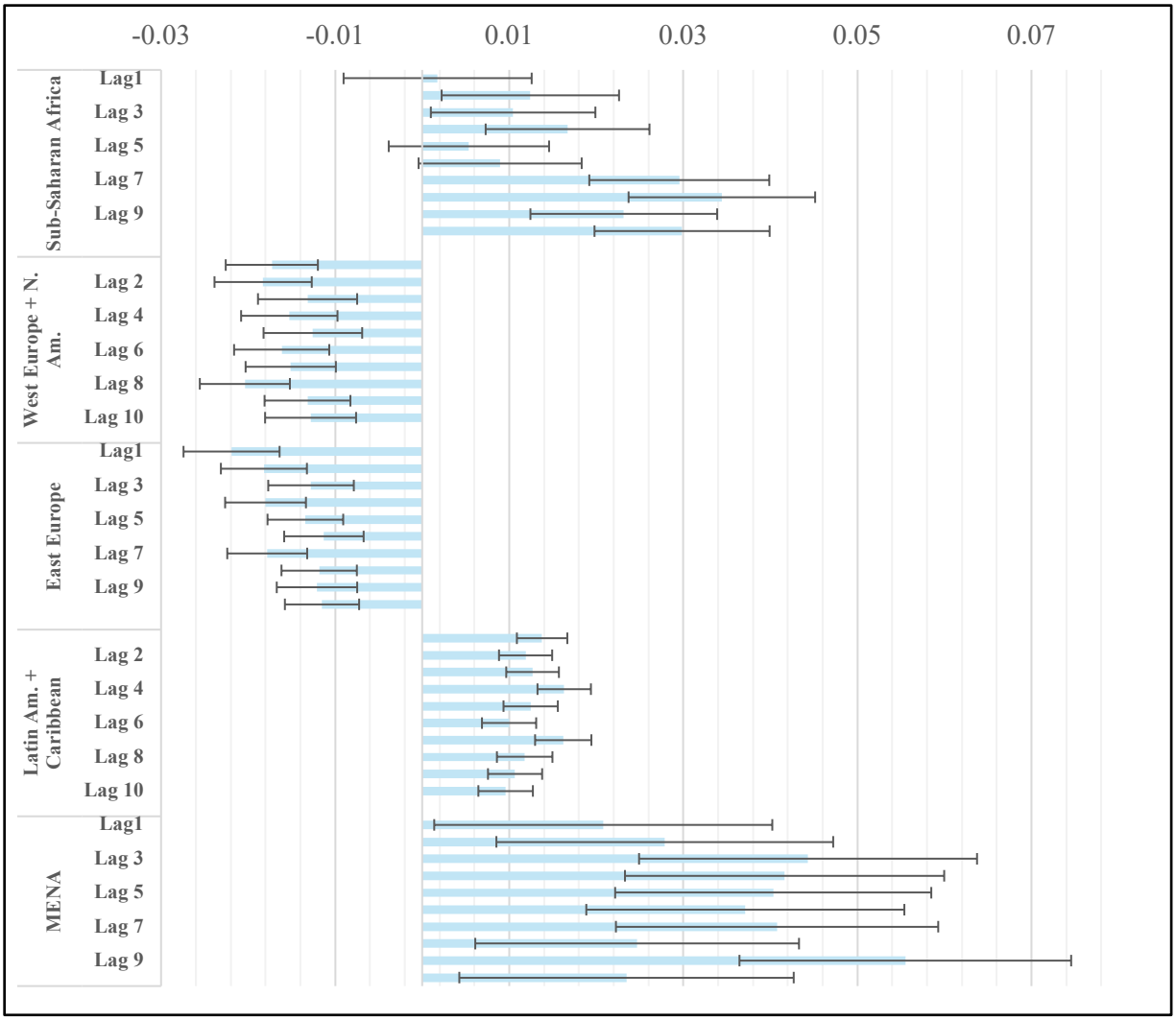
The constitutional right to marriage is associated with a later change in TFR, mostly as expected. In the more developed regions of West Europe + North America and East Europe, gender roles are more egalitarian, enacting a constitutional right may have institutionalized gender equality which is linked to lower fertility, both from a microeconomic and sociocultural perspective (Becker 1991; Mason 1997). This is likely augmented by the higher prevalence of cohabitation (Thornton, Axinn, and Xie 2007), though in and of itself, cohabitation is not linked to the right to marriage, it may simply be a correlated trend that explains lower fertility.

In MENA, and Sub-Saharan Africa, the right to marriage was found to be associated with a later increase in TFR. The direction for Sub-Saharan Africa and MENA is as expected, potentially due to relatively high levels of gender disparity (Charrad 2001; Dube 2015; O'Sullivan 2017; Seidu et al. 2021) that is further entrenched when marriage is enshrined in the constitution. Or, even if marriage is constitutionally entrenched in a gender-neutral manner, existing disparity is allowed to endure in the new framework.

Latin America also exhibits gender disparity (Deere and Leon 2003; Hoffman and Centeno 2003; Esteve, Castro-Martín, and Castro Torres 2022), which may be potentially entrenched when marriage becomes a constitutional right, despite its dual nuptiality regime and persistent levels of cohabitation (Castro-Martin 2002). In fact, TFR is slightly higher among cohabiting couples in Latin America compared to married couples (Laplante et al. 2015), further

complicating this result. Therefore, it may be that this constitutional right sends a pro-natal signal in its support of family and marriage,[136] ultimately encouraging childbirth within marriage.

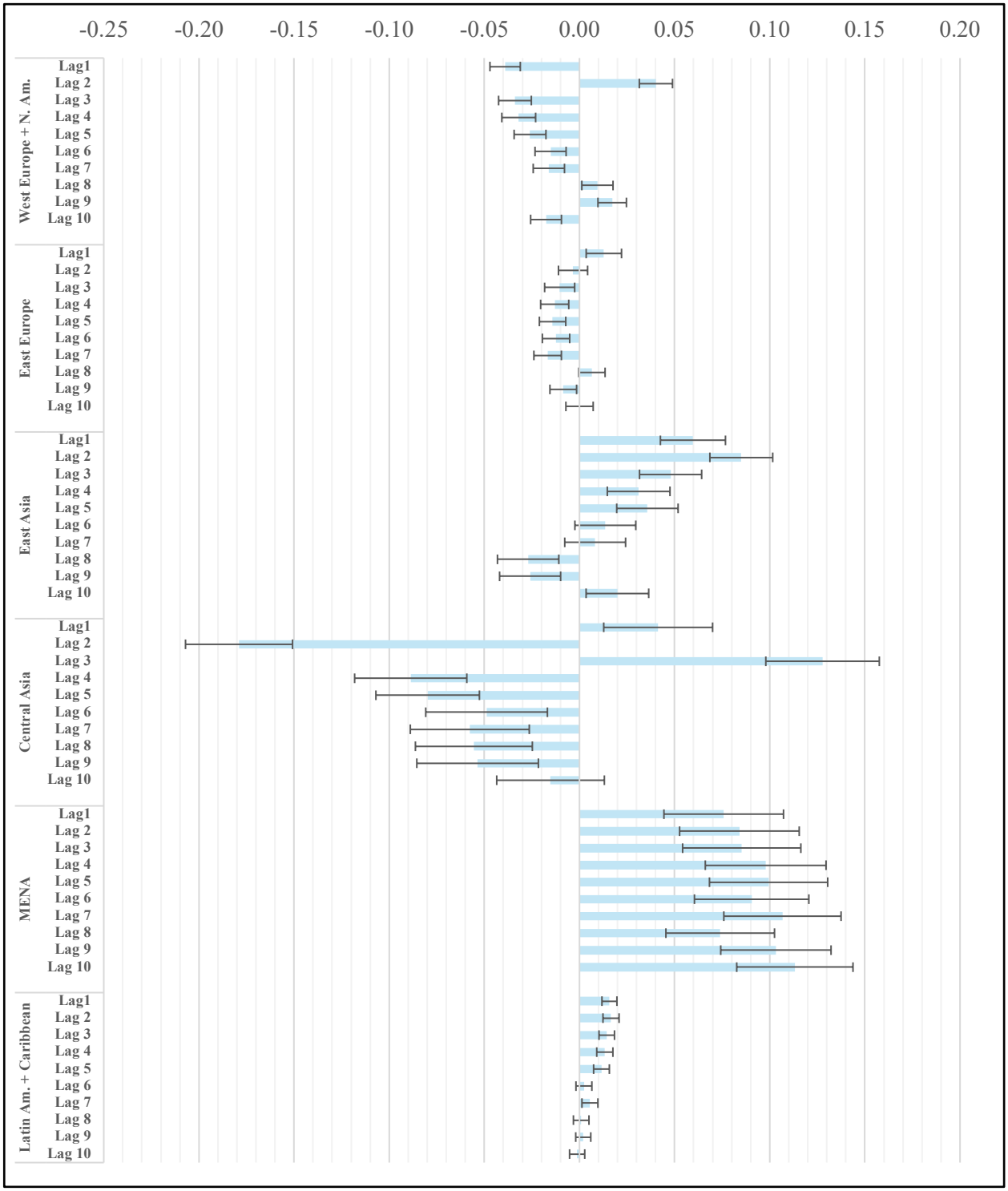
Figure 3.14: Fixed Effects Spatial Regression Results, Right to Marriage – Coefficient Plot for State-Level Total Fertility Rates, by Region 1950-2020



Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Coefficient plot of constitutional Right to Marriage on TFR, by region, over 1-10 year lags; spatial lags are omitted for clarity. This variable is ordinal, coded from '0' (no right), to '4' (explicit constitutional right) Whiskers represent the 95% CI.

[136] From the comments on the Brazilian constitution: "state provides special protection for family constituted by marriage"; Columbia: "family is the basic nucleus of society; it is formed on the basis of natural or legal ties through the free decision of a man and woman to contract matrimony; forms of marriage the age and qualifications to contract it the duties and rights of the spouses their separation and the dissolution of the marriage ties are determined by law"; Guatemala: "state shall create such conditions and arrangements as will permit marriage to be contracted easily and at low cost".

Figure 3.15: Fixed Effects Spatial Regression Results, Child Support – Coefficient Plot for State-Level Total Fertility Rates, by Region 1950-2020



Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Coefficient plot of Child Support on TFR, by region, over 1-10 year lags; spatial lags are omitted for clarity. Whiskers represent the 95% CI.

Inclusion of child support in the constitution is rather choppy as it associates with TFR, reflecting the mixed evidence on the influence of child support measures on fertility, though some previous findings are supported by the evidence presented here. Both developed regions, East and Western Europe + North America present evidence of a slight decrease in fertility following a constitutional inclusion of child support, suggesting that these measures may be supporting the shift from quantity to quality regarding numeracy of children.

A negative association is also identified in Central Asia, which in fact exhibits the highest mean of constitutional child support provisions (mean=0.54, global mean=0.42). Central Asia presents a fascinating case, as many of these countries had to reestablish healthcare and social support infrastructure following the collapse of the USSR, focusing particularly on children and maternal care due to severe negative health outcomes (Falkingham 2000; Grabman 2004). Indeed, nearly every Central Asian country has enacted constitutional provisions to enable child support policies (broadly defined).[137] However, these policies were not created with a pro-natal agenda (Visaria 2022), hinting at a social shift from quantity to quality, bolstered further by the increasing prevalence of abortion following the early 1990s (Rani et al. 2006).

In East Asia, MENA, and Latin America, enactment of constitutional child support is positively associated with TFR, affirming some previous findings with respect to East Asia (Suzuki 2009; Jeong et al. 2022). Child support policy facilitated by the constitution may

[137] Some examples include Kyrgyzstan, Art. 36 ("Family shall be the foundation of the society. Family, paternity, maternity and childhood shall be the subject of care of the entire society and preferential protection by law. Each child shall have the right to the level of life, necessary for his/her physical, mental, spiritual, moral and social development. […] The state shall ensure the maintenance, upbringing and education to child orphans and children deprived of parental care"); Uzbekistan, Art. 64 ("[…] The state and society shall support, care for and educate orphaned children, as well as children deprived of parental guardianship, and encourage charity in their favor"); and Tajikistan, Art. 34 ("A mother and child are under special protection and patronage of the State.
Parents shall be responsible for the upbringing and education of their children, and adults and the children capable of working shall be responsible for taking care and social security of their parents").

alleviate financial barriers to childbearing, in low TFR regions such as East Asia (Gauthier 2016). When placed in a regional context of gender disparity, child support measures may increase fertility. This may explain the positive association for MENA and Latin America, despite some evidence linking child support measures to lower fertility in Peru (Laszlo, Majid, and Renée 2024).

The fickle nature of child support policies is a good reminder of the unpredictability of population policies targeting fertility (Judith Blake 1994; McNicoll 2001; Solinger and Nakachi 2016). Constitutions have not only included more provisions pertaining to children generally, (Boli-Bennett and Meyer 1978; Law and Versteeg 2010), but have also specifically enacted provisions for monetary support to children and mothers in an increasing pace (the mean almost doubles from 0.28 prior to 1985, to 0.48 after 1985, this difference is significant at the 1% level). But, as has been evident with the right to marriage, constitutional content is dependent on the context in which it is enacted; child support is perhaps an even better illustration of the importance of regional context, as it is less predictable and necessitates ad-hoc regional-specific explanations to understand the results.

Results are not reported for the fifth constitutional predictor – enactment of a new constitution – as no significant results were obtained. Incredibly, no significant results were obtained for any other type of constitutional event (temporary suspension of constitution, amendment, interim constitution, temporary suspension of amendment, reinstated constitution), or for a binary indicator of any event having occurred. Furthermore, results remained insignificant even when control variables for war and economic crisis were omitted form the model. This implies that constitutional change does not create uncertainty independent of other social factors but reinforces the importance of the content and design elements reported above, as

constitutional change in particular aspects (content and design linked to fertility) remains significantly associated with fertility.

3.9.4 Regression Results: Effect Size

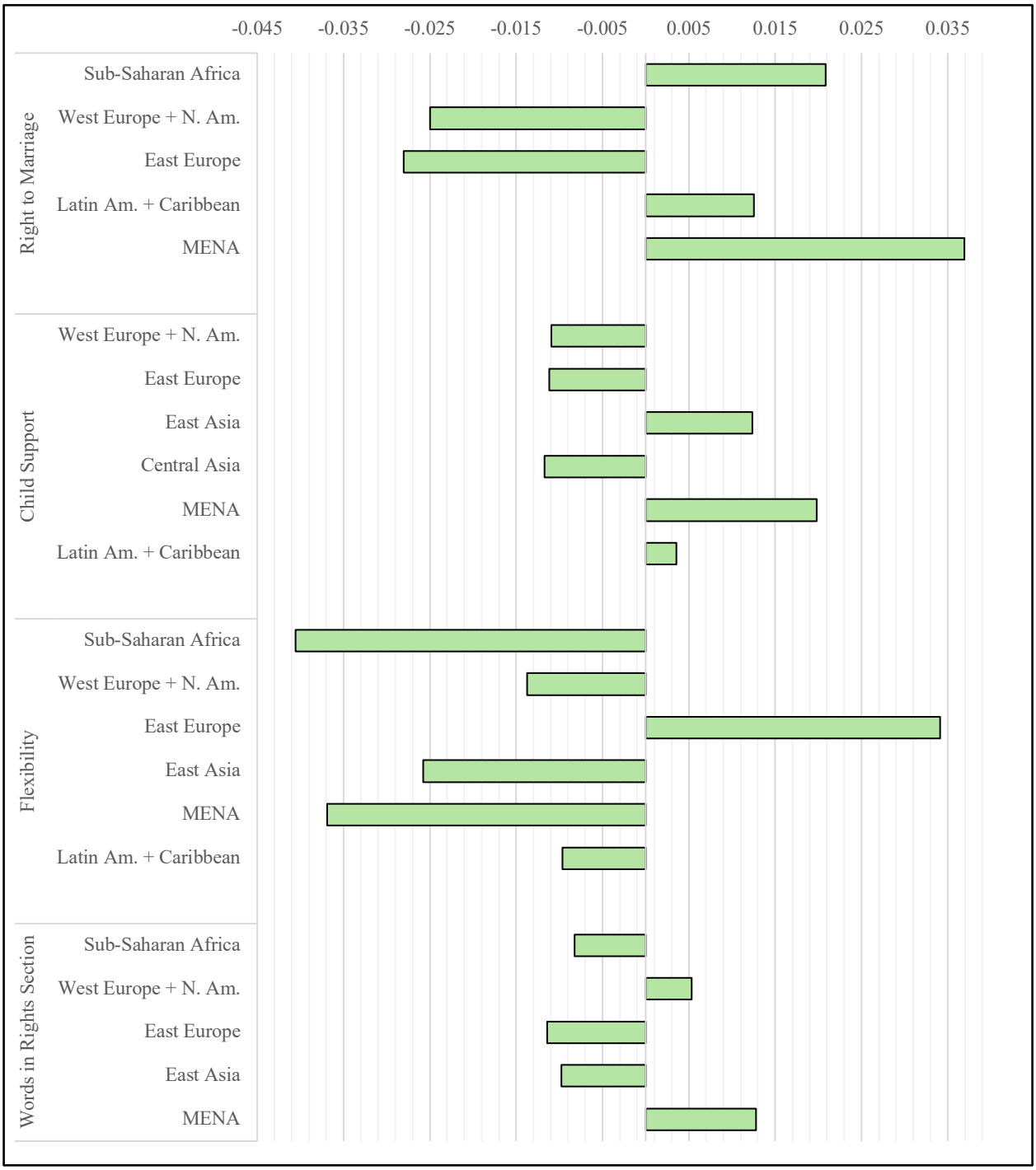
To this point, discussion has focused on the direction of the association between the constitutional predictors and TFR. This sub-segment will focus on the size of the coefficients and provide a more meaningful interpretation of the role the constitutional predictors examined. Figure 3.16 presents the mean value of the coefficients obtained across all 10 lags, for each constitutional predictor, for each region.[138] For ordinal predictors (right to marry, 1-4; flexibility, 1-3, words in rights section, 1 Std. Dev.), this mean value was multiplied by the number of categories to achieve the "maximum effect". The results presented are obtained by using the following formula:

$$\left(\frac{\overline{\beta_{pr}}^{(10\ \text{lags})}}{\overline{\text{TFR}_r}}\right) \times k_p$$

Where, β is the mean of significant coefficients of predictor p for region r, across all 10 time lags; TFR is the mean TFR for region r, and k is the number of categories in predictor p. This yields the mean percentile change in TFR associated with a "full" shift in each constitutional predictor. Figure 3.16 demonstrates that the association between each of the constitutional predictors and the change in TFR is non-trivial.

[138] To avoid inclusion of spurious results for odd time-lags, the following condition was set: to be included in the calculation of the mean coefficient size, for each predictor, a region must have presented at least two consecutive time lags significant at 5%, and at least a total of three significant time lags in total. For instance, for the right to marry, Sub-Saharan Africa presented four consecutive time-lags (lags 7-10) with a coefficient significant at the 5% level. Once this condition was satisfied, all remaining coefficients that were at least significant at the 10% level were included in the calculation of the mean, even if they did not appear in a consecutive time lag (e.g., in Sub-Saharan Africa, time lag 4, chronologically separated from the consecutive lags 7-10). In rare cases where a consecutive and significant coefficient exhibited a sign opposite from the remaining coefficients (positive while others are negative, or vice versa), this coefficient was still included in the calculation.

Figure 3.16: Mean Change in TFR, by Constitutional Predictor and Region 1950-2020

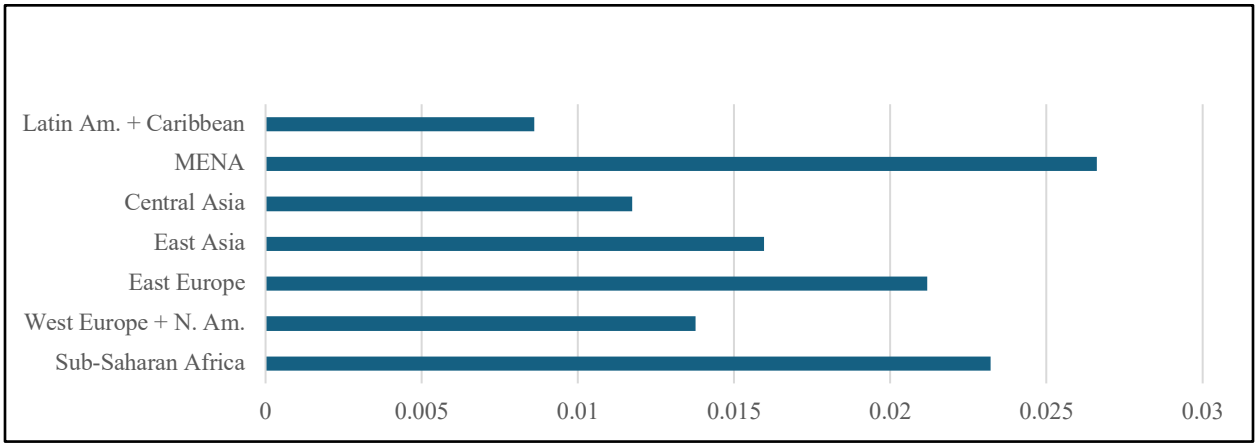


Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – The mean change in TFR per predictor, per region, is calculated as the mean of all significant coefficents across all 10 time lags, then divided by the mean TFR of the relevant region, and multiplied by k categories if predictor is ordinal. This figure demonstrates that certain constitutional predictors (e.g., felxibility and right to marry) are associated with much more than a non-trivial change in TFR, rising upto 3.5% in some instances.

In MENA, a shift from no right to marry to an explicit constitutional right to marry, is associated on average with an increase in TFR of over 3.5%. In sub-Saharan Africa, the same shift is associated with a mean increase in TFR of roughly 2%. A shift from no right of marriage to an explicit right to marry in Europe and North America, associated with an average decrease of about 2.5%-3%. In Sub-Saharan Africa, the shift from a rigid constitution to a flexible one is associated with a later mean decrease of about 4%, whereas in East Europe this same shift associates with a later mean increase of about 3.5%. In East Asian counties, the adoption of a constitutional child support provisions associated with a later increase of 1.2%, whereas in MENA the increase is around 2% and in Latin America about 0.5%.

Not one single sock has been relocated by these results, nor should it have been – these are small differences on the margins. In Sub-Saharan Africa, 2% of the mean TFR, 5.95*0.02=0.119, meaning that a constitutional right to marriage is associated with a later increase in 0.119 in total fertility, on average. Hardly tantalizing. But even these small changes are impactful, for at least two reasons. First, these small associations can add up very quickly; there are still multiple constitutional rights that are theoretically linked to fertility, such as fundamental right to family, specific child protections, civil marriage, reproductive rights, abortion, contraception, etc. Even if each of these has only a marginal 1% effect, they are a force to be reckoned with when considered together. Second, these results underestimate the true association size as lower level Law is not considered. Most of these constitutional rights are not directly enforceable, rather they create the legal infrastructure necessary to promote a certain topic, such as child support. The total effect of each predictor would then need to be considered alongside the other Laws it facilitates.

Figure 3.17: Mean Association Size between Country-Level TFR and All Constitutional Predictors, by Region 1950-2020



Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Depicts the mean of the absolute values presented in Figure 3.16 by predictor and region, to obtain the mean size of the association between all constitutional preditors and TFR in a region. The overall effect is non-trivial (around 1-2.5%), and is actually stronger in regions traditionally thought to have weaker rule of Law, suggesting that national constitutions are associated with TFR regardless of region and the rule of Law present.

For a constitution to actually have an impact, the rule of law must be respected; this is not necessarily binary and can vary by country and region (Versteeg and Ginsburg 2017). This may form an underlying assumption or a confounding variable whereby the existence and size of the association between constitutions and TFR are dependent upon the degree to which the rule of law is implemented in each region. For this reason, the controls of judicial and executive independence were included in the model, as they are both thought to interact with rule of law and type of governance (Helmke and Rosenbluth 2009). The end result can be seen in Figure 3.17, which averages the absolute values of the by region/predictor estimates presented in Figure 3.16, to provide some indicator for the mean size of the association between constitutions and TFR by region.

Surprisingly, the two regions traditionally thought to be most lacking in their rule of law, MENA and Sub-Saharan Africa (Mugraby 2002; Diamond 2008; Yeh 2011), are the ones most

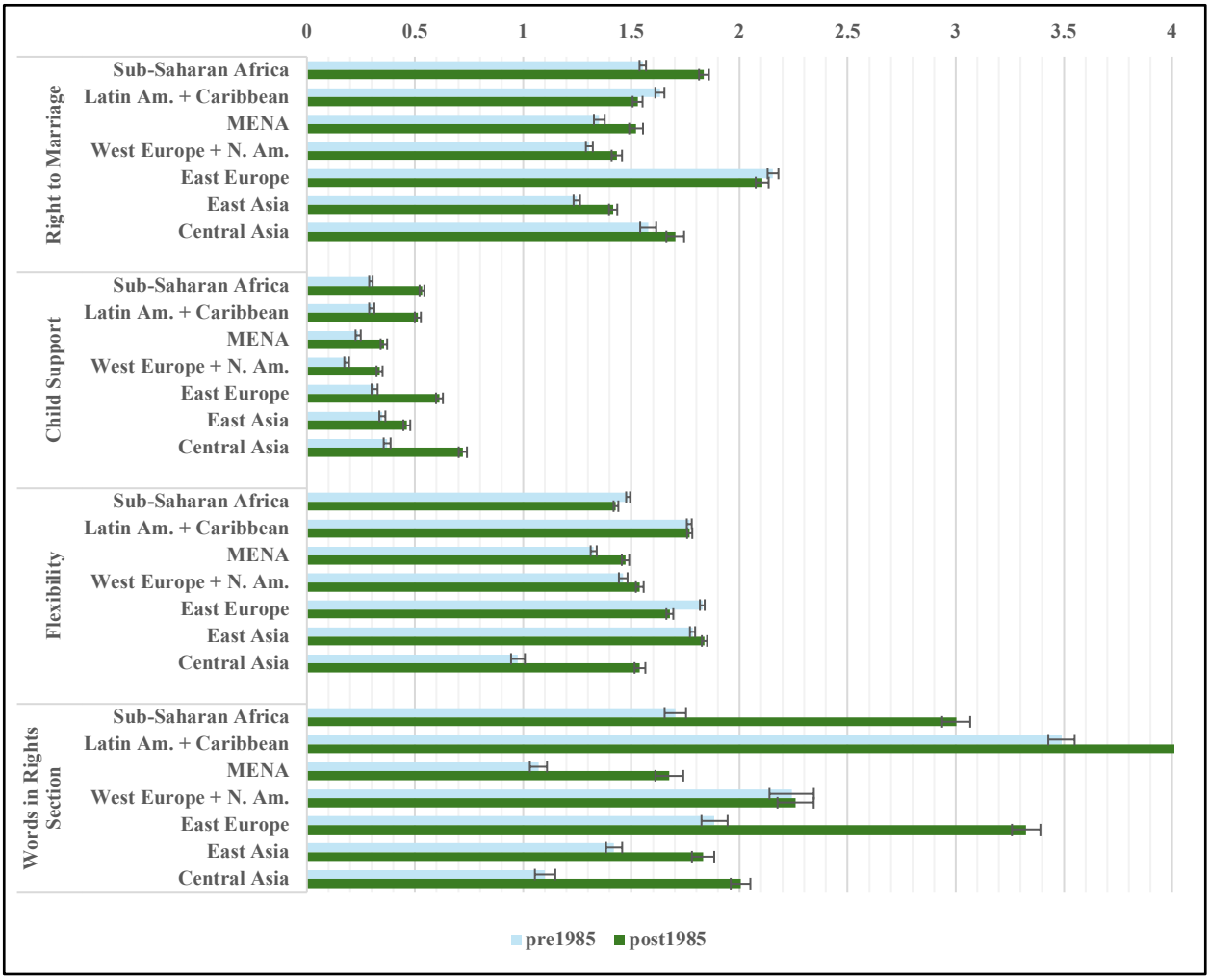
susceptible to constitutional change as it pertains to TFR. This is not simply an artifact of the dramatic fertility decline in these regions, as decline was more dramatic in East Asia and Latin America (33% and 60% decline in SSA and MENA, compared to 68% and 63% in East Asia and Latin America, between 1950 and 2020). These findings can allay fears of Law being less impactful in the global south and highlight the potential for future change via constitutional change.

Lastly, Figure 3.18 presents the pre- and post-1985 levels of each constitutional predictor, by region. The year 1985 was chosen as it is the mid-point between the sample years 1950-2020. Standard errors are generated using t-tests. First, these results suggest that both right to marriage and child support have increased significantly in nearly all regions, which aligns with previous findings on the increasing proliferation and penetration of constitutional rights (Boli-Bennett and Meyer 1978; Law and Versteeg 2010). In East Europe, there was no significant change in the right to marry, and in Latin America it actually decreased significantly, mirroring the dual nuptiality regime observed and the exceptionally high rate of extra marital birth (Castro-Martin 2002; Laplante et al. 2015). Child support increased across all regions, Central Asia exhibiting the largest increase (0.37 to 0.72), once again mirroring the social context of combating severe health outcomes relating to maternity and infant death in a revamped healthcare system built on the ruins of a collapsed soviet system (Falkingham 2000; Grabman 2004).

While the length of rights sections increased in all regions (save for West Europe + North America, where no significant change was observed), flexibility is quite variated. In West Europe + North America, MENA, and East and Central Asia, constitutions on average become more flexible; in Sub-Saharan Africa and East Europe they became more rigid, and in Latin America no change was observed. This is highly instructive, as it means that at least some elements of

constitutional design are still in flux. Total length and the length of rights sections seem to continue to grow, and flexibility has not stabilized yet either. Other design aspects such as the number of unique documents comprising a constitution (multi-textualism) also continue to be variated. This presents an opportunity to further explore constitutional design elements and their interaction with social outcomes such as fertility.

Figure 3.18: Mean Value of Constitutional Predictors pre- and post-1985, by Region



Sources – Comparative Constitutions Project.
Note – Mean value for each constitutional predictor, pre- and post 1985 is presented by region. Whiskers represent 95% CI. For clarity, words in rights section are scaled to 1,000 words, and the value for post-1985 in Latin America (5.59) is cutoff at 4. This figure clearly shows more constitutional activity/intervention post-1985 (the second half of the sample range).

3.10 Discussion

This segment will discuss the contributions made in this work, namely that national constitutions play a role in shaping population dynamics, and even though this dynamic is contained within its regional context – constitutions are mirroring socioeconomic trends – they are still associated with fertility, independent of these external socioeconomic trends. The segment will close with a debate on the future of Law, writ large, in population studies, and several limitations embedded within the research strategy employed here.

3.10.1 "…an excess diet of raw data…"[139].

The results segment can be distilled into three primary take aways: (1) national constitutions exhibit a non-trivial association with fertility through constitutional rights (content) and constitutional design (form); (2) this influence is growing over time; (3) the influence of national constitutions is dependent on region and time period.

In the narrow sense, Law is worthy of the attention of demographers for the simple fact that "…by virtue of its mere existence the state cannot *not* influence fertility" (McNicoll 2001, 139), a sentiment that has recently begun to echo in the literature (Pizzarossa and Perehudoff 2017; Arsic and Jerinic 2024). At minimum, these analyses provide a basic 'proof of concept'; this means that more research is needed to produce robust and unimpeachable legal levers that can be routinely used as predictors and controls in the study of populations. This paper suggests at least a few easily obtainable highly generalized variables such as the inclusion/exclusion of rights directly regulating the population dynamic explored. This can be easily applied to migration or mortality (e.g., Freedom of Movement, Right of Euthanasia, etc.).

[139] (Vance 1952, 10).

In the broader sense, Law presents a unique opportunity to inject new high-level theory into demography, answering the call put forth by Rupert Vance (Vance 1952, 11). Legal theory passes the test set out in Vance (quoting Spengler), for qualifying as a high-order theory. (1) It is dynamic in that it recognizes the role of society in legal change (Calavita 2016). Furthermore, as the relationship between Law and populations is bi-lateral (Barnett 1982; Barnett and Reed 1985), a component of its 'dynamism' is inherently tied to populations; (2) taking account of demographic interrelations is built-in to the study of the Law, which regulates relations between and among "…*countries and groups within nations*" (Vance 1952, 12), between the very building blocks that compose a population (Lutz 2013b); and finally, (3) Law exhibits a multi-science approach, as it has a deep and rich history of interacting with other fields, particularly social scientific disciplines. One well-established legal approach to adjudication, 'Sociological Jurisprudence', focuses on the social inputs (background) and outputs (consequences) of a legal intervention, with the aim of regulating behavior and minimizing conflict (Pound 1943; Lyman 2002).

Constitutional Law plays a significant role in creating both advertent and inadvertent fertility-affecting measures. Constitutional content is likely more on the advertent side, while constitutional design has more of the inadvertent character. It would be hard to ascribe to a constitution regulating marriage, sex, or contraception no intention whatsoever (Geoffrey R. Stone 2017). To be able to uncover both advertent and inadvertent measures however, the Law must be interrogated with greater sophistication. This project took a step in that direction, by embracing the social noise and exploring the role of Law within it.

3.10.2 "...some mutts can't be muzzled".[140]

The theoretical model presented in Figure 3.6, features the dashed arrow leading from population dynamics to constitutions. This is the environmental effect on constitutions, which has been well researched and includes various pressures such as economic, social, and political (Go 2003; Nzelibe and Yoo 2006; E. A. Posner and Vermeule 2007; Cath 2018; Zlatic 2019). Population dynamics are a key component in creating social pressure as well (Barnett and Reed 1985; Barnett 2006). The results demonstrate this well, as many of the constitutional changes observed reflect the regional context in which they are embedded. However, when many of these external pressures are controlled – as well as the spatial dynamics they exhibit (Crowley 2012; Tom Ginsburg and Versteeg 2014; Goderis and Versteeg 2014), constitutions are still found to be associated with fertility, meaning that there is an independent role for constitutions to play in population dynamics in the margins; in other words, constitutions do not perfectly mediate between underlying socioeconomic factors and social outcomes such as fertility, and in the imperfection is where the interesting dynamics live.

This project only scratches the surface; there is yet much to be explored in the gap where constitutions interact independently with population dynamics. The data, as currently constructed, are crude and devoid of nuance. They provide only the highest level of generality to suggest that the inclusion (or exclusion) of a right as broad as marriage, or child support interacts with fertility. A more careful coding of national constitutions, geared toward the specific question of fertility (or migration or mortality) can add variance and explanatory power. And it can help uncover more information about the inadvertent and intentional fertility-affecting measures employed in constitutions.

[140] Amyl and the Sniffers. "Some Mutts (Can't be muzzled)". *Amyl and the Sniffers.* ATO Records 2019.

3.10.3 Limitations and Future Research

It bears repeating that the Comparative Constitutional Data were not coded for the purpose of studying populations, and thus a great deal of variance and practical applicability is absent. Future work can recode these data on the global scale yet maintain a high enough level of abstraction so as to maintain external validity and wide application. Moreover, these data and this research design is highly amenable to smaller scale comparative projects where a small number of states are compared across intricate measures. When done within a singular region, cultural confounders can be eschewed. This allows a deeper exploration of the mechanisms linking between constitutional change and fertility, and an opportunity to revisit old questions such as the onset of fertility decline (Freedman 1979; Cleland and Wilson 1987), using new theory and data. At a minimum, examining the regulatory environment extent prior to, and during a decline can shed new light on the "preparedness" of couples to engage in numeracy (Coale and Watkins 1986; Van De Walle 1992), possibly contributing to the debate on Adjustment vs. Innovation theory (Santow 1995).

Other possibilities are legion. How long did it take a nation's constitution to adapt to the new reality of declining fertility, and did this happen via evolution or revolution? Do constitutions serve as shield or sword in such transitions? In other words, were constitutions a barrier or catalysator in the demographic transition? Legal data are highly visible and easily obtainable making Law not only feasible partner, but also a cheap and enticing lover to bring into bed.

The lack of observed mechanisms makes this work an argument for the plausibility of the link between constitutions and fertility, rather than proof. Not a single "*aha!*" moment or estimate is or could be provided. A great deal more research is required to flesh out the particular

mechanisms underpinning the link between Law and populations. In particular, constitutional design being associated with fertility is an admittedly hard pill to swallow. The inherent assumption is that constitutional design is crucial to constitutional endurance and operation, and therefore it must be (indirectly) linked to social outcomes. Results did provide some convincing evidence in that significant results did conform to the expectations, but more theoretical development is required, both on the regional level and global level.

3.11 References

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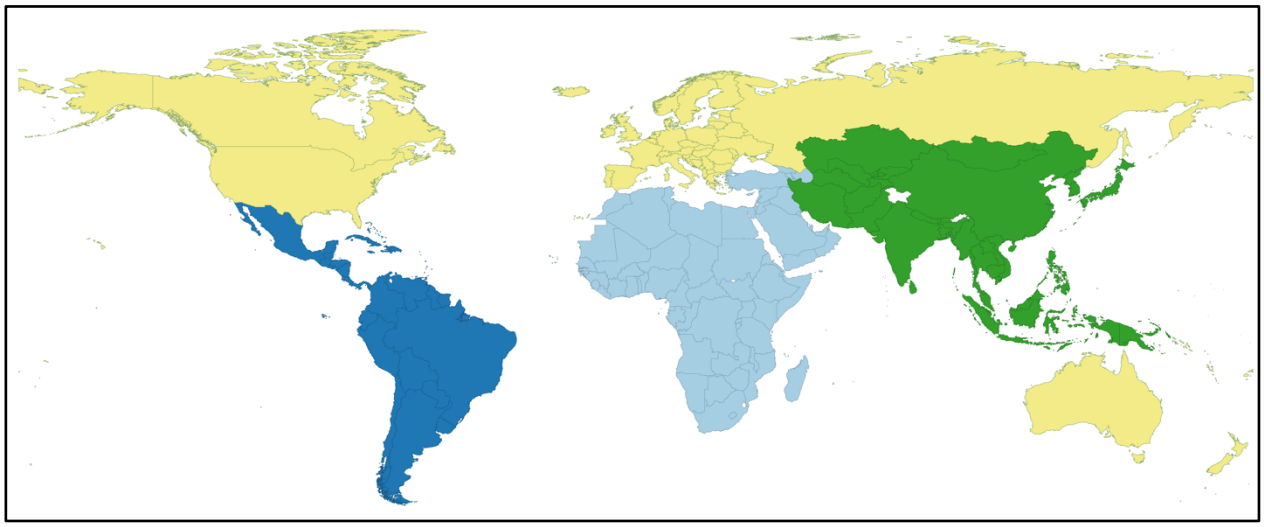
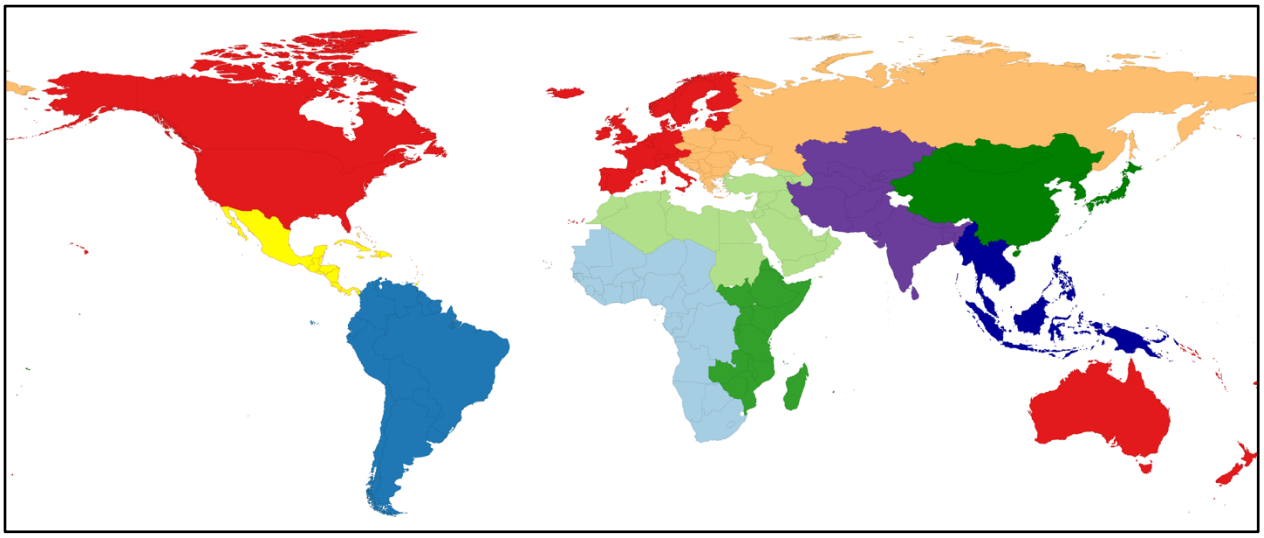
3.12 Appendix A: Weights & Regions

Map 3.3: Grouping Countries, by Large Region



Source – U.N. Population Division.
Note – Region #1: North America, West + East Europe, and Oceania (59 countries); Region #2: Africa and the Middle East (70 countries); Region #3: Latin America and the Caribbean (33 countries); and Region #4: Asia (31 countries).

Map 3.4: Grouping Countries, by Small Region



Source – U.N. Population Division.
Note – Region #1: West + South Africa (29 countries); Region #2: South America (12 countries); Region #3: MENA (23 countries); Region #4: Central America + Caribbean (21 countries); Region #5: West Europe + North America + Aus/NZ (30 countries); Region #6: East Europe (21 countries); Region #7: East Asia (13 countries); Region #8: Central Asia (14 countries); Region #9: South-East Asia (12 countries); Region #10: East Africa (18 countries).

Map 3.3 includes an alternative construction of regions; it is not possible to directly compare estimates to the regions used in the work above as the units differ. This regional construction trades nuance for a larger sample size per region. While this scheme created a high degree of inter-cluster heterogeneity, it was eventually inferior to the one employed in the paper as it creates too much intra-cluster heterogeneity. Furthermore, left censoring was prohibitive for the larger regional scheme. For instance, in the smaller regional split, MENA and Sub-Saharan Africa are two separate regions. Due to missingness generated by the year countries and constitutions were created, Sub-Saharan Africa was left censored at 1975, while MENA was left censored at 1960; this would mean that 15 years of data for MENA would have to be discarded. Similarly, East and West Europe have different left censored years (1960 and 1950, respectively), as well as East and Central Asia (1950 and 1960, respectively).

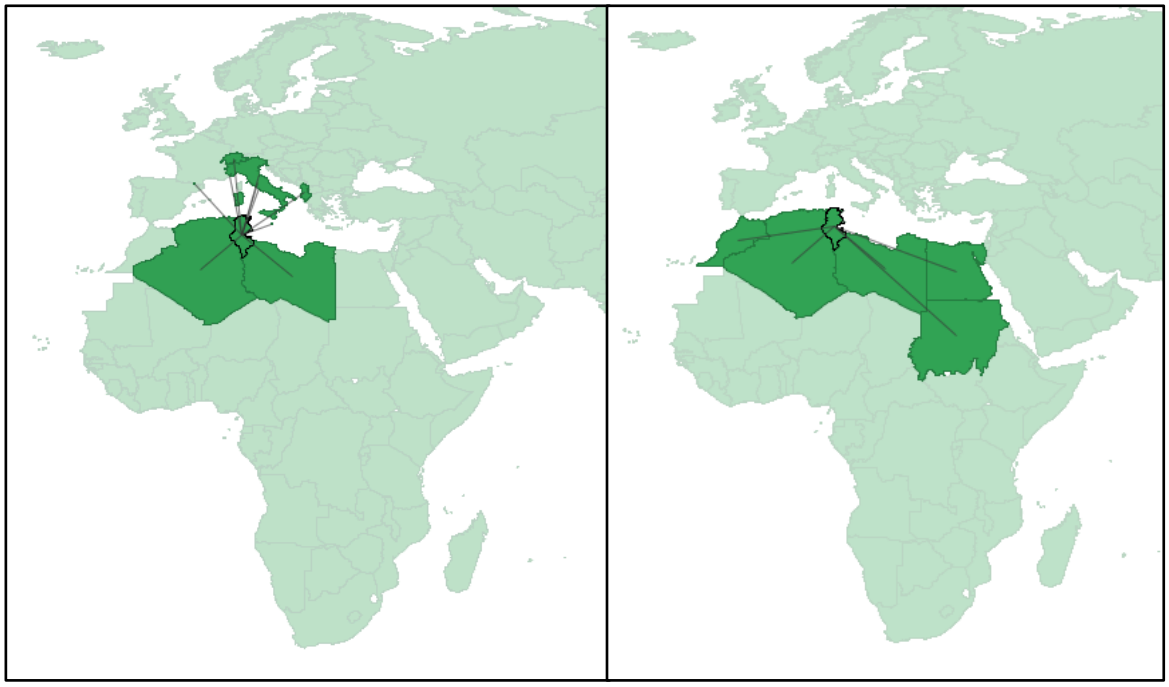
Table 3.6: Weights Statistics for 193 Countries in Sample

Weight	Isolates	Min. Nbrs	Max Nbrs	Mean Nbrs	Median Nbrs	Std. Dev.	% Non-Zero
Queen 1	39	0	14	3.15	3	2.58	1.63%
Queen 2 (inc. lower order)	39	2	36	9.7	10	7.44	5.03%
Nearest Neighbors=6	0	6	6	6	6	0	3.11%
Nearest Neighbors=8	0	8	8	8	8	0	4.15%
Nearest Neighbors=10	0	10	10	10	10	0	5.18%
Block Weight: Subregion	0	1	17	10.16	10	4.6	5.26%
Distance Band (minimal w/no isolates)	0	1	50	23.4	22	13.87	12.12%

Table 3.6 includes the results of a weights sensitivity analysis for 193 countries in the sample. When conducting a sensitivity analysis for choice of weight, there are no optimal options, as all weights exhibit certain limitations. A number of baseline rules can be applied. First, isolated units (countries) with no neighbors are to be avoided, as they cannot be incorporated into spatial analysis. This immediately removes the Queen weights. Too many, or too few neighbors, i.e., very large and very small standard deviations are undesirable for the

analysis conducted herein, as the unique geographic location of a country should be incorporated into the analysis. With too many neighbors, distant countries, possibly in different regions, will be modeled together as influencing each other; too few neighbors will not include potential countries that should interact with the focal country due to close proximity. For this reason, a distance band, which ensures no isolates, is inappropriate as it also includes observations for which there are 50 neighbors. Remaining possibilities are Block weights for Subregions and K nearest neighbors (K=6, 8, 10).

Map 3.5: KNN=10 (left) vs. Subregion Block Weight (right) for Tunisia



Source – U.N. Population Division.
Note – This map compares two types of weights: K nearest neighbors (left) vs. Subregion block weights, for Tunisia. This shows that the geographically nearest neighbors are not necessarily the ideal neighbors, as geographic proximity is not always a perfect marker for legal, cultural, or economic similarity. For instance, the KNN=10 weight includes Italy as a neighbor of Tunisia, but omits Egypt, as it is slightly more distant; by using subregions, a higher degree of intra-cluster similarity is achieved.

Map 3.5 demonstrates how the subregional classification by the UN is superior to the KNN=10 weight, despite similar statistics regarding number of neighbors and non-zero interactions. Using Tunisia as an example, the KNN=10 weight assigns the 10 countries closest to Tunisia in geographic space. This includes Italy, and Switzerland which are geographically close, but culturally very distant. Conversely, the UN subregional designation, which was constructed with internal homogeneity as a goal,[141] limits Tunisia's neighbors to the North African subregion, which theoretically more justifiable. As such, the subregional block weight is superior to remaining weights due to both data driven and theoretical justifications.

[141] https://population.un.org/wpp/DefinitionOfRegions/; https://unstats.un.org/unsd/methodology/m49/.

3.13 Appendix B: Regression Report

Table 3.7: Fixed Effects Spatial Regression Results for Country-Level Total Fertility Rates, Sub-Saharan Africa – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.480***	0.069	6.9	0
Population Density	-0.001*	0.000	-2.2	0.028
Population Density (Nbrs)	0.001	0.001	1.48	0.14
Sex Ratio	0.017	0.019	0.89	0.372
Sex Ratio (Nbrs)	-0.142**	0.050	-2.81	0.005
Median Age	-0.083***	0.024	-3.41	0.001
Median Age (Nbrs)	0.101**	0.041	2.44	0.015
Population Growth rate	0.378***	0.035	10.76	0
Population Growth rate (Nbrs)	-0.073	0.062	-1.18	0.238
Crude Death Rate	0.055***	0.007	7.34	0
Crude Death Rate (Nbrs)	-0.011	0.014	-0.82	0.412
Life Expectancy at birth	-0.013*	0.006	-2.1	0.036
Life Expectancy at birth (Nbrs)	-0.007	0.009	-0.83	0.404
Infant Mortality Rate	-0.002†	0.001	-1.65	0.098
Infant Mortality Rate (Nbrs)	0.002	0.002	1.03	0.301
Net Migration Rate	-0.038***	0.004	-10.55	0
Net Migration Rate (Nbrs)	0.007	0.007	1.09	0.276
Dependency Ratio	0.040	0.036	1.12	0.265
Dependency Ratio (Nbrs)	-0.144	0.102	-1.41	0.157
GDP per Capita	0.023***	0.006	3.65	0
GDP per Capita (Nbrs)	0.011	0.020	0.55	0.585
Economic Crisis	-0.004*	0.001	-2.5	0.012
Economic Crisis (Nbrs)	0.001	0.004	0.33	0.741
Hostility Level	-0.066†	0.039	-1.7	0.089
Hostility Level (Nbrs)	-0.061	0.099	-0.61	0.541
Judicial Independence	0.036	0.028	1.29	0.198
Judicial Independence (Nbrs)	-0.075	0.106	-0.71	0.48
Executive Independence	0.042	0.037	1.15	0.249
Executive Independence (Nbrs)	0.074	0.125	0.59	0.552
Religiosity Index	-0.064**	0.021	-3.07	0.002
Religiosity Index (Nbrs)	-0.044	0.031	-1.41	0.158
Mentions of Democracy	0.027***	0.004	6.62	0
Mentions of Democracy (Nbrs)	0.017*	0.008	2.1	0.036
Reference to Socialism	0.001	0.002	0.88	0.377
Reference to Socialism (Nbrs)	0.001	0.006	0.23	0.818
Reference to Free Market (Nbrs)	-0.012**	0.005	-2.53	0.012
Reference to Free Market (Nbrs)	-0.008	0.015	-0.53	0.599

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 3.8: Fixed Effects Spatial Regression Results for Country-Level Total Fertility Rates, West Europe and North America – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.592***	0.029	20.1	0
Population Density	0.000	0.000	-0.45	0.655
Population Density (Nbrs)	0.000*	0.000	-2.32	0.021
Sex Ratio	0.002	0.002	0.78	0.435
Sex Ratio (Nbrs)	-0.005	0.003	-1.53	0.126
Median Age	0.029***	0.004	7.46	0
Median Age (Nbrs)	-0.006	0.004	-1.4	0.163
Population Growth rate	1.281***	0.020	64.5	0
Population Growth rate (Nbrs)	-0.639***	0.047	-13.61	0
Crude Death Rate	0.129***	0.005	24.34	0
Crude Death Rate (Nbrs)	-0.072***	0.008	-8.76	0
Life Expectancy at birth	-0.003	0.005	-0.61	0.545
Life Expectancy at birth (Nbrs)	-0.006	0.005	-1.1	0.271
Infant Mortality Rate	-0.001	0.001	-0.72	0.472
Infant Mortality Rate (Nbrs)	-0.001	0.001	-0.79	0.431
Net Migration Rate	-0.127***	0.002	-64.27	0
Net Migration Rate (Nbrs)	0.064***	0.005	13.56	0
Dependency Ratio	-0.003	0.008	-0.39	0.7
Dependency Ratio (Nbrs)	-0.002	0.020	-0.09	0.93
GDP per Capita	0.000	0.003	0.08	0.936
GDP per Capita (Nbrs)	0.010†	0.005	1.78	0.076
Economic Crisis	0.000	0.001	0.51	0.608
Economic Crisis (Nbrs)	-0.001	0.002	-0.29	0.773
Hostility Level	-0.058**	0.021	-2.72	0.006
Hostility Level (Nbrs)	0.149†	0.081	1.86	0.063
Judicial Independence	0.040**	0.016	2.57	0.01
Judicial Independence (Nbrs)	0.016	0.029	0.54	0.589
Executive Independence	-0.046†	0.026	-1.79	0.074
Executive Independence (Nbrs)	0.056†	0.033	1.69	0.092
Religiosity Index	-0.019	0.012	-1.58	0.114
Religiosity Index (Nbrs)	0.060***	0.012	5.2	0
Mentions of Democracy	0.012***	0.001	12.08	0
Mentions of Democracy (Nbrs)	-0.003**	0.001	-3.12	0.002
Reference to Socialism	0.000	0.000	-0.55	0.585
Reference to Socialism (Nbrs)	0.000	0.001	0.07	0.942
Reference to Free Market (Nbrs)	0.000	0.002	0.03	0.976
Reference to Free Market (Nbrs)	0.001	0.002	0.55	0.583

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.9: Fixed Effects Spatial Regression Results for Country-Level Total Fertility Rates, East Europe – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.309***	0.060	5.15	0
Population Density	0.000	0.000	1.61	0.107
Population Density (Nbrs)	0.000	0.000	1.17	0.241
Sex Ratio	-0.004	0.004	-0.9	0.369
Sex Ratio (Nbrs)	-0.025†	0.013	-1.88	0.061
Median Age	0.027***	0.005	5.53	0
Median Age (Nbrs)	-0.017	0.010	-1.7	0.09
Population Growth rate	1.197***	0.024	50.26	0
Population Growth rate (Nbrs)	-0.380***	0.079	-4.8	0
Crude Death Rate	0.119***	0.007	17.01	0
Crude Death Rate (Nbrs)	-0.029†	0.016	-1.88	0.059
Life Expectancy at birth	-0.007	0.005	-1.27	0.205
Life Expectancy at birth (Nbrs)	0.010	0.012	0.8	0.421
Infant Mortality Rate	0.001	0.001	1.16	0.245
Infant Mortality Rate (Nbrs)	-0.002	0.002	-1.23	0.22
Net Migration Rate	-0.123***	0.002	-50.6	0
Net Migration Rate (Nbrs)	0.040***	0.008	4.84	0
Dependency Ratio	0.008	0.015	0.56	0.572
Dependency Ratio (Nbrs)	-0.069†	0.041	-1.7	0.089
GDP per Capita	-0.012*	0.006	-2.01	0.045
GDP per Capita (Nbrs)	-0.001	0.014	-0.04	0.967
Economic Crisis	-0.001	0.001	-1.2	0.229
Economic Crisis (Nbrs)	-0.005*	0.002	-2.3	0.021
Hostility Level	0.005	0.014	0.4	0.69
Hostility Level (Nbrs)	0.000	0.054	0.01	0.994
Judicial Independence	0.003	0.008	0.39	0.695
Judicial Independence (Nbrs)	-0.004	0.023	-0.18	0.855
Executive Independence	-0.061***	0.010	-5.86	0
Executive Independence (Nbrs)	0.036	0.028	1.29	0.197
Religiosity Index	-0.029**	0.009	-3.08	0.002
Religiosity Index (Nbrs)	0.044*	0.022	1.98	0.048
Mentions of Democracy	0.029***	0.002	18.43	0
Mentions of Democracy (Nbrs)	-0.008***	0.002	-4.5	0
Reference to Socialism	-0.001	0.001	-0.9	0.37
Reference to Socialism (Nbrs)	0.004	0.003	1.38	0.169
Reference to Free Market (Nbrs)	0.002	0.003	0.72	0.471
Reference to Free Market (Nbrs)	0.002	0.007	0.32	0.752

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.10: Fixed Effects Spatial Regression Results for Country-Level Total Fertility Rates, East Asia – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.364***	0.034	10.7	0
Population Density	0.000***	0.000	-4.19	0
Population Density (Nbrs)	0.000**	0.000	-2.58	0.01
Sex Ratio	0.005	0.007	0.71	0.475
Sex Ratio (Nbrs)	0.011	0.012	0.86	0.391
Median Age	0.003	0.006	0.53	0.597
Median Age (Nbrs)	0.004	0.006	0.68	0.494
Population Growth rate	1.182***	0.020	59.15	0
Population Growth rate (Nbrs)	-0.406***	0.047	-8.69	0
Crude Death Rate	0.120***	0.002	53.23	0
Crude Death Rate (Nbrs)	-0.049***	0.006	-8.61	0
Life Expectancy at birth	0.004	0.003	1.39	0.165
Life Expectancy at birth (Nbrs)	-0.016*	0.006	-2.45	0.014
Infant Mortality Rate	0.000	0.001	0.3	0.765
Infant Mortality Rate (Nbrs)	0.000	0.001	0.43	0.665
Net Migration Rate	-0.115***	0.002	-53.96	0
Net Migration Rate (Nbrs)	0.041***	0.005	8.94	0
Dependency Ratio	-0.048**	0.019	-2.59	0.01
Dependency Ratio (Nbrs)	0.039	0.035	1.12	0.261
GDP per Capita	0.017*	0.007	2.43	0.015
GDP per Capita (Nbrs)	0.011	0.017	0.63	0.53
Economic Crisis	0.002	0.002	1.11	0.268
Economic Crisis (Nbrs)	0.004	0.004	1.21	0.227
Hostility Level	0.000	(omitted)		
Hostility Level (Nbrs)	0.000	(omitted)		
Judicial Independence	0.035	0.026	1.39	0.166
Judicial Independence (Nbrs)	0.070	0.062	1.13	0.257
Executive Independence	0.102***	0.027	3.76	0
Executive Independence (Nbrs)	-0.012	0.057	-0.22	0.829
Religiosity Index	0.145***	0.009	15.68	0
Religiosity Index (Nbrs)	-0.039***	0.007	-5.16	0
Mentions of Democracy	0.016***	0.002	10.54	0
Mentions of Democracy (Nbrs)	0.000	0.002	-0.11	0.912
Reference to Socialism	-0.001	0.001	-1.05	0.295
Reference to Socialism (Nbrs)	0.000	0.002	0.2	0.838
Reference to Free Market (Nbrs)	0.012**	0.005	2.63	0.009
Reference to Free Market (Nbrs)	0.003	0.009	0.36	0.717

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.11: Fixed Effects Spatial Regression Results for Country-Level Total Fertility Rates, Central Asia – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.424***	0.054	7.88	0
Population Density	-0.001***	0.001	-5.51	0
Population Density (Nbrs)	0.001	0.001	0.19	0.848
Sex Ratio	0.033*	0.013	2.4	0.016
Sex Ratio (Nbrs)	-0.097*	0.044	-2.23	0.026
Median Age	0.085***	0.013	6.57	0
Median Age (Nbrs)	-0.065**	0.022	-2.94	0.003
Population Growth rate	0.770***	0.060	12.69	0
Population Growth rate (Nbrs)	-0.173*	0.071	-2.41	0.016
Crude Death Rate	0.039***	0.011	3.51	0
Crude Death Rate (Nbrs)	-0.001	0.025	-0.05	0.959
Life Expectancy at birth	-0.032***	0.008	-3.67	0
Life Expectancy at birth (Nbrs)	-0.001	0.019	-0.07	0.947
Infant Mortality Rate	0.006***	0.001	4.46	0
Infant Mortality Rate (Nbrs)	-0.007***	0.002	-3.88	0
Net Migration Rate	-0.076***	0.006	-12.42	0
Net Migration Rate (Nbrs)	0.017*	0.007	2.32	0.02
Dependency Ratio	0.120**	0.038	3.09	0.002
Dependency Ratio (Nbrs)	-0.138	0.087	-1.58	0.114
GDP per Capita	0.042***	0.008	4.92	0
GDP per Capita (Nbrs)	0.004	0.018	0.27	0.783
Economic Crisis	0.001	0.002	0.41	0.685
Economic Crisis (Nbrs)	-0.009*	0.004	-2.01	0.044
Hostility Level	0.011	0.027	0.41	0.682
Hostility Level (Nbrs)	-0.052	0.059	-0.89	0.375
Judicial Independence	-0.008	0.028	-0.28	0.776
Judicial Independence (Nbrs)	-0.034	0.122	-0.28	0.78
Executive Independence	-0.030	0.027	-1.09	0.274
Executive Independence (Nbrs)	0.232**	0.086	2.68	0.007
Religiosity Index	0.024	0.029	0.84	0.399
Religiosity Index (Nbrs)	0.035	0.060	0.59	0.558
Mentions of Democracy	0.048***	0.003	15.16	0
Mentions of Democracy (Nbrs)	-0.026***	0.004	-5.87	0
Reference to Socialism	0.003	0.002	1.34	0.18
Reference to Socialism (Nbrs)	-0.001	0.004	-0.37	0.71
Reference to Free Market (Nbrs)	0.001	0.007	0.16	0.871
Reference to Free Market (Nbrs)	-0.007	0.014	-0.53	0.593

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.12: Fixed Effects Spatial Regression Results for Country -Level Total Fertility Rates, MENA – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.116	0.094	1.23	0.22
Population Density	0.000	0.000	-1.18	0.236
Population Density (Nbrs)	0.001	0.001	1.61	0.108
Sex Ratio	-0.072***	0.014	-5.08	0
Sex Ratio (Nbrs)	-0.202***	0.061	-3.29	0.001
Median Age	-0.012	0.016	-0.77	0.444
Median Age (Nbrs)	0.100**	0.034	2.94	0.003
Population Growth rate	0.049***	0.015	3.23	0.001
Population Growth rate (Nbrs)	-0.012	0.031	-0.39	0.698
Crude Death Rate	-0.048**	0.017	-2.88	0.004
Crude Death Rate (Nbrs)	-0.090	0.058	-1.54	0.124
Life Expectancy at birth	-0.026**	0.010	-2.64	0.008
Life Expectancy at birth (Nbrs)	-0.005	0.036	-0.13	0.893
Infant Mortality Rate	0.013***	0.001	10.37	0
Infant Mortality Rate (Nbrs)	0.022***	0.004	5.95	0
Net Migration Rate	-0.005**	0.002	-2.96	0.003
Net Migration Rate (Nbrs)	0.001	0.003	0.42	0.677
Dependency Ratio	0.110†	0.059	1.86	0.062
Dependency Ratio (Nbrs)	-0.120	0.223	-0.54	0.59
GDP per Capita	0.100***	0.012	8.64	0
GDP per Capita (Nbrs)	0.042	0.047	0.9	0.368
Economic Crisis	0.001	0.003	0.45	0.656
Economic Crisis (Nbrs)	0.006	0.008	0.77	0.442
Hostility Level	0.051	0.095	0.53	0.593
Hostility Level (Nbrs)	-0.147	0.400	-0.37	0.713
Judicial Independence	0.089†	0.053	1.68	0.092
Judicial Independence (Nbrs)	-0.283†	0.170	-1.67	0.095
Executive Independence	0.173***	0.036	4.76	0
Executive Independence (Nbrs)	-0.067	0.101	-0.67	0.506
Religiosity Index	0.362***	0.027	13.63	0
Religiosity Index (Nbrs)	0.031	0.046	0.68	0.495
Mentions of Democracy	0.043***	0.003	12.38	0
Mentions of Democracy (Nbrs)	0.001	0.005	0.2	0.839
Reference to Socialism	-0.002	0.002	-0.86	0.391
Reference to Socialism (Nbrs)	0.007	0.007	0.94	0.345
Reference to Free Market (Nbrs)	0.039***	0.009	4.54	0
Reference to Free Market (Nbrs)	0.021	0.026	0.81	0.416

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.13: Fixed Effects Spatial Regression Results for Country-Level Total Fertility Rates, Latin America + Caribbean – Controls Variables Only, no Legal Predictors, no Time-lags

	Estimate	Std. Err.	t-value	p-value
Lambda (Spatial Autoregressive Coefficient)	0.890***	0.021	43.33	0
Population Density	0.000	0.000	1.45	0.148
Population Density (Nbrs)	0.000	0.000	0.92	0.359
Sex Ratio	0.012*	0.005	2.44	0.015
Sex Ratio (Nbrs)	-0.021†	0.012	-1.68	0.094
Median Age	-0.030***	0.006	-4.92	0
Median Age (Nbrs)	0.038***	0.007	5.2	0
Population Growth rate	1.238***	0.018	68.87	0
Population Growth rate (Nbrs)	-1.102***	0.028	-39.61	0
Crude Death Rate	0.181***	0.006	27.99	0
Crude Death Rate (Nbrs)	-0.167***	0.010	-16.97	0
Life Expectancy at birth	0.033***	0.003	9.59	0
Life Expectancy at birth (Nbrs)	-0.028***	0.005	-5.48	0
Infant Mortality Rate	0.001**	0.001	2.9	0.004
Infant Mortality Rate (Nbrs)	0.000	0.001	-0.04	0.971
Net Migration Rate	-0.123***	0.002	-69.1	0
Net Migration Rate (Nbrs)	0.110***	0.003	39.29	0
Dependency Ratio	-0.011	0.008	-1.4	0.163
Dependency Ratio (Nbrs)	-0.039***	0.016	-2.48	0.013
GDP per Capita	0.005†	0.003	1.66	0.097
GDP per Capita (Nbrs)	-0.022***	0.006	-3.97	0
Economic Crisis	0.000	0.000	1.28	0.2
Economic Crisis (Nbrs)	0.000	0.001	-0.37	0.709
Hostility Level	-0.008	0.008	-1.11	0.266
Hostility Level (Nbrs)	-0.008	0.017	-0.49	0.622
Judicial Independence	0.008	0.007	1.05	0.295
Judicial Independence (Nbrs)	-0.015	0.015	-0.99	0.321
Executive Independence	0.011	0.014	0.73	0.463
Executive Independence (Nbrs)	-0.067*	0.027	-2.51	0.012
Religiosity Index	0.007	0.011	0.64	0.521
Religiosity Index (Nbrs)	0.021	0.021	0.99	0.322
Mentions of Democracy	0.012***	0.001	10.99	0
Mentions of Democracy (Nbrs)	-0.009***	0.001	-5.97	0
Reference to Socialism	0.000	0.000	-0.34	0.734
Reference to Socialism (Nbrs)	0.001	0.001	1	0.316
Reference to Free Market (Nbrs)	0.001	0.001	0.36	0.716
Reference to Free Market (Nbrs)	0.001	0.003	0.28	0.778

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates are obtained via Fixed Effects Spatial Regression model for control variables with no time lags or constitutional legal predictors.

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.14: Spatial Regression Results – Right to Marriage, by Region

Region	Lag	Estimate	Std. Err.	t-value	p-value
Sub-Saharan Africa	Focal Lag 1	0.002	0.011	0.16	0.87
	Neighbor Lag 1	-0.043	0.028	-1.57	0.117
	Focal Lag 2	0.012	0.010	1.22	0.223
	Neighbor Lag 2	-0.035	0.027	-1.3	0.195
	Focal Lag 3	0.010	0.009	1.11	0.269
	Neighbor Lag 3	-0.024	0.030	-0.8	0.426
	Focal Lag 4	0.017†	0.009	1.77	0.076
	Neighbor Lag 4	-0.058†	0.030	-1.95	0.051
	Focal Lag 5	0.005	0.009	0.58	0.56
	Neighbor Lag 5	-0.021	0.030	-0.7	0.487
	Focal Lag 6	0.009	0.009	0.96	0.339
	Neighbor Lag 6	-0.022	0.029	-0.74	0.458
	Focal Lag 7	0.030**	0.010	2.86	0.004
	Neighbor Lag 7	-0.031	0.032	-0.99	0.323
	Focal Lag 8	0.034***	0.011	3.21	0.001
	Neighbor Lag 8	-0.042	0.032	-1.35	0.177
	Focal Lag 9	0.023*	0.011	2.16	0.031
	Neighbor Lag 9	-0.036	0.034	-1.07	0.287
	Focal Lag 10	0.030***	0.010	2.97	0.003
	Neighbor Lag 10	-0.061*	0.027	-2.25	0.025
West Europe + N. Am.	Focal Lag 1	-0.017**	0.005	-3.26	0.001
	Neighbor Lag 1	0.031*	0.013	2.3	0.022
	Focal Lag 2	-0.018***	0.006	-3.27	0.001
	Neighbor Lag 2	0.050***	0.014	3.45	0.001
	Focal Lag 3	-0.013*	0.006	-2.31	0.021
	Neighbor Lag 3	0.039**	0.015	2.68	0.007
	Focal Lag 4	-0.015**	0.006	-2.76	0.006
	Neighbor Lag 4	0.042**	0.014	3.07	0.002
	Focal Lag 5	-0.013*	0.006	-2.22	0.027
	Neighbor Lag 5	0.042**	0.015	2.84	0.005
	Focal Lag 6	-0.016**	0.005	-2.95	0.003
	Neighbor Lag 6	0.041**	0.015	2.72	0.006
	Focal Lag 7	-0.015**	0.005	-2.91	0.004
	Neighbor Lag 7	0.042**	0.014	3.02	0.003
	Focal Lag 8	-0.020***	0.005	-3.94	0
	Neighbor Lag 8	0.037**	0.014	2.64	0.008
	Focal Lag 9	-0.013**	0.005	-2.67	0.008
	Neighbor Lag 9	0.038**	0.012	3.09	0.002
	Focal Lag 10	-0.013*	0.005	-2.45	0.014
	Neighbor Lag 10	0.019	0.012	1.51	0.13

Table 3.14: Spatial Regression Results – Right to Marriage, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
East Europe	Focal Lag 1	-0.022***	0.006	-3.97	0
	Neighbor Lag 1	-0.014	0.016	-0.84	0.4
	Focal Lag 2	-0.018***	0.005	-3.68	0
	Neighbor Lag 2	-0.025	0.015	-1.64	0.101
	Focal Lag 3	-0.013**	0.005	-2.6	0.009
	Neighbor Lag 3	0.002	0.014	0.12	0.906
	Focal Lag 4	-0.018***	0.005	-3.88	0
	Neighbor Lag 4	-0.015	0.014	-1.14	0.255
	Focal Lag 5	-0.013**	0.004	-3.09	0.002
	Neighbor Lag 5	0.007	0.011	0.66	0.511
	Focal Lag 6	-0.011*	0.005	-2.47	0.013
	Neighbor Lag 6	-0.016	0.013	-1.23	0.219
	Focal Lag 7	-0.018***	0.005	-3.88	0
	Neighbor Lag 7	-0.013	0.013	-0.94	0.347
	Focal Lag 8	-0.012**	0.004	-2.73	0.006
	Neighbor Lag 8	0.013	0.014	0.93	0.354
	Focal Lag 9	-0.012**	0.005	-2.62	0.009
	Neighbor Lag 9	0.019	0.016	1.22	0.223
	Focal Lag 10	-0.012**	0.004	-2.7	0.007
	Neighbor Lag 10	0.025	0.018	1.4	0.163
Latin Am. + Caribbean	Focal Lag 1	0.014***	0.003	4.76	0
	Neighbor Lag 1	-0.002	0.006	-0.25	0.8
	Focal Lag 2	0.012***	0.003	3.89	0
	Neighbor Lag 2	0.001	0.006	0.23	0.817
	Focal Lag 3	0.013***	0.003	4.19	0
	Neighbor Lag 3	0.006	0.006	0.95	0.34
	Focal Lag 4	0.016***	0.003	5.32	0
	Neighbor Lag 4	0.005	0.006	0.95	0.344
	Focal Lag 5	0.012***	0.003	3.99	0
	Neighbor Lag 5	0.007	0.006	1.07	0.285
	Focal Lag 6	0.010***	0.003	3.21	0.001
	Neighbor Lag 6	0.001	0.006	0.11	0.909
	Focal Lag 7	0.016***	0.003	5.01	0
	Neighbor Lag 7	-0.004	0.006	-0.63	0.53
	Focal Lag 8	0.012***	0.003	3.69	0
	Neighbor Lag 8	-0.010	0.006	-1.82	0.068
	Focal Lag 9	0.011***	0.003	3.43	0.001
	Neighbor Lag 9	-0.007	0.006	-1.35	0.176
	Focal Lag 10	0.010***	0.003	3.06	0.002
	Neighbor Lag 10	-0.003	0.006	-0.59	0.552

Table 3.14: Spatial Regression Results – Right to Marriage, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
MENA	Focal Lag 1	0.021	0.019	1.07	0.284
	Neighbor Lag 1	-0.057	0.068	-0.85	0.397
	Focal Lag 2	0.028	0.019	1.44	0.15
	Neighbor Lag 2	0.022	0.065	0.33	0.742
	Focal Lag 3	0.044*	0.019	2.28	0.022
	Neighbor Lag 3	-0.015	0.064	-0.24	0.81
	Focal Lag 4	0.042*	0.018	2.27	0.023
	Neighbor Lag 4	-0.043	0.064	-0.68	0.496
	Focal Lag 5	0.040*	0.018	2.22	0.026
	Neighbor Lag 5	-0.144*	0.063	-2.29	0.022
	Focal Lag 6	0.037*	0.018	2.03	0.042
	Neighbor Lag 6	-0.141*	0.066	-2.13	0.033
	Focal Lag 7	0.041*	0.019	2.2	0.028
	Neighbor Lag 7	-0.172*	0.063	-2.72	0.007
	Focal Lag 8	0.025	0.019	1.33	0.184
	Neighbor Lag 8	-0.279***	0.069	-4.01	0
	Focal Lag 9	0.056**	0.019	2.91	0.004
	Neighbor Lag 9	-0.178*	0.070	-2.55	0.011
	Focal Lag 10	0.023	0.019	1.22	0.222
	Neighbor Lag 10	-0.242**	0.082	-2.94	0.003

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates presented were obtained using Fixed Effects Spatial Regression, for each Region individually 1950-2020. The predictor presented – Constitutional Right to Marriage – includes 10 time lags (ranging from 1 to 10 years). These estimates indicate the association between a country's Right to Marriage and its TFR, lagged by X years ('Focal Lag X'), and the association between the mean Right to Marriage among a country's neighbors, and the focal country's TFR, lagged by X years ('Neighbor Lag X').

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.15: Spatial Regression Results – Child Support, by Region

Region	Lag	Estimate	Std. Err.	t-value	p-value
Sub-Saharan Africa	Focal Lag 1	0.039*	0.016	2.5	0.012
	Neighbor Lag 1	0.077†	0.045	1.72	0.086
	Focal Lag 2	0.020	0.014	1.44	0.151
	Neighbor Lag 2	0.009	0.040	0.22	0.824
	Focal Lag 3	-0.010	0.014	-0.72	0.472
	Neighbor Lag 3	0.041	0.046	0.89	0.376
	Focal Lag 4	-0.019	0.014	-1.41	0.159
	Neighbor Lag 4	0.013	0.048	0.27	0.785
	Focal Lag 5	-0.015	0.014	-1.1	0.273
	Neighbor Lag 5	0.047	0.049	0.96	0.335
	Focal Lag 6	-0.010	0.014	-0.74	0.457
	Neighbor Lag 6	0.061	0.043	1.41	0.158
	Focal Lag 7	0.020	0.016	1.25	0.213
	Neighbor Lag 7	-0.005	0.053	0.1	0.918
	Focal Lag 8	-0.003	0.016	-0.21	0.837
	Neighbor Lag 8	-0.052	0.051	1.02	0.31
	Focal Lag 9	0.009	0.017	0.51	0.609
	Neighbor Lag 9	-0.016	0.049	-0.34	0.735
	Focal Lag 10	-0.004	0.015	-0.24	0.813
	Neighbor Lag 10	0.007	0.042	0.16	0.872
West Europe + N. Am.	Focal Lag 1	-0.039***	0.008	-4.9	0
	Neighbor Lag 1	0.010	0.021	0.5	0.617
	Focal Lag 2	0.040***	0.009	4.61	0
	Neighbor Lag 2	0.026	0.022	1.17	0.243
	Focal Lag 3	-0.034***	0.009	-3.94	0
	Neighbor Lag 3	0.011	0.022	0.49	0.624
	Focal Lag 4	-0.032***	0.009	-3.59	0
	Neighbor Lag 4	0.006	0.020	0.29	0.772
	Focal Lag 5	-0.026**	0.008	-3.11	0.002
	Neighbor Lag 5	0.022	0.015	1.46	0.145
	Focal Lag 6	-0.015†	0.008	-1.86	0.063
	Neighbor Lag 6	0.005	0.015	0.36	0.715
	Focal Lag 7	-0.016***	0.008	-1.96	0.05
	Neighbor Lag 7	0.003	0.015	0.2	0.839
	Focal Lag 8	0.009	0.008	1.15	0.25
	Neighbor Lag 8	0.015	0.014	1.06	0.29
	Focal Lag 9	0.017*	0.007	2.3	0.021
	Neighbor Lag 9	0.025†	0.013	1.92	0.055
	Focal Lag 10	-0.018*	0.008	-2.17	0.03
	Neighbor Lag 10	0.019	0.014	1.38	0.168

Table 3.15: Spatial Regression Results – Child Support, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
East Europe	Focal Lag 1	0.013	0.009	1.38	0.168
	Neighbor Lag 1	-0.031	0.025	-1.27	0.204
	Focal Lag 2	-0.003	0.008	-0.44	0.659
	Neighbor Lag 2	-0.003	0.024	0.12	0.901
	Focal Lag 3	-0.010	0.008	-1.32	0.187
	Neighbor Lag 3	-0.034	0.023	1.5	0.133
	Focal Lag 4	-0.013†	0.007	-1.76	0.078
	Neighbor Lag 4	-0.029	0.021	1.4	0.162
	Focal Lag 5	-0.014*	0.007	2.04	0.041
	Neighbor Lag 5	-0.018	0.015	-1.22	0.221
	Focal Lag 6	-0.012†	0.007	1.72	0.086
	Neighbor Lag 6	-0.030	0.020	-1.53	0.126
	Focal Lag 7	-0.017*	0.007	-2.31	0.021
	Neighbor Lag 7	-0.043†	0.023	1.86	0.063
	Focal Lag 8	0.007	0.007	0.95	0.344
	Neighbor Lag 8	-0.036	0.023	-1.56	0.118
	Focal Lag 9	-0.009	0.007	-1.21	0.224
	Neighbor Lag 9	-0.029	0.027	1.06	0.291
	Focal Lag 10	0.000	0.007	0.01	0.996
	Neighbor Lag 10	-0.007	0.031	-0.23	0.817
East Asia	Focal Lag 1	0.060***	0.017	3.49	0
	Neighbor Lag 1	0.039	0.039	0.99	0.321
	Focal Lag 2	0.085***	0.017	5.15	0
	Neighbor Lag 2	0.006	0.040	0.16	0.873
	Focal Lag 3	0.048**	0.016	2.93	0.003
	Neighbor Lag 3	-0.042	0.037	-1.13	0.257
	Focal Lag 4	0.031†	0.016	1.89	0.059
	Neighbor Lag 4	-0.005	0.030	0.17	0.866
	Focal Lag 5	0.036*	0.016	2.21	0.027
	Neighbor Lag 5	-0.003	0.030	0.09	0.926
	Focal Lag 6	0.014	0.016	0.85	0.395
	Neighbor Lag 6	0.038	0.029	1.3	0.195
	Focal Lag 7	0.008	0.016	0.52	0.606
	Neighbor Lag 7	-0.029	0.029	1.02	0.307
	Focal Lag 8	-0.027†	0.016	-1.67	0.094
	Neighbor Lag 8	0.035	0.028	1.23	0.219
	Focal Lag 9	-0.026	0.016	-1.62	0.106
	Neighbor Lag 9	0.034	0.029	1.17	0.242
	Focal Lag 10	0.020	0.016	1.21	0.226
	Neighbor Lag 10	-0.010	0.029	-0.35	0.724

Table 3.15: Spatial Regression Results – Child Support, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
Central Asia	Focal Lag 1	0.041	0.029	1.45	0.148
	Neighbor Lag 1	-0.116	0.057	-2.02	0.044
	Focal Lag 2	-0.179***	0.028	-6.36	0
	Neighbor Lag 2	-0.039	0.056	0.7	0.484
	Focal Lag 3	0.128***	0.030	4.28	0
	Neighbor Lag 3	-0.160**	0.060	-2.68	0.007
	Focal Lag 4	-0.089**	0.029	-3.01	0.003
	Neighbor Lag 4	-0.163**	0.058	2.79	0.005
	Focal Lag 5	-0.080**	0.027	-2.93	0.003
	Neighbor Lag 5	-0.055	0.053	1.05	0.294
	Focal Lag 6	-0.049	0.032	-1.53	0.127
	Neighbor Lag 6	-0.163*	0.064	2.56	0.01
	Focal Lag 7	-0.058†	0.031	-1.84	0.065
	Neighbor Lag 7	-0.180**	0.063	2.87	0.004
	Focal Lag 8	-0.055†	0.031	-1.81	0.071
	Neighbor Lag 8	-0.159**	0.061	2.6	0.009
	Focal Lag 9	-0.054†	0.032	-1.68	0.094
	Neighbor Lag 9	-0.122**	0.061	2	0.045
	Focal Lag 10	-0.015	0.028	-0.54	0.591
	Neighbor Lag 10	-0.129*	0.065	-1.98	0.048
MENA	Focal Lag 1	0.076*	0.031	2.41	0.016
	Neighbor Lag 1	-0.264**	0.092	2.86	0.004
	Focal Lag 2	0.084**	0.031	2.67	0.007
	Neighbor Lag 2	-0.369***	0.094	-3.92	0
	Focal Lag 3	0.085**	0.031	2.75	0.006
	Neighbor Lag 3	-0.352***	0.097	3.64	0
	Focal Lag 4	0.098**	0.032	3.08	0.002
	Neighbor Lag 4	-0.458***	0.097	4.71	0
	Focal Lag 5	0.099***	0.031	3.2	0.001
	Neighbor Lag 5	-0.514***	0.100	5.12	0
	Focal Lag 6	0.090**	0.030	3.01	0.003
	Neighbor Lag 6	-0.345***	0.095	3.65	0
	Focal Lag 7	0.107***	0.031	3.46	0.001
	Neighbor Lag 7	-0.390***	0.101	3.86	0
	Focal Lag 8	0.074*	0.029	2.59	0.01
	Neighbor Lag 8	-0.381***	0.094	4.05	0
	Focal Lag 9	0.103***	0.029	3.56	0
	Neighbor Lag 9	-0.165†	0.096	1.71	0.086
	Focal Lag 10	0.113***	0.031	3.71	0
	Neighbor Lag 10	-0.337**	0.111	-3.02	0.003

Table 3.15: Spatial Regression Results – Child Support, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
Latin Am. + Caribbean	Focal Lag 1	0.016***	0.004	4	0
	Neighbor Lag 1	-0.014	0.011	-1.32	0.187
	Focal Lag 2	0.017***	0.004	3.92	0
	Neighbor Lag 2	-0.017	0.011	-1.6	0.109
	Focal Lag 3	0.014***	0.004	3.53	0
	Neighbor Lag 3	-0.003	0.011	-0.28	0.782
	Focal Lag 4	0.013***	0.004	3.14	0.002
	Neighbor Lag 4	-0.004	0.009	0.46	0.644
	Focal Lag 5	0.012**	0.004	2.8	0.005
	Neighbor Lag 5	-0.005	0.009	0.52	0.604
	Focal Lag 6	0.002	0.004	0.56	0.577
	Neighbor Lag 6	-0.009	0.008	-1.08	0.282
	Focal Lag 7	0.005	0.004	1.31	0.19
	Neighbor Lag 7	0.003	0.008	0.41	0.68
	Focal Lag 8	0.001	0.004	0.22	0.824
	Neighbor Lag 8	-0.014†	0.008	1.82	0.069
	Focal Lag 9	0.002	0.004	0.5	0.615
	Neighbor Lag 9	0.004	0.008	0.55	0.584
	Focal Lag 10	-0.001	0.004	-0.31	0.76
	Neighbor Lag 10	-0.007	0.008	-0.85	0.396

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates presented were obtained using Fixed Effects Spatial Regression, for each Region individually 1950-2020. The predictor presented – Constitutional Child Support – includes 10 time lags (ranging from 1 to 10 years). These estimates indicate the association between a country's Right to Marriage and its TFR, lagged by X years ('Focal Lag X'), and the association between the mean Right to Marriage among a country's neighbors, and the focal country's TFR, lagged by X years ('Neighbor Lag X').

† $p< 0.1$

* $p< 0.05$

** $p< 0.01$

*** $p< 0.001$

Table 3.16: Spatial Regression Results – Flexibility, by Region

Region	Lag	Estimate	Std. Err.	t-value	p-value
Sub-Saharan Africa	Focal Lag 1	-0.070***	0.015	-4.53	0
	Neighbor Lag 1	0.188***	0.055	3.42	0.001
	Focal Lag 2	-0.094***	0.015	-6.46	0
	Neighbor Lag 2	0.113*	0.049	2.29	0.022
	Focal Lag 3	-0.078***	0.016	-4.96	0
	Neighbor Lag 3	0.120*	0.049	2.45	0.014
	Focal Lag 4	-0.068***	0.015	-4.45	0
	Neighbor Lag 4	0.059	0.052	1.13	0.257
	Focal Lag 5	-0.076***	0.015	-4.91	0
	Neighbor Lag 5	0.106*	0.054	1.96	0.05
	Focal Lag 6	-0.082***	0.016	-5.25	0
	Neighbor Lag 6	0.059	0.056	1.06	0.289
	Focal Lag 7	-0.075***	0.017	-4.37	0
	Neighbor Lag 7	0.044	0.055	0.8	0.426
	Focal Lag 8	-0.072***	0.018	-4.09	0
	Neighbor Lag 8	0.028	0.059	0.48	0.632
	Focal Lag 9	-0.071***	0.018	-4	0
	Neighbor Lag 9	0.015	0.066	0.22	0.823
	Focal Lag 10	-0.074***	0.017	-4.25	0
	Neighbor Lag 10	0.049	0.049	1	0.317
West Europe + N. Am.	Focal Lag 1	-0.014**	0.005	-2.62	0.009
	Neighbor Lag 1	0.006	0.009	0.71	0.480
	Focal Lag 2	-0.009†	0.005	-1.67	0.095
	Neighbor Lag 2	0.006	0.009	0.7	0.484
	Focal Lag 3	-0.009	0.006	-1.58	0.114
	Neighbor Lag 3	0.014	0.009	1.6	0.109
	Focal Lag 4	-0.013*	0.006	-2.39	0.017
	Neighbor Lag 4	0.007	0.009	0.83	0.404
	Focal Lag 5	-0.006	0.006	-1.16	0.245
	Neighbor Lag 5	0.004	0.008	0.47	0.638
	Focal Lag 6	-0.007	0.005	-1.35	0.176
	Neighbor Lag 6	0.020*	0.008	2.48	0.013
	Focal Lag 7	-0.006	0.005	-1.19	0.235
	Neighbor Lag 7	0.009	0.008	1.09	0.277
	Focal Lag 8	-0.003	0.005	-0.54	0.589
	Neighbor Lag 8	0.008	0.007	1.22	0.223
	Focal Lag 9	0.000	0.005	0.05	0.956
	Neighbor Lag 9	0.015*	0.006	2.26	0.024
	Focal Lag 10	0.001	0.005	0.27	0.786
	Neighbor Lag 10	0.003	0.007	0.47	0.638

Table 3.16: Spatial Regression Results – Flexibility, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
East Europe	Focal Lag 1	0.054***	0.009	6.32	0
	Neighbor Lag 1	-0.033	0.031	-1.08	0.281
	Focal Lag 2	0.031***	0.007	4.22	0
	Neighbor Lag 2	0.003	0.023	0.13	0.897
	Focal Lag 3	0.033***	0.007	4.7	0
	Neighbor Lag 3	-0.001	0.022	-0.03	0.973
	Focal Lag 4	0.024***	0.007	3.48	0
	Neighbor Lag 4	-0.003	0.018	-0.16	0.873
	Focal Lag 5	0.022**	0.007	3.16	0.002
	Neighbor Lag 5	-0.028*	0.012	-2.35	0.019
	Focal Lag 6	0.023***	0.007	3.24	0.001
	Neighbor Lag 6	-0.008	0.015	-0.53	0.599
	Focal Lag 7	0.024***	0.007	3.31	0.001
	Neighbor Lag 7	-0.019	0.016	-1.18	0.237
	Focal Lag 8	0.012†	0.007	1.75	0.08
	Neighbor Lag 8	-0.017	0.015	-1.15	0.252
	Focal Lag 9	0.015*	0.007	2.07	0.038
	Neighbor Lag 9	-0.023	0.015	-1.48	0.139
	Focal Lag 10	0.012†	0.007	1.7	0.09
	Neighbor Lag 10	-0.015	0.016	-0.93	0.351
East Asia	Focal Lag 1	-0.011	0.014	-0.8	0.425
	Neighbor Lag 1	0.006	0.037	0.16	0.874
	Focal Lag 2	-0.030	0.014	-2.14	0.032
	Neighbor Lag 2	-0.013	0.035	-0.36	0.718
	Focal Lag 3	-0.039**	0.013	-2.92	0.003
	Neighbor Lag 3	-0.030	0.030	-1	0.316
	Focal Lag 4	-0.030*	0.013	-2.2	0.028
	Neighbor Lag 4	-0.025	0.027	-0.92	0.358
	Focal Lag 5	-0.051***	0.014	-3.72	0
	Neighbor Lag 5	-0.001	0.029	-0.03	0.978
	Focal Lag 6	-0.021	0.013	-1.55	0.122
	Neighbor Lag 6	0.022	0.027	0.82	0.415
	Focal Lag 7	-0.037**	0.014	-2.64	0.008
	Neighbor Lag 7	-0.021	0.028	-0.76	0.449
	Focal Lag 8	-0.017	0.013	-1.25	0.21
	Neighbor Lag 8	-0.034	0.028	-1.22	0.224
	Focal Lag 9	-0.021	0.013	-1.55	0.121
	Neighbor Lag 9	0.008	0.029	0.26	0.791
	Focal Lag 10	-0.030*	0.014	-2.17	0.03
	Neighbor Lag 10	-0.017	0.028	-0.6	0.55

Table 3.16: Spatial Regression Results – Flexibility, by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
MENA	Focal Lag 1	-0.032	0.027	-1.2	0.23
	Neighbor Lag 1	-0.305***	0.073	-4.2	0
	Focal Lag 2	-0.036	0.028	-1.3	0.194
	Neighbor Lag 2	-0.272***	0.075	-3.61	0
	Focal Lag 3	-0.051†	0.028	-1.82	0.068
	Neighbor Lag 3	-0.183*	0.076	-2.4	0.016
	Focal Lag 4	-0.069*	0.029	-2.38	0.017
	Neighbor Lag 4	-0.234**	0.077	-3.04	0.002
	Focal Lag 5	-0.050†	0.030	-1.67	0.095
	Neighbor Lag 5	-0.120	0.077	-1.55	0.121
	Focal Lag 6	-0.051†	0.028	-1.83	0.068
	Neighbor Lag 6	-0.125	0.077	-1.63	0.104
	Focal Lag 7	-0.065*	0.029	-2.2	0.028
	Neighbor Lag 7	-0.204*	0.086	-2.38	0.017
	Focal Lag 8	-0.063*	0.026	-2.41	0.016
	Neighbor Lag 8	-0.047	0.074	-0.63	0.527
	Focal Lag 9	-0.060**	0.026	-2.28	0.023
	Neighbor Lag 9	-0.045	0.074	-0.61	0.543
	Focal Lag 10	-0.054*	0.026	-2.05	0.04
	Neighbor Lag 10	-0.116	0.076	-1.53	0.127
Latin Am. + Caribbean	Focal Lag 1	-0.023***	0.005	-4.46	0
	Neighbor Lag 1	0.004	0.011	0.32	0.749
	Focal Lag 2	-0.011*	0.005	-2.24	0.025
	Neighbor Lag 2	-0.019†	0.012	-1.67	0.095
	Focal Lag 3	-0.010*	0.005	-2.03	0.042
	Neighbor Lag 3	-0.009	0.013	-0.69	0.488
	Focal Lag 4	-0.016**	0.005	-3.07	0.002
	Neighbor Lag 4	-0.021*	0.011	-1.97	0.049
	Focal Lag 5	-0.012*	0.005	-2.4	0.016
	Neighbor Lag 5	-0.001	0.011	-0.08	0.934
	Focal Lag 6	-0.008	0.005	-1.63	0.103
	Neighbor Lag 6	-0.013	0.010	-1.27	0.204
	Focal Lag 7	-0.009†	0.005	-1.64	0.1
	Neighbor Lag 7	0.005	0.010	0.47	0.641
	Focal Lag 8	-0.002	0.005	-0.31	0.754
	Neighbor Lag 8	-0.002	0.010	-0.25	0.803
	Focal Lag 9	0.001	0.005	0.2	0.844
	Neighbor Lag 9	-0.003	0.010	-0.28	0.778
	Focal Lag 10	-0.001	0.005	-0.28	0.78
	Neighbor Lag 10	-0.023*	0.010	-2.37	0.018

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.

Note – Estimates presented were obtained using Fixed Effects Spatial Regression, for each Region individually 1950-2020. The predictor presented – Constitutional Flexibility – includes 10 time lags (ranging from 1 to 10 years). These estimates indicate the association between a country's Right to Marriage and its TFR, lagged by X years ('Focal Lag X'), and the association between the mean Right to Marriage among a country's neighbors, and the focal country's TFR, lagged by X years ('Neighbor Lag X').

† $p < 0.1$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3.17: Spatial Regression Results – Rights in Words Section (1,000 words), by Region

Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
Sub-Saharan Africa	Focal Lag 1	-0.021***	0.004	-5.47	0
	Neighbor Lag 1	0.010	0.011	0.92	0.36
	Focal Lag 2	-0.026***	0.004	-6.8	0
	Neighbor Lag 2	0.012	0.009	1.33	0.184
	Focal Lag 3	-0.018***	0.004	-4.64	0
	Neighbor Lag 3	0.001	0.011	0.11	0.916
	Focal Lag 4	-0.020***	0.004	-5.82	0
	Neighbor Lag 4	0.007	0.011	0.66	0.511
	Focal Lag 5	-0.016***	0.003	-4.76	0
	Neighbor Lag 5	0.025*	0.011	2.2	0.028
	Focal Lag 6	-0.017***	0.004	-4.73	0
	Neighbor Lag 6	0.021*	0.010	2.13	0.033
	Focal Lag 7	-0.016***	0.003	-4.84	0
	Neighbor Lag 7	0.009	0.011	0.84	0.4
	Focal Lag 8	-0.014***	0.004	-4.06	0
	Neighbor Lag 8	0.001	0.012	0.06	0.953
	Focal Lag 9	-0.013***	0.004	-3.79	0
	Neighbor Lag 9	-0.001	0.013	-0.08	0.933
	Focal Lag 10	-0.015***	0.003	-4.37	0
	Neighbor Lag 10	0.013	0.009	1.5	0.133
West Europe + N. Am.	Focal Lag 1	0.006***	0.002	3.54	0
	Neighbor Lag 1	-0.003	0.003	-0.97	0.330
	Focal Lag 2	0.006***	0.002	3.58	0
	Neighbor Lag 2	-0.004	0.003	-1.22	0.222
	Focal Lag 3	0.006***	0.002	3.77	0
	Neighbor Lag 3	-0.004	0.003	-1.54	0.123
	Focal Lag 4	0.005**	0.002	2.99	0.003
	Neighbor Lag 4	-0.004	0.003	-1.56	0.118
	Focal Lag 5	0.004*	0.002	2.35	0.019
	Neighbor Lag 5	-0.006*	0.003	-2.05	0.041
	Focal Lag 6	0.002	0.002	1.17	0.241
	Neighbor Lag 6	-0.005†	0.003	-1.83	0.068
	Focal Lag 7	0.003†	0.002	1.66	0.097
	Neighbor Lag 7	-0.006*	0.003	-2.32	0.02
	Focal Lag 8	0.002	0.002	0.98	0.327
	Neighbor Lag 8	-0.005†	0.003	-1.94	0.053
	Focal Lag 9	0.001	0.002	0.6	0.548
	Neighbor Lag 9	-0.006*	0.002	-2.42	0.016
	Focal Lag 10	0.000	0.002	0.13	0.896
	Neighbor Lag 10	-0.005†	0.003	-1.95	0.051

Table 3.17: Spatial Regression Results - Rights in Words Section (1,000 words), by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
East Europe	Focal Lag 1	-0.011*	0.005	-2.46	0.014
	Neighbor Lag 1	0.010	0.008	1.23	0.219
	Focal Lag 2	-0.007	0.004	-1.54	0.124
	Neighbor Lag 2	0.005	0.008	0.6	0.545
	Focal Lag 3	-0.005	0.004	-1.1	0.272
	Neighbor Lag 3	0.006	0.008	0.76	0.45
	Focal Lag 4	-0.012**	0.004	-3.08	0.002
	Neighbor Lag 4	0.004	0.007	0.57	0.567
	Focal Lag 5	-0.011**	0.004	-3.17	0.002
	Neighbor Lag 5	0.004	0.006	0.76	0.446
	Focal Lag 6	-0.010*	0.004	-2.5	0.012
	Neighbor Lag 6	-0.007	0.006	-1.02	0.307
	Focal Lag 7	-0.007*	0.003	-2.08	0.037
	Neighbor Lag 7	-0.008	0.007	-1.13	0.257
	Focal Lag 8	-0.007*	0.004	-1.97	0.049
	Neighbor Lag 8	-0.008	0.007	-1.17	0.243
	Focal Lag 9	-0.009*	0.004	-2.39	0.017
	Neighbor Lag 9	0.004	0.008	0.45	0.653
	Focal Lag 10	-0.009*	0.004	-2.55	0.011
	Neighbor Lag 10	0.003	0.009	0.31	0.757
East Asia	Focal Lag 1	-0.019***	0.006	-3.19	0.001
	Neighbor Lag 1	0.028**	0.011	2.69	0.007
	Focal Lag 2	-0.013*	0.006	-2.23	0.025
	Neighbor Lag 2	0.021†	0.011	1.94	0.053
	Focal Lag 3	-0.024***	0.006	-4.26	0
	Neighbor Lag 3	0.011	0.010	1.08	0.279
	Focal Lag 4	-0.011†	0.006	-1.93	0.053
	Neighbor Lag 4	0.008	0.010	0.84	0.401
	Focal Lag 5	-0.016**	0.006	-2.84	0.004
	Neighbor Lag 5	0.001	0.010	0.11	0.909
	Focal Lag 6	-0.013*	0.006	-2.2	0.028
	Neighbor Lag 6	0.005	0.010	0.55	0.583
	Focal Lag 7	-0.010	0.006	-1.6	0.11
	Neighbor Lag 7	0.005	0.010	0.57	0.567
	Focal Lag 8	-0.003	0.007	-0.5	0.62
	Neighbor Lag 8	-0.004	0.010	-0.37	0.714
	Focal Lag 9	-0.014*	0.006	-2.1	0.036
	Neighbor Lag 9	0.011	0.010	1.09	0.274
	Focal Lag 10	-0.010	0.007	-1.53	0.127
	Neighbor Lag 10	0.031**	0.010	3.16	0.002

Table 3.17: Spatial Regression Results – Rights in Words Section (1,000 words), by Region Continued

Region	Lag	Estimate	Std. Err.	t-value	p-value
MENA	Focal Lag 1	-0.019†	0.011	-1.68	0.093
	Neighbor Lag 1	-0.061	0.043	-1.42	0.154
	Focal Lag 2	-0.003	0.012	-0.24	0.811
	Neighbor Lag 2	-0.029	0.041	-0.71	0.475
	Focal Lag 3	-0.002	0.012	-0.16	0.872
	Neighbor Lag 3	-0.090*	0.043	-2.08	0.038
	Focal Lag 4	0.006	0.012	0.48	0.628
	Neighbor Lag 4	-0.109*	0.044	-2.45	0.014
	Focal Lag 5	0.010	0.012	0.81	0.416
	Neighbor Lag 5	-0.138**	0.047	-2.91	0.004
	Focal Lag 6	0.014	0.012	1.21	0.227
	Neighbor Lag 6	-0.115*	0.046	-2.5	0.013
	Focal Lag 7	0.023†	0.013	1.84	0.066
	Neighbor Lag 7	-0.221***	0.051	-4.32	0
	Focal Lag 8	0.024†	0.012	1.92	0.054
	Neighbor Lag 8	-0.187***	0.049	-3.78	0
	Focal Lag 9	0.024†	0.013	1.91	0.056
	Neighbor Lag 9	-0.157**	0.050	-3.12	0.002
	Focal Lag 10	0.021†	0.012	1.73	0.084
	Neighbor Lag 10	-0.217***	0.055	-3.92	0
Latin Am. + Caribbean	Focal Lag 1	0.000	0.001	-0.27	0.787
	Neighbor Lag 1	-0.002	0.002	-1.04	0.298
	Focal Lag 2	0.000	0.001	0.33	0.741
	Neighbor Lag 2	0.000	0.002	0	0.997
	Focal Lag 3	-0.001	0.001	-0.73	0.466
	Neighbor Lag 3	0.000	0.002	-0.07	0.947
	Focal Lag 4	0.000	0.001	-0.27	0.785
	Neighbor Lag 4	0.000	0.002	0.15	0.88
	Focal Lag 5	-0.001	0.001	-0.71	0.478
	Neighbor Lag 5	-0.003	0.002	-1.34	0.181
	Focal Lag 6	-0.002	0.001	-1.49	0.136
	Neighbor Lag 6	-0.005*	0.002	-2.38	0.017
	Focal Lag 7	-0.003*	0.001	-2.24	0.025
	Neighbor Lag 7	-0.004*	0.002	-2.05	0.041
	Focal Lag 8	-0.002	0.001	-1.3	0.193
	Neighbor Lag 8	-0.002	0.002	-0.9	0.368
	Focal Lag 9	-0.002	0.001	-1.59	0.112
	Neighbor Lag 9	-0.001	0.002	-0.71	0.479
	Focal Lag 10	-0.003*	0.001	-2.02	0.043
	Neighbor Lag 10	0.000	0.002	-0.07	0.943

Sources – Comparative Constitutions Project, Demographic Transition Data (2021), Correlates of War, and U.N. Population Division.
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

4 GRANDPARENTAL INVESTMENT & THE LAW: GRANDPARENTS' VISITATION RIGHTS AND TIME SPENT WITH GRANDCHILDREN IN A POST-*TROXEL* WORLD

Abstract: Do grandparents' legal rights influence investment in grandchildren and intergenerational transfers? Original data are used to construct a longitudinal dataset of grandparents' visitation rights for 49 U.S. jurisdictions (Lower 48 States and District of Columbia), 1960-2019. These data are merged with the American Time Use Survey to study the association between legal norms and grandparental investment operationalized as grandparents' visitation rights and time grandparents spend with grandchildren. Data are aggregated on the county-level, for a total of 4,467 county-years, 2003-2019. This time period is unique in that it follows the Supreme Court's decision to limit grandparental rights in Troxel v. Granville (2000), in opposition to prevailing population dynamics rending grandparents more central to their grandchildren's' lives. Fixed effects regression with Driscoll and Kraay standard errors shows that an increase in grandparents' visitation rights is significantly and positively associated with a later increase in time spent, hovering around two additional daily minutes spent, per added right. The positive association is significant only for time spent in leisure activities, however when the sample is culled to include only counties with an above average proportion of multigenerational households, the significant and positive association extends to help/aid activities. The consequences and social costs of the current legal regime are discussed, as well as the potential benefits of an alternative legal regime more welcoming of grandparents' visitation rights.

4.1 Introduction

The literature on grandparental investment is overwhelmingly encouraging of establishing and maintaining intergenerational ties between grandparents and grandchildren (Ochiltree 2006; Cherlin and Furstenberg 2009; Coall and Hertwig 2010; Tropp 2018). Benefits include monetary (Bitter 2015) and emotional support (Ochiltree 2006), improved health (Falk 2010; Moore and Rosenthal 2016), and child care supplementation (Hayslip and Kaminski 2005), which enables increased maternal labor force participation (Aassve, Arpino, and Goisis 2012; Rupert and Zanella 2014).

However, these benefits, and the role of grandparents generally, are a relatively recent development in the western world, a product of demographic transitions (Cherlin and Furstenberg 2009; Harper 2016) that brought about increased life expectancies (Coall and Hertwig 2010), lower fertility (Alburez-Gutierrez, Mason, and Zagheni 2021), dramatically altered population age compositions (Bloom, Canning, and Sevilla 2003), and an extended intergenerational overlap between grandparents and grandchildren (Peter Uhlenberg and Hammill 1998; Harwood and Lin 2000; Arránz Becker and Steinbach 2012).

The Law did not remain agnostic to these social changes. In the late 20th century U.S., Family Law underwent a massive reformation (Hartog 2002; Grossman and Friedman 2011), and within this legal revolution, grandparents' visitation rights flourished (Hill 2000). As the supply of grandparents and old age ratios grew (Coall and Hertwig 2010), grandparents became more institutionalized by Law (Hill 2002a). Simmering under the surface however, was a growing tension between grandparents and their adult children, an intergenerational conflict (Hoang, Haslam, and Sanders 2020; Bai et al. 2023), which was reflected in the legal rights of parents vs. grandparents (Doyle 2002).

Intergenerational tension eventually bubbled to the surface, or rather, bubbled all the way up to the Federal Supreme court, and in 2000, it decided *Troxel v. Granville*, 530 U.S. 57 (2000). This case was emblematic of intergenerational conflict, where the paternal grandparents sought to visit with their grandchild, over the objection of the biological mother. In deciding between parents vs. grandparents' rights, the court chose the former (Gilles 2001), rendering Washington State Law pertaining to grandparents' visitation rights presumptively unconstitutional (Scharf 2012); as many states had similar laws, *Troxel* sent tremors throughout the legal system and necessitated legal change (Katz 2015). By all accounts, grandparents' visitation rights experienced some erosion in the post-*Troxel* world (Victor and Middleditch 2009; Koenig 2022; Mears 2023).

There is no puzzle to solve in this respect, the story is clear: as grandparents become an increasing part of their grandchildren's lives in the 1960s-2000s (Peter Uhlenberg and Hammill 1998; Bloom, Canning, and Sevilla 2003; P. Uhlenberg 2009), their stake to visit with their grandchildren eventually came to compete with the parental rights of their adult children. This came to a head in *Troxel*, where the U.S. Supreme Court interpreted the Federal Constitution in such a way that placed a premium on parental rather than grandparental rights (Gilles 2001). Though the court was careful in drafting its opinion regarding the new role of extended kin (Buss 2000), it recognized that its holding was not ideal given the demographic context in which it was making its decision (Troxel, 65). Law effectively parted ways with population dynamics.

This paper does not seek to judge the wisdom of *Troxel*, but rather to interrogate grandparental investment and the institutionalization of grandparents in the post-*Troxel* world (Coall and Hertwig 2010; Hill 2002a), where Law is at tension with a prevailing population dynamic. It is worth noting that this is a rare case, as the "*basic assumption is* [...] *that family law*

follows family life" (Grossman and Friedman 2011, 2). This is typical of Family Law, which perpetually adapts to better reflect changes to family life (Cott 2002; Zelizer 2009), and is generally true of Law, which continually adapts to social changes (Davis 1962; Calavita 2016). However, in this case, the Supreme Court in *Troxel* went against the grain.[1]

It is within this unique context that this paper looks at grandparents' visitation rights as they affect grandparental investment, operationalized here as daily minutes grandparents spend with their grandchildren. This paper employs an original dataset of grandparents' visitation rights for 49 jurisdictions (48 U.S. continental states and the district of Columbia), 1960-2019. Using State Session Laws – volumes published annually by each state's legislature tracking every legal change to its Law in the past year – a comprehensive longitudinal survey of all grandparents' visitation rights was constructed. These data also include the state of Law in neighboring jurisdictions, to create a quasi-spatial control and better isolate the signal of a focal state's Law from the noise of its neighbor.

These data were merged with the American Time Use Survey (Flood et al. 2023), which provides data on time use, constructed here as the daily minutes grandparents spend with grandchildren, 2003-2019. To better proximate the community level, data are aggregated to the county-level to study the association between state-level grandparents' visitation rights in force in a particular county, and the mean time spent between grandparents and grandchildren in that county. As data for counties with smaller populations is suppressed (>100,000), the data are not

[1] This need not be attributed directly (or causally) to *Troxel*, as it may be that the legal position of grandparents vis-a-vis parents was untenable, and that grandparents' visitation rights would have stagnated either way. Rosenberg (2008) even argues further that the role of the Supreme Court to effect social change is questionable; the court reflects change rather than creates it. Also possible is that the Law is simply reflecting social change, a regression in the role of grandparents due to declining fertility (Coall and Hertwig 2010; Alburez-Gutierrez, Mason, and Zagheni 2021), increased labor participation of grandparents (Leonesio 2012; Pilipiec, Groot, and Pavlova 2021), and the increased potential for intergenerational conflict (Fawcett et al. 2010; Hoang, Haslam, and Sanders 2020).

nationally representative, but rather representative of urban and urban-adjacent counties. The final dataset includes 4,467 county-years and 680 state-years.

This project sets out to answer three research questions. First, to provide a quantitative account of grandparents' rights, particularly post-*Troxel*, as available data are qualitative in nature (Koenig 2022; Mears 2023), with the exception of Hill's work (2000), that does not include the post-*Troxel* landscape. Second, fixed effects regression with Driscoll and Kraay standard errors (Driscoll and Kraay 1998; Hoechle 2007) are employed to test whether a change in grandparents' visitation rights is associated with a later change in time spent with grandchildren, i.e., if the Law incentivizes grandparental investment. Third, American Time Use data track the type of activities performed when time is spent, enabling the dependent variable to be split into (a) time spent pursuing leisure activities (e.g., eating and drinking, or socializing), and (b) time spent pursuing activities characterized as help or aid (e.g., providing personal care or helping with education or work-related activities). This work explores how grandparents' visitation rights are associated with each of time spent in pursuance of leisure and help activities.

4.2 Theory and Background: Grandparent Investment and the Law

4.2.1 The role of Grandparental Investment

Grandparents play an important role in the lives of their adult children, their grandchildren, and greatgrandchildren (Cherlin and Furstenberg 2009; Falk 2010). A strong and healthy intergenerational relationship bestows multifaceted benefits such as financial and monetary support (Bitter 2015), emotional support (Ochiltree 2006), mental health stability (Falk 2010; Moore and Rosenthal 2016), child care supplementation (Hayslip and Kaminski 2005; Geurts et al. 2015), increased labor force participation of adult children (Aassve, Arpino, and

Goisis 2012; Rupert and Zanella 2014), and augmented support networks during volatile events such as divorce (Ferguson 2004; Perry and Daly 2021) or death (P. Thompson 1999). The benefits can flow both ways, as grandparents may experience positive outcomes associated with intergenerational ties as well (Moore and Rosenthal 2016; Tropp 2018), though this may not always be the case (Hughes et al. 2007; Arpino and Bordone 2017). The type of resources flowing between generations is variable (Juyeon Kim and Waite 2016), dependent upon, *inter alia*, race (Poe 1992; Juyeon Kim and Waite 2016; Xie, Ainsworth, and Caldwell 2021), nativity (Kalaycioğlu and Rittersberger-Tiliç 2000), and geographic proximity (Choi et al. 2021; Tezcan 2021).

The importance of the grandparental role has been on the rise. This can be attributed to marked changes in age compositions (Bloom, Canning, and Sevilla 2003; Harper 2016), and the change in old and young age dependency ratios (Cherlin and Furstenberg 2009; Bartram and Roe 2005). Increased life expectancy (Coall and Hertwig 2010) begets changes to later-life scripts (Kavedžija 2019), longer intergenerational overlaps (Peter Uhlenberg and Hammill 1998; Harwood and Lin 2000; Arránz Becker and Steinbach 2012), changes in the age of production vs. consumption (Bitter 2015), and extended labor force participation of grandparents (Leonesio 2012; Pilipiec, Groot, and Pavlova 2021), among others . The importance and increasing role of grandparents have led to a rich interdisciplinary literature on the question of grandparental investments: why do grandparents invest in their grandchildren?[2]

[2] Throughout this paper, emphasis is placed on the grandparent-grandchild relationship; however, both categories can be broadened to include extended kin such as great-grandparents, uncles/nephews, cousins, etc. (Fomby and Johnson 2022; Cross 2018). Similarly, the Law is not limited to grandparents and grandchildren, and recognizes a broader category of family relations and relevant third parties (Koenig 2022). Therefore, the terms grandparents and grandchildren can be read to include the relevant extended kin.

In its narrow form, the question of grandparental investment is answered in terms of evolutionary biology: grandparents invest in grandchildren as a means of enhancing the fitness of their offspring (Geary 2000; Hertwig, Davis, and Sulloway 2002).[3] In recent years, the question of grandparental investment has shifted from one of *why*, to one of *how*, so that the study of various factors chilling and incentivizing investment have been more deeply interrogated (Buchanan and Rotkirch 2018). Coall and Hertwig (2010) masterfully review grandparental investment in a broader context (2010, 7–9), including economic reasoning such as altruistic behavior (Becker 1991; 2004) or mutual reciprocity (Laferrère and Wolff 2006), and sociological reasoning pertaining to values of affinity and solidarity (Monserud 2008; Arránz Becker and Steinbach 2012; Priddis, Ruppel, and Burrell 2021; Duflos and Giraudeau 2022), or institutional based explanations (Kohli and Künemund 2003; Hartog 2012). Importantly, sociological work focusing on grandparental investment interrogates social norms pertaining to grandparental investment, where a special role is reserved for Law in creating certain norms and institutionalizing the role of grandparents (Hill 2002a; Coall and Hertwig 2010).

4.2.2 Law as Facilitator of, or Barrier to Grandparental Investment

Social norms and attitudes are shaped by, and reflected in the Law (Sunstein 1996; Barnett 2006; McAdams 2015; Van Rooij 2021).[4] Indeed, the grandparent-parent-grandchild

[3] While the *good mother* and *grandmother* hypotheses have long fascinated demographers (Voland, Chasiotis, and Schiefenhövel 2005; Sear and Mace 2008), it is the concept of *alloparents* (Hrdy 1999; 2011) that has perhaps been most influential; this is the notion that children receive support outside the nuclear family, typically from grandparents, and that this support is crucial for the healthy development of a child. Generally speaking, grandparental investment can be considered an extension of parental investment (Coall and Hertwig 2010; Lawson and Mace 2011).

[4] The specter of causality is an ever-present concern in studies of Law & Society: does the Law shape social action or is it shaped by it? The answer is yes; they exhibit a mutual reciprocity (Calavita 2016). Similarly, population dynamics and Law mutually interact (Barnett and Reed 1985; Barnett 1982). Some studies focus on the effects of social change on legal change (Barnett 2006), such as the question of grandparents' visitation rights as a function of

triad has been associated with legal instruments such as Inheritance Law (Hartog 2012), welfare regimes (Albertini, Kohli, and Vogel 2007), and guardianship (Czapanskiy 1993). Surprisingly however, the traditional body of Family Law, including laws of marriage, divorce, alimony, child custody, and child support (Kessler 2020), has garnered less attention as it pertains to grandparental investment. When Family Law is considered, it is often in the context of grandparent visitation following divorce or separation (Ferguson 2004; Timonen et al. 2009a; Westphal, Poortman, and Van Der Lippe 2015), the effects of grandparents raising grandchildren (Czapanskiy 1993; Baker, Silverstein, and Putney 2010; Backhouse and Graham 2010), and the normative desirability of granting grandparents (and other family members) standing to sue for visitation (R. Thompson et al. 1991; Buchanan and Rotkirch 2018; Koenig 2022). One major legal subfield regulating grandparental investment – grandparents' visitation rights – has received even less attention as it pertains to actual investments made.

Family Law and grandparents' visitation rights merit further consideration in the debate regarding grandparental investment for at least three reasons. First, the link between grandparents' visitation rights and grandparental investment is intuitive and highly plausible (Hill 2002a; F. Kaganas 2001; Felicity Kaganas and Piper 2020), though it has received scant empirical attention. Second, Family Law in general and grandparents' visitation rights in particular, have undergone fundamental changes during the back end of the 20th century (Cott 2002; Hartog 2002; Victor and Middleditch 2009; Koenig 2022).[5] Moreover, grandparental visitation rights are inherently linked to core family legislation such as marriage and divorce, as

social movements (Felicity Kaganas 2007), and demographic pressure (Hill 2000). Herein, the focus is on the effect of grandparents' visitation rights on the grandparental investment, proxied via time spent with grandchildren.

[5] In the U.S., these changes include the shift to a no-fault divorce legal regime (Jacob 1988), a marked rise in the privatization of dependency (Cossman 2005) which entailed a focus on child custody and child support laws (Kessler 2020), and the final abolition of coverture (Grossman and Friedman 2011).

marital status plays a central role in visitation rights (Victor and Middleditch 2009; Perry and Daly 2021; Koenig 2022), so that changes to Family Law produce a second order-effect vis-à-vis grandparental visitation rights. Notably, these legal changes occurred alongside the aforementioned social and demographic changes (extended life expectancy and altered age composition), reenforcing the potential link between grandparental investment and grandparents' visitation rights, further emphasizing the dynamic nature of this socio-legal environment. The third reason – investigating the post-*Troxel* world – will be elaborated upon below.

4.2.3 Operationalizing Grandparental Investment and Grandparents' Rights

To study the influence of grandparents' visitation rights on grandparental investment, both require elaboration and operationalization. Investment in grandchildren takes many forms and may include monetary transfers as well as practical and emotional support (Cherlin and Furstenberg 2009; Luo et al. 2012; Falk 2010; Brank and Demaine 2019). The former is amenable to quantification, the latter less so. One instrument often used in the literature to proxy support is "time use", i.e., how much time a grandparent spent with a grandchild (Craig and Jenkins 2016; Dunifon, Musick, and Near 2020; Van Tienoven et al. 2022). The American Time Use Survey (ATUS) (Flood et al. 2023) offers these data, tallying the number of daily minutes spent engaged in a list of activities.[6] Herein, the ATUS activities are categorized as leisure activities (e.g., eating and drinking), or as activities performed in aid to a person (e.g., help with household tasks). This categorization is often utilized in the literature (Albertini, Kohli, and

[6] These activities are listed below in FN22. While the activities cannot precisely discern between, say, providing emotional support following a traumatic event such as divorce and providing routine support such as childcare supplementation, they serve as a reliable proxy for grandparent-grandchild interaction.

Vogel 2007; Moore and Rosenthal 2016; Hebblethwaite 2017; Buchanan and Rotkirch 2018; Alonso Ruiz et al. 2024), and is fitting given the nature of the available data.

Time spent engaged in leisure activities is significantly associated with benefits to both grandchildren and grandparents (Ochiltree 2006; Cherlin and Furstenberg 2009; Falk 2010; Tropp 2018); benefits include personal and social well-being (Dunifon, Musick, and Near 2020; Valdemoros San Emeterio et al. 2021) and educational/cognitive stimulation (Arpino and Bordone 2014; Alonso Ruiz et al. 2024).[7] There is evidence to suggest that in fact, most of the grandparent-grandchild relationship is spent pursuing leisure activities (Bitter 2015; Craig and Jenkins 2016; Hebblethwaite 2017).

The popularity of leisure activity is a relatively recent development, a product of the demographic transition in the U.S. (Falk 2010; Harper 2016), which resulted in wealthier, healthier grandparents, overlapping longer with their grandchildren (P. Uhlenberg 2009; Olshansky et al. 2009; Alburez-Gutierrez, Mason, and Zagheni 2021).[8] These changes are projected to persist as families are expected to grow vertically, but shrink horizontally – i.e., fewer people in each generation, but more generations (Alburez-Gutierrez, Williams, and Caswell 2023), though fertility decline may halt or even reverse this trend (Coall and Hertwig 2010; Alburez-Gutierrez, Williams, and Caswell 2023).

[7] Though the time investment in the grandparent-grandchild relationship may reduce investment in other social activities (Arpino and Bordone 2017).

[8] Alburez-Gutierrez et al (2021) explore the dynamic of "sandwichnes" (and grandsandwichness), whereby a person is tasked with caring for older parents and young children (or grandchildren) simultaneously, a dynamic primarily driven by fertility and mortality (2021, 1016–17). They find the effects are stronger in the global south, meaning that in the global north, sandwichness is relatively stable, though they caution against a possible decline in grandparent-grandchild overlap and thus in the role of grandparent support (2021, 1020). Coall and Hertwig, in discussing the fertility decline in industrialized western countries, make a similar observation: "*To conclude, grandchildren and grandparents have never had and may never again have more shared lifetime than today*." (2010, 12). These observations do not detract from the importance of the grandparental role; rather they cast it in a new light, especially as "sandwichness" and fertility decline occur within a greater social context of rising co-residential households (see FN9).

Time spent in aid to a person is a keystone of the grandparent-grandchild relationship (Buchanan and Rotkirch 2018), particularly in the context of grandparents raising grandchildren and co-residency living arrangements (Backhouse and Graham 2010; Baker, Silverstein, and Putney 2010; Juyeon Kim and Waite 2016; Glaser et al. 2018).[9] Another important aspect includes the informal support and welfare function that non-residential grandparents can provide (P. Thompson 1999; Kohli and Künemund 2003; Posadas and Vidal-Fernandez 2013; Moore and Rosenthal 2016), corresponding to the Law's commitment to the privatization of dependency (Cossman 2005). At times, the Law is explicit in its recognition of the importance of grandparents:

> *The General Assembly finds that:*
> *(1) An increasing number of relatives in Georgia, including grandparents and great-grandparents, are providing care to children who cannot reside with their parents due to the parent's incapacity or inability to perform the regular and expected functions to provide such care and support;*
> *(2) Parents need a means to confer to grandparents or great-grandparents the authority to act on behalf of grandchildren without the time and expense of a court proceeding; and*
> *(3) Providing a statutory mechanism for granting such authority enhances family preservation and stability.*[10]

[9] The help and aid activities may be more prevalent in co-residential households; while these unique households may be relatively rare (Hayslip and Kaminski 2005), a broader consideration of extended kin shows these households are becoming more prevalent than thought (Fomby and Johnson 2022). Cross (2018) finds that the number of American children ever having lived in an extended household (including any other member of the family) rose from 13% in 1996, to 17% in 2014 (2018, 236). Overall, this trend continues to rise, especially considering that these findings are likely underestimated (as missing respondents have characteristics that make them more likely to live in an extended household). Moreover, when considering non-blood related individuals living in an extended household and functionally acting *as-if* they were blood relatives (Nelson 2020), the actual proportion may be much higher.

[10] Care of Grandchild Act of May 13, 2008, Ch. 580, G.A. Laws, 667. In all, 16 states explicitly include some form of legislative intent in their laws regarding the importance of grandparents and the welfare and support function they provide.
Consider an example set out by the California legislature: "SECTION 1. The Legislature finds and declares all of the following: (a) According to the latest federal decennial census, during the 1980's there was a 40 percent increase in the number of children who had lived with a grandparent or other nonparent relative during the preceding 10-year period. (b) The 1990 Census for California found that there are 673,563 minors under the age of 18 living with a grandparent or other nonparent relative. (c) In some inner city areas between 20 and 70 percent of children who would otherwise be at risk of abuse or neglect are believed to be in the care of their grandparents or other nonparent relatives. (d) The principal causes of this increase include parental substance abuse, child abuse, mental illness, poverty, and death, as well as concerted efforts by families and by the child welfare service system to keep children with relatives whenever possible. (e) Grandparents and older relatives providing primary care for at-risk children

4.2.4 Historical Background on Grandparents' Rights: Enter Troxel

Operationalized as such, the question becomes: how is time spent with grandchildren associated with grandparental visitation rights? A look back at grandparents' visitation rights will reveal roughly five decades of dramatic change. In the 1960s, these rights were virtually nonexistent; in the 1970's they began to proliferate (R. A. Thompson et al. 1989), and by 2000, they were enacted – though variably so – in all US jurisdictions (Victor and Middleditch 2009; Koenig 2022). Hill (2000) undertook the first systematic empirical study of grandparents' visitation rights, tracking changes thereto 1964-1987, and similarly found a proliferation of rights, particularly in the 1980s (2000, 254–55). Laws continued to proliferate and evolve into the 21st century (Buss 2000; Gilles 2001; Doyle 2002).[11]

During the Spring Session of the year 2000, the Supreme Court handed down a revolutionary ruling pertaining to the triadic relationship between children, parents, and grandparents. In *Troxel v. Granville*, 530 U.S. 57 (2000), the paternal grandparents, whose son passed, sought to obtain custody of their grandchild over the objection of their daughter in law, the grandchild's biological parent and legal guardian. These types of conflicts were not uncommon, and still persist today (see below Figure 4.1). In a plurality opinion authored by Justice O'Connor, the court held that a Washington State law permitting third parties to sue for

may experience unique resultant problems, such as financial stress due to limited incomes, emotional difficulties dealing with the loss of the child's parents or the child's unique behaviors, and decreased physical stamina coupled with a much higher incidence of chronic illness. (f) Many children being raised by nonparent relatives experience one or a combination of emotional, behavioral, psychological, academic, or medical problems, especially those born to a substance-abusing mother or at risk of child abuse, neglect, or abandonment. (g) Grandparents and relatives providing primary care for children lack appropriate information about the issues of kinship care, the special needs, both physical and psychological of children born to a substance-abusing mother or at risk of child abuse, neglect, or abandonment, and the support resources currently available to them." Act of September 23, 1992, Ch. 892, C.A. Laws, 4143.

[11] A detailed list of the rights comprising grandparents' visitation rights are detailed in FN27.

custody over a child is unconstitutional as it infringes upon parents' constitutional right to rear a child.

This holding struck at a long and uneasy balance between the rights of parents, and the right of grandparents (and other members of the extended family) to access and visit with their grandchildren (nieces, nephews, etc.). Prior to *Troxel*, nearly every state in the US had laws similar to those of Washington, granting legal standing to third parties who wished to sue for custody or visitation (R. A. Thompson et al. 1989). Thus, the laws regulating family life in all fifty states, as it pertained to the balance of rights between parents and grandparents, were destined to undergo a massive reformation (Katz 2015; Mears 2023).[12] As regarding State Family Laws, two particular changes were necessitated by *Troxel*[13]: (a) states with Laws granting a legal right to sue for custody or visitation to interested third parties (grandparents and extended kin), were by default unconstitutional (unless proven otherwise); and (b) introduction of "Fit Parent" Laws, create a baseline determination whereby any decision made by a parent (including denial of visitation) is in the best interest of the child, unless the parent is deemed unfit (a very high standard to satisfy) (Victor and Middleditch 2009; Koenig 2022; Mears 2023).

[12] The question of whether *Troxel* initiated a legal change, or simply reflected an already on-going change (Doyle 2002; Rosenberg 2008), while fascinating, is materially irrelevant as the final result remains the same – a shift in grandparents' rights (Mears 2023).

[13] Troxel is not limited to these two legal changes, as the fundamental rebalancing of parents' vs. grandparents' rights entailed additional changes both to Law and its interpretation (Buss 2000). For instance, the role of the 'psychological' or 'de facto' parent was implicated as well (Scharf 2012; NeJaime 2024).

Figure 4.1: Conflict between Grandparents and Parents

ADVICE

Rude guests ruin the joy of treasured items

Dear Abby: How do I deal with guests and friends who make unfortunate comments about personal belongings in my home? For example, I have a favorite print of a woman seated at a table. A friend commented, "Oh, we used to call her Mrs. Potato Head." About my beautiful handwoven table runner depicting sliced fruit, a guest said, "Oh, those look like women's private parts!" I also display a beautiful statue of the three Graces, which I inherited from my beloved mother. Another friend piped up, "Oh, the three lesbians!" They have stolen the joy I had about the pieces. I can no longer look at these treasures without being reminded of those stupid, thoughtless remarks, and so I had to get rid of them. What do I do if this happens again, or how do I prevent it? — PROUD OF POSSESSIONS IN MAINE

Dear Proud: No one should feel forced to get rid of objects they love because someone makes a thoughtless remark. If you get rid of anything, consider divesting yourself of the individuals who made those comments (probably in a failed attempt to be witty). If you do, you will have fewer acquaintances you need to muzzle.

Dear Abby: My husband and I have been raising our 5-year-old grandson, "Kent," since he was a baby. His mom, my daughter, was in his life but decided to leave him with us for six months, after which we hired a lawyer to gain custody of him. His mom has been absent from his life for two years. There's no relationship between them at all. Kent now calls me "Mom," and I don't know if it is a good idea that he calls me that. He has a mother but doesn't remember her at all. He has no idea that I'm not his birth mom. What should I do? — ONLY MOM HE KNOWS

DEAR ABBY

Jeanne Phillips

Dear Only Mom: Of course Kent calls you "Mom." It is the role you have fulfilled since he was an infant. Do you have photos of your daughter around the house, or family albums? If you don't, consider displaying one or going through the family album with your grandson and explaining who is who in the pictures. If he starts asking questions as he gets older, explain in an age-appropriate manner that your daughter felt he would be better off under your care. Then introduce more information as needed, which would be better than hitting him with the whole story all at once.

Source – Retrieved from the Traverse City Record-Eagle, Aug 11, 2023. The second entry describes a typical case of conflict between grandparents and

In her opinion, Justice O'Connor was not oblivious to the demographic context in which the case was being decided. She cited social scientific data on single-parent households and the demand for grandparent involvement, the diversity of household compositions, and the importance of maintaining an inter-generational relationship:

> *The demographic changes of the past century make it difficult to speak of an average American family. The composition of families varies greatly from household to household. While many children may have two married parents and grandparents who visit regularly, many other children are raised in single-parent households. In 1996, children living with only one parent accounted for 28 percent of all children under age 18 in the United States. […] Understandably, in these single-parent households, persons outside the nuclear family are called upon with increasing frequency to assist in the everyday tasks of child rearing. In many cases, grandparents play an important role. For example, in 1998, approximately 4 million children-or 5.6 percent of all children under age 18-lived in the household of their grandparents. […] The nationwide enactment of nonparental visitation statutes is assuredly due, in some part, to the States' recognition of these changing realities of the American family. Because grandparents and other relatives undertake duties of a parental nature in many households, States have sought to ensure the welfare of the children therein by protecting the relationships those children form with such third parties. The States' nonparental visitation statutes are further supported by a recognition, which varies from State to State, that children should have the opportunity to benefit from relationships with statutorily specified persons-for example, their grandparents. The extension of statutory rights in this area to persons other than a child's parents, however, comes with an obvious cost. For example, the State's recognition of an independent third-party interest in a child can place a substantial burden on the traditional parent-child relationship.*
> (*Troxel:* 64-65, in-text citations omitted).

While perhaps narrowly interpreted by the court, demographic data (and context) play a frequent role in litigation at both State and Federal Levels. Barnett and Reed (1982; 1985) devote multiple chapters to examining such statements (and testing the social scientific statements made therein) to show that "*Law both affects demographic processes and reflects them*" (1985, 1). In

Troxel however, the court considers population dynamics, then breaks with them to advance a value-based determination.[14] In supporting the primacy of parental rights, the Supreme Court sought to stem the tide of third-party litigation that could potentially overwhelm the courts (Gilles 2001), eventually harming the best interest of children turned casualties of lengthy legal battles (Elrod and Dale 2008; Mason 2011).

Can the outcome in *Troxel* be reconciled with the demographic milieu in which it was decided? One might posit that the two are not in conflict at all: the Law simply sets a "floor" to secure parental rights, as it has been doing for years (Grossman and Friedman 2011); in other words, the Law does not prohibit grandparents from visiting with their grandchildren, given parental consent. However, this explanation is unsatisfactory for two reasons.

First, individuals operate in the shadow of the Law.[15] In *Troxel*, the Supreme Court signaled in no uncertain terms to grandparents (and extended kin), that when push comes to

[14] While this is how *Troxel* is often understood in literature and caselaw, a closer reading will reveal that the plurality left many unanswered questions, inviting future challenges and thus great uncertainty to pervade this legal subfield. But more importantly, the Court never explicitly prefers parental rights, grandparental rights or states' interests; rather, a middle ground – a compromise of all interests – was set out (Buss 2000). *Troxel* can also be understood to implicate the individual vs. collective rights debate, as grandparents' rights reflect states' invested interest in the welfare of resident children due to many benefits grandparental investment yield on the individual and community level (Coall and Hertwig 2010). The collective vs. individual rights debate that has become central to population dynamics such as fertility (May 2012), harkening back to Hardin's "*Tragedy of the Commons*" (1968).

[15] Weber (1954), an attorney himself, discussed this issue at length, suggesting that people comply with Law for (1) its inherent legitimacy, (b) fear of punishment; and (c) and the natural sense of duty it imparts. Simmel (1964) contemplates the legal conflict, which is resolved exclusively by the Law: as the Law is known to all members of society, it will influence their behavior *a priori*, and may encourage unity, i.e., Law regulates not only the legal conflict itself, but also individuals' behavior prior to (or during) the interaction that may result in legal conflict. This insight was later masterfully operationalized and applied to Family Law, as Mnookin and Kornhauser (1979) conceptualized the notion of "*Bargaining in the Shadow of the Law*". This intuition states that upon negotiating a settlement during divorce, the litigants will be constrained by their expectations of what the law would dictate and how the judge would adjudicate the conflict. Thus, one step removed from the Law, parties are nevertheless orienting their decisions in its shadow. Note that for Law to actually cast a shadow, i.e., have individuals orient their behavior to it, basic knowledge of the Law's existence is required. Thus, it may be troubling that for the most part, individuals' knowledge of the legal system is less than stellar (Saunders 1975; Pleasence and Balmer 2012). However, accurate knowledge of the Law is not required for it to take its effects, so that even an "imagined" version of the law bears on decisions (McAdams 2015; van Rooij and Sokol 2021; Van Rooij 2021).

shove, they are not a deciding factor in their grandchild rearing.[16] This disincentivizes grandparental investment when circumstances are difficult, and support is needed (Cherlin and Furstenberg 2009; Brank and Demaine 2019). The Law not only proscribes certain behavior (e.g., Criminal Law), it also prescribes certain behaviors as well (e.g., public health) (Claes, Devroe, and Keirsbilck 2009). Thus, the Law actively seeks to prescribe behavior it holds to be normatively attractive (though perhaps not objectively so) aiming to shape social action. But betwixt what is forbidden and what is required, there is a range of human autonomy, thought to be regulated by morality and informal social norms (read: "social forces") (Osiel 2019). Within that wide range of autonomy, Law directs behavior by shaping (or amplifying and reflecting) existing social norms, including grandparental investment.

Second, Family Law is deeply woven into the legal system, writ large (Hasday 2014). It is a complex patch-work (Pollet 2010; Goossens 2021) in which each decision exhibits cascading effects, particularly decisions balancing between two competing rights that are made at the Federal Supreme Court level (Mears 2023). For instance, in *Moore v. City of East Cleveland*, 431 U.S. 494 (1977), the Supreme Court invalidated an Ohio State Law prohibiting the residence of the household head's grandson (who was an "illegal occupant"), as this living arrangement did not subscribe to the definition of a "family unit" for the purposes of public subsidy. Thus, a seemingly innocuous legal definition within Family Law could have had deleterious effects on grandparents' co-residential housing arrangements, and hence on grandparental investment.

Today's post-*Troxel* world is somewhat unclear as it pertains to grandparents' visitation rights. Troxel was highly influential (Victor and Middleditch 2009; Scharf 2012), and was even

[16] Push often does come to shove; data collected for this work show that from 2000, roughly 20,000 cases pertaining to grandparents' visitation rights have been litigated in the U.S. at the Appellate level (meaning that lower-level courts and Family Courts likely see 5-10-fold the number of cases). Further consider that grandparents, on average, believe they parent more successfully than present day parents (David and Kakulla 2019).

discussed outside the American context (F. Kaganas 2001). Nevertheless, there have been no empirical investigations relating to the impact *Troxel* had on grandparental investments and time-use. And while there have been illuminating qualitative accounts of grandparents' visitation rights in recent years (Koenig 2022; Mears 2023), there have been no empirical quantitative accounts since Hill's pre-*Troxel* endeavor (2000). The demographic wrench thrown into this socio-legal environment – fertility decline and a possible diminishing of the generational overlap (Coall and Hertwig 2010; Alburez-Gutierrez, Mason, and Zagheni 2021) – add intrigue and motivate a quantitative examination, especially in light of the tension between Law and population dynamics this case presents.

As such, three primary research questions are interrogated herein: (a) what happened to grandparents' visitation rights from their creation to present (including both pre- and post-*Troxel* stages)? (b) are grandparents' visitation rights associated with a later change in grandparental investments? And (c) are grandparents' visitation rights associated differently with the type of grandparental investment, i.e., leisure vs. help/aid activities?

4.3 Data & Methods

Data are drawn from IPUMS American Time Use Survey (ATUS) (Flood et al. 2023) and State Legislatures' Session Laws, to include legal, demographic, and economic data pertaining to the primary variable of interest: time spent with grandparents. While the dependent variable and controls vary at the county level, the predictors (grandparents' legal rights) are a component of State Family Laws (Hasday 2014), and thus vary at the state level. As data for smaller counties (population under 100,000) are suppressed for privacy concerns, the data used herein are not

nationally representative, but are rather representative of large metro- and metro-adjacent areas. Counties included in the sample are presented in Map 4.1.

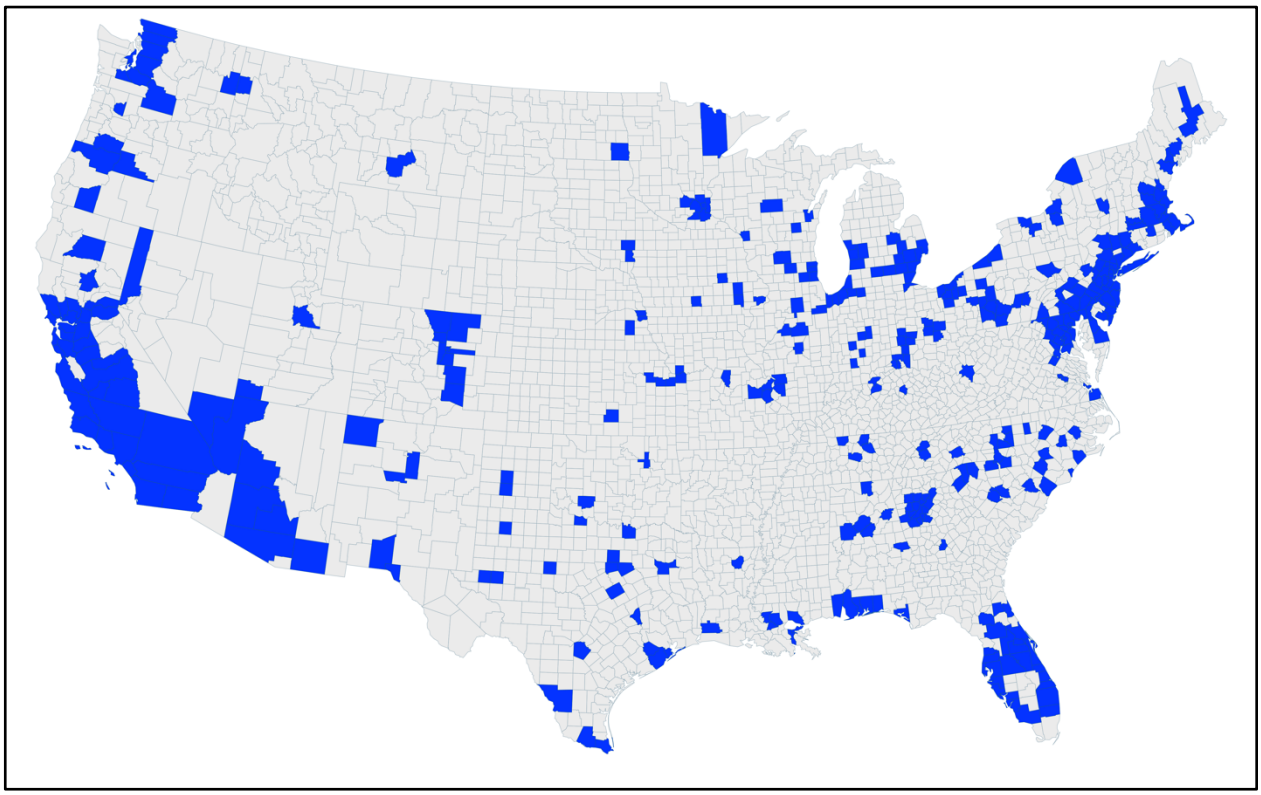
Data for legal predictors were manually crafted from the 'Session Laws' of each state: a compilation published by legislatures detailing all legal changes made in the previous year within that jurisdiction.[17] Each Session Law for every applicable year and jurisdiction was examined, and any legal change relevant to Grandparents' visitation rights was set aside. Legal changes include repealing an existing law, amending an existing law, or enacting a new law (or any provision within a law). Relevancy to Grandparents' visitation rights was defined very loosely so as to cast as wide a net as possible.[18] Then, each of the laws identified in the Session Laws was examined for relevancy and coded if found to be relevant. These data were tracked for all 48 Continental US States and the District of Columbia, 1950 to 2019, and exhibit zero missingness.

Time-use data and other economic and demographic controls were obtained from the ATUS, beginning in 2003 to present (Flood et al. 2023). These data include the number of minutes per day a respondent has spent engaged in certain activities such as eating & drinking, socializing, performing household tasks, or work-related activities. Additionally, the ATUS includes information on the identity of other persons with whom these activities were undertaken and includes a designation for whether an activity was performed with a grandchild or other non-household family members under the age of 18.

[17] While most jurisdictions publish Session Laws annually, some smaller jurisdictions published their Session Laws biannually, specifically in earlier years (up to the late 1960s). In such instance, the state of law did not change and was simply carried over to the next year.

[18] As Session Law publications can be thousands of pages long over multiple volumes, legal changes that were potentially relevant were identified using various word search functions, either by downloading the session law, or its index, and parsing the text, or by using the search function embedded in the archive used (state legislature websites or via the central depository of Session Laws available in the legal database HeinOnline). The words search included a glossary of terms to be searched, so as to yield any Family Law related legal change. The complete coding guide is available in ***Appendix A***.

Map 4.1: Unsuppressed Counties included in ATUS Sample, n=392



Source – ATUS.
Note – Depicts the counties included in the sample for analysis. These are the counties for which data was not suppressed in the ATUS, counties that have a population of above 100k. As a result, the sample is no longer nationally representative, however, it does include, and thus represents, a sample of large urban and suburban counties.

Notably, these data do not include a designation for time spent with a grandparent; the closest designation is 'other non-household family members 18 and up', which can include grandparents, stepparents, uncles, aunts, siblings, cousins, as this designation does not naturally limit age as the 'grandchild' designation would, thus rendering it too broad. A time-use variable using this designation was constructed, then manually culled by age to obtain only reports from respondents under 18, resulting in a very small sample size (n~ 2,700). Due to the dearth of data as well as the inherent reporting concerns associated with young respondents (Beck, Peretti-Watel, and Obadia 2002; Presser et al. 2004; Galatzer-Levy, Kraus, and Galatzer-Levy 2009),

these data – time spent with non-household family member over 18 – are omitted (these data were included in the sensitivity analysis, and found to have no significant bearing on the results, see ***Appendix B***).

Time-use variables were aggregated to the county-level to enable longitudinal analysis on the one hand but maintain variation on the other. The ATUS data can be aggregated to the state-level, or analyzed on the individual level, as presented in their raw form; each presents certain advantages and disadvantages, compared to aggregation on the county level. Aggregation to the state level would result in a loss of much of the variance in the data, as intra-state diversity is rich. Using the individual level data was not possible as respondents were not systematically queried for every year of data, making longitudinal analysis infeasible, and thus examination in tandem with legal change infeasible. Aggregation to the county level maintains a great deal of variability in the data, while still enabling longitudinal analysis.

However, as data for smaller counties (population<100k) are suppressed to protect the privacy of their denizens, the sample is no longer nationally representative. Rather, the sample used herein is reflective of large urban and suburban counties which still constitute the lion's share of the national population but fail to capture the rural population – a vulnerable population for which grandparental investment is crucial (Cherlin and Furstenberg 2009). Therefore, in maintaining data that are longitudinal and variable, the representativeness was sacrificed. A total of 173,588 respondents were aggregated into an unbalanced panel of 392 counties, for a mean of 2,125.2 respondents per county, 135.6 per county-year. The overlap between the legal and ATUS data includes 4,467 county-years (731 state-years) for 392 counties (43 states) in the continental United States, 2003-2019.

The use of county-level data maintains sufficient variance while also serving as a proxy for community or ecological influence (Kim and Potter 2020; Cohen, Kelley, and Bell 2015; Lesthaeghe and Neidert 2006).[19] Community norms and institutions are important determinants of grandparental investment (Kohli and Künemund 2003; Arránz Becker and Steinbach 2012; Priddis, Ruppel, and Burrell 2021), and as the Law actively shapes community norms (Sunstein 1996; McAdams 2015; Baunach 2012; Aksoy et al. 2020), county-level data are a fitting unit of analysis. Nevertheless, Family Law is mostly regulated by State Law (Hasday 2014), meaning that grandparents' rights vary by state and not by county. For this reason, the data include county-level demographic and economic measures so as to control for the community-level effects in testing the "treatment" of state law.

Therefore, numerous ATUS variables were included as controls. These are: family income, number of children (under 18) in the household, number of adults in the household, age, sex, urbanicity, ethnicity, highest degree attained, employment status, cohabitation, marital status, and nativity. These variables were aggregated on the county-level. Supplementary county-level controls included the republican vote share per county obtained from the Library of Congress, population density, and the dependency ratio and age-adjusted death rate for ages 65 and up, constructed using data from the CDC Wonder Database.[20] Additionally, revenue from death/inheritance tax prorated to the county level was obtained from the US Census Bureau 2022

[19] Though counties are not a perfect measure of community due to their diversity, they have been established as an acceptable proxy for communities in social scientific research generally (Rupasingha, Goetz, and Freshwater 2006; Irwin et al. 2004), and in population studies in particular (Kim and Potter 2020; Ryabov 2015; Lesthaeghe and Neidert 2006; Tolnay 1995)

[20] United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, United States July 1st resident population by state, county, age, sex, bridged-race, and Hispanic origin. Compiled from 1990-1999 bridged-race intercensal population estimates (released by NCHS on 7/26/2004); revised bridged-race 2000-2009 intercensal population estimates (released by NCHS on 10/26/2012); and bridged-race Vintage 2020 (2010-2020) postcensal population estimates (released by NCHS on 9/22/2021). Available on CDC WONDER Online Database. Accessed at http://wonder.cdc.gov/bridged-race-v2020.html on Apr 12, 2024.

Annual Survey of State Government Tax Collections (STC).[21] Finally, state-level features of the legal system were added as controls as well; these include the number of cases litigating grandparents' visitation rights in Appellate and State Supreme Courts per 100,000 citizens, and the number of Bills pertaining to grandparents' visitation rights that were not passed. These data exhibit negligible missingness (less than 0.25%).

The rich variety of activities coded in the ATUS[22] allows for the creation of three variants of the dependent variable: (a) *all time*; (b) *fun-time*; and (c) *help-time*. All time is the sum of all daily minutes spent pursuing any activity with any of the designated additional parties indicated above (with grandchild or non-household family member under 18 – not including children). Fun-time is the sum of daily minutes spent in leisure activities,[23] while help-time includes daily minutes spent performing routine tasks.[24] The differentiation between 'fun' and 'help' is rather clear with the exception of educational activities which can be categorized as fun or help,[25] so that a sensitivity analysis using different iterations of 'fun' and 'help' was conducted. Furthermore, these data cannot differentiate between who is receiving and who is providing in the activity, e.g., whether the grandparent is aiding a grandchild with household activities or vice versa; the data simply indicate that a 'fun' or 'help' activity was performed in the presence of a

[21] U.S. Census Bureau, https://www.census.gov/programs-surveys/stc.html (last visited Match 6, 2024).
[22] These activities include: (1) Consumer purchases; (2) Eat and drinking; (3) Educational Activities; (4) Government services and civic obligations; (5) Caring for and helping household members; (6) Caring for and helping non-household members; (7) Household activities; (8) Household services; (9) Personal care; (10) Telephone calls; (11) Professional and personal care services; (12) Religious and spiritual activities; (13) Socializing, relaxing, and leisure; (14) Sports, exercise, and recreation; (15) Traveling; (16) Volunteer activities; and (17) Working and Work-related Activities.
[23] Fun: Consumer purchases; Eating & drinking; Telephone calls; Religious and spiritual activities; Socializing, relaxing, and leisure; Sports, exercise, and recreation; Traveling; and Volunteer activities.
[24] Help: Educational Activities; Government services and civic obligations; Caring for and helping household members; Caring for and helping non-household members; Household activities; Household services; Personal care; Professional and personal care services; and Working and Work-related Activities.
[25] Both versions – educational activities in fun and in help – were tested; the differences were so meager they are omitted from the sensitivity analysis. Other activities were tested as part of help and fun (Travel, Phone Calls, and Consumer Purchases), in various iterations, all of which yielded insignificant differences compared to the original construct specified in FN23 and FN24.

grandchild or a non-household family member under 18. Lastly, the ATUS data do not discern between time spent with household and non-household grandchildren[26] (for this reason, multigenerational households are included as a control).

Twelve Grandparents' visitation rights were tracked and coded for each of the lower 48 states, from 1950-2019.[27] As the research question focuses on the association between grandparents' visitation rights as a whole (rather than on a particular right), an index is created to capture the 'state' of grandparents' rights in a jurisdiction, for every year in the sample.[28] The grandparents' visitation rights index (GP index) includes all rights summed together, with one exception – the 'Fit Parent Presumption'. As each right creates either direct or indirect standing to sue for visitation rights (an opportunity to make their case in court), more rights plausibly create a legal environment in in which grandparents' visitation rights are stronger (Victor and Middleditch 2009; Katz 2015; Felicity Kaganas and Piper 2020; Koenig 2022). Each legal right is coded '0' – indicating no such right exists; '1' – indicating an intermediate or implicit right exists; and '2' – indicting the right is explicitly recognized by state Law. The Fit Parent Presumption – a product amplified by the erosion of grandparent's rights in *Troxel* (Buss 2000;

[26] While it is technically possible to create a separate time-use construct that is only 'time spent with grandchild', it is limited to household members, implying a co-residential household; for this reason, the second designation of 'other non-household members under 18' was added, which can include a broader category of grandchildren, nieces, etc. (which are still subject to grandparents' visitation laws), and more importantly, includes time spent with non-residential grandparents. An investigation of the two time-use constructs in tandem (and two dependent variables) is a fitting project to pursue in the future.

[27] These rights include: (1) Grandparents' general standing to sue for visitation; (2) legislative intent regarding importance of grandparents visitation is included in the Law; (3) Fit Parent Presumption; (4) Grandparents' standing to sue for visitation in the event of the death of their adult child; (5) Grandparents' standing to sue for visitation in the event of the divorce of their adult child; (6) Grandparents' standing to sue for visitation in the event that their adult child is unmarried; (7) Grandparents' standing to sue for visitation in the event that grandchild is adopted; (8) Third parties' standing to sue for visitation (e.g., aunt or uncle); (9) Grandparents' standing to sue for visitation in the event that adult child parental rights have been terminated; (10) Statutory list of requirements necessary for grandparent visitation to be granted; (11) extending the definition of 'grandparent' to include great-grandparents or step-grandparents; and (12) Stepparents' standing to sue for visitation. A comprehensive elaboration on each right and the manner in which it was coded appears in ***Appendix A***.

[28] In constructing an index to measure the legal access grandparents have to visit with grandchildren, both data and theory driven methods can be utilized. As such, four different indices were created and tested in the sensitivity analysis to provide for robust results (see ***Appendix B***).

Gilles 2001) – is the outlier in that it severely limits grandparents' visitation rights; as such it is not included in the GP index, but is rather included as a control.

Law and legislation, particularly Family Law, vary in time and space (Cott 2002; Hartog 2002; Grossman and Friedman 2011). As diffusion and legal transplantation are frequent occurrences (Cahn and Carbone 2010; Stone 2017), the influence of neighboring state's laws cannot be overlooked. For this reason, quasi-spatial lags are constructed on the county-level, as well as space-time lags (Anselin 2022; Anselin and Rey 2014).[29] This is made possible by the Border County dataset (Holmes 1998), which identifies the distance between the centroid of each county and the neighbor states closest to it. Thus, the Law of the state closest to the focal county is held constant, to further isolate the signal (GP index and time spent) from the noise (effects of other jurisdictions' laws). These quasi-spatial lags can be time lagged as well to create space-time lags. In other words, this method controls for the influence of the past, the influence of neighbors, and the influence of past neighbors.

As data are heteroskedastic, and exhibit spatial and serial autocorrelation, a fixed effects model with Driscoll and Kraay standard errors are appropriate (Driscoll and Kraay 1998; Hoechle 2007; Wursten 2018).[30] This model is also capable of dealing with an unbalanced panels, which is the case here as well.

[29] While spatial regression is perhaps the ideal method of analysis, it is not feasible given the large number of missing/unidentified counties in the data (Anselin 2022).

[30] Breusch and Pagan Lagrangian multiplier test for random effects indicates that random effects are not appropriate (χ^2=0); Modified Wald test for groupwise heteroskedasticity in fixed effect regression model indicates heteroskedasticity (χ^2=3.2e+07); Wooldridge test for autocorrelation in panel data indicates existence of first order autocorrelation (F-test=34.23); and Inoue and Solo (2006) LM-test as postestimation consistently yielded $p<0.005$ indicating serial correlation. In addition to the Driscoll and Kraay Standard Errors with fixed effects, the sensitivity analysis includes two other models: (1) fixed effects regression, with robust standard errors and standard errors clustered by county; and (2) high dimension fixed effects regression, with fixed effects for county, state, and year, as well as robust standard errors. All models are tested with and without year-fixed effects. A complete report of these regression results appears in ***Appendix C***. While each model yields slightly different estimates, the magnitude and direction of effects remain highly similar.

The model employed:

$$y_{it} = x'_{it}\theta + \gamma_t + \beta z_{it} + \lambda W z_{it} + \sum_{k=1}^{5} \delta_k z_{i,t-k} + \sum_{k=1}^{5} \omega_k W z_{i,t-k} + \epsilon_{it}$$

Where:
y_{it} is the dependent variable (all-time, fun-time, help-time) for county *i* in year *t*;

x_{it} is the vector of control variables for county *i* in year *t*;

θ is the vector of coefficients for control variables;

γ_t is the time fixed effect for year;

z_{it} is the vector for the GP index for county *i* in year *t*;

W_{it} is the quasi-spatial lag for the GP index for county *i* in year *t* (GP index in the nearest neighbor state);

β is the coefficient for the GP index;

λ is the coefficient for the spatially lagged GP index

δ_k are the coefficients on the time lagged GP index for lag periods 1, 2, 3, 4, 5 years;

ω_k are the coefficients on the space-time lagged GP index for lag periods 1, 2, 3, 4, 5 years;

$z_{i,t-k}$ is the time-lagged GP index for county *i* in year *t-k*;

$Wz_{i,t-k}$ is the space-time lagged GP index for county *i* in year *t-k*; and

ε_{it} is the error term for county *i* in year *t*.

All three variants of the dependent variable (all-time, fun-time, and help-time) are separately plugged into the model, using an identical model (with the exception of various parameters included to perform a sensitivity analysis). As the help function is thought to be more prevalent in co-residential households (see *supra*, FN9), a fourth examination is added, whereby the sample is culled to represent only counties that have an above average number of

multigenerational households to serve as a proxy for co-residential households (though these will capture only households with grandparents, parents and children/grandchildren, not households including only grandparents and grandchildren).

4.4 Hypotheses

The first research question addressed is the descriptive state of grandparents' visitation rights, 1960-2019. The individual visitation rights and GP index will be presented, with the expectation that (a) they have become more prevalent over time (Hill 2000); and (b) that they have changed (either eroded or stagnated) following *Troxel* in which the Supreme Court re-balanced between parents' and grandparents' rights regarding grandchildren (Koenig 2022).

The second research question regards the association between GP index and all time spent. As a higher GP index indicates more visitation rights and thus greater potential access to grandchildren (Victor and Middleditch 2009; Katz 2015; Felicity Kaganas and Piper 2020; Koenig 2022), the expectation is that an increase in GP index will be associated with a later increase in the actual time spent with grandchildren.

Therefore:

> $H_0 1$: There is no significant association between GP index and a later change in all time spent ($\delta_k=0$).
>
> Ha1 (***general hypothesis***): There is a significant and positive association between GP index and a later change in all time spent ($\delta_k>0$).

When all time spent is decomposed into 'fun' and 'help' activities, two semi-competing hypotheses can be crafted. Individually, it is difficult to attribute any specific visitation right to

fun or help, as these rights grant the possibility of access via legal standing, not access *per se* (Victor and Middleditch 2009). Furthermore, access to grandchildren does not imply any specific type of activity. Finally, as the rights are examined together through the use of the GP index, the analysis determines only how more or fewer rights are associated with time spent. Thus, the question is whether the GP index is associated with a later change in either of fun-time or help-time, as well as a comparison of the two estimates.

Therefore:

> $H_0$2.1: There is no significant association between GP index and a later change in fun-time spent (δ_k=0).
>
> $H_0$2.2: There is no significant association between GP index and a later change in help-time spent (δ_k=0).
>
> Ha2.1 (***leisure hypothesis***): There is a significant and positive association between GP index and a later change in fun-time spent (δ_k>0).
>
> Ha2.2 (***help hypothesis***): There is a significant and positive association between GP index and a later change in help-time spent (δ_k>0).
>
> Ha2.3 (***more fun hypothesis***): The coefficient estimate for fun time is greater than the coefficient estimate for help-time ($\delta_{k(fun)} > \delta_{k(help)}$).
>
> Ha2.3 (***more help hypothesis***): The coefficient estimate for help-time is greater than the coefficient estimate for fun-time ($\delta_{k(help)} > \delta_{k(fun)}$).

4.5 Results

Table 4.1: Summary Statistics of County-Level Demographic, Economic, and Legal Variables 2003-2019

	Obs.	Mean	Std. dev.	Min	Max
All-time (daily minutes)	4,467	27.523	42.085	0	447.991
Fun-time (daily minutes)	4,467	19.073	30.935	0	352.997
Help-time (daily minutes)	4,467	8.449	20.928	0	370
Year	4,467	2011.220	4.802	2003	2019
County Family Income (1=less than $5k; 16=more than $150k)	4,467	11.247	2.000	1	16
County Number of Children in Household	4,467	0.781	0.502	0	4.464
County Number of Adults in Household	4,467	2.084	0.402	1	7
County Age	4,467	50.033	7.805	15	85
County Sex (1=male; 2=female)	4,467	1.525	0.215	1	2
County Urbanicity (1=Urban)	4,467	0.954	0.210	0	1
Proportion White	4,467	0.722	0.260	0	1
Proportion Hispanic	4,467	0.115	0.192	0	1
Proportion Black	4,467	0.110	0.175	0	1
County Educational Attainment	4,467	2.841	0.647	1	5
County Employment Status	4,467	1.246	0.422	0	2
County Proportion Cohabiting partner	4,467	0.034	0.084	0	1
County Proportion Married	4,467	0.597	0.217	0	1
County Proportion Divorced	4,467	0.212	0.170	0	1
County Foreign born	4,467	0.121	0.159	0	1
County Dependency ratio	4,467	0.509	0.072	0.283	0.934
County Age-adjusted death rate, 65+	4,467	4420.421	568.288	2194.7	6686.4
County Republican vote share	4,467	50.100	15.836	5.629	100
County Population Density	4467	1103.035	2797.710	14.209	35650.34
Death/Inheritance Tax (in $1k)	4,467	8.481	17.305	0	256.536
Grandparents' Rights litigation per 100k	4,467	0.350	0.656	0	9.776
Grandparents' Rights Bills introduced	4,467	0.067	0.385	0	4
Fit Parent Presumption (focal)	4,467	0.787	0.958	0	2
Fit Parent Presumption (neighbor)	4,467	0.702	0.918	0	2
GP Index (focal)	4,467	11.590	3.791	4	21
GP Index (neighbor)	4,467	11.516	3.823	2	21

Source – ATUS, Library of Congress, Lexis-Nexus, US Census Bureau STC (2022), and State Session Laws.

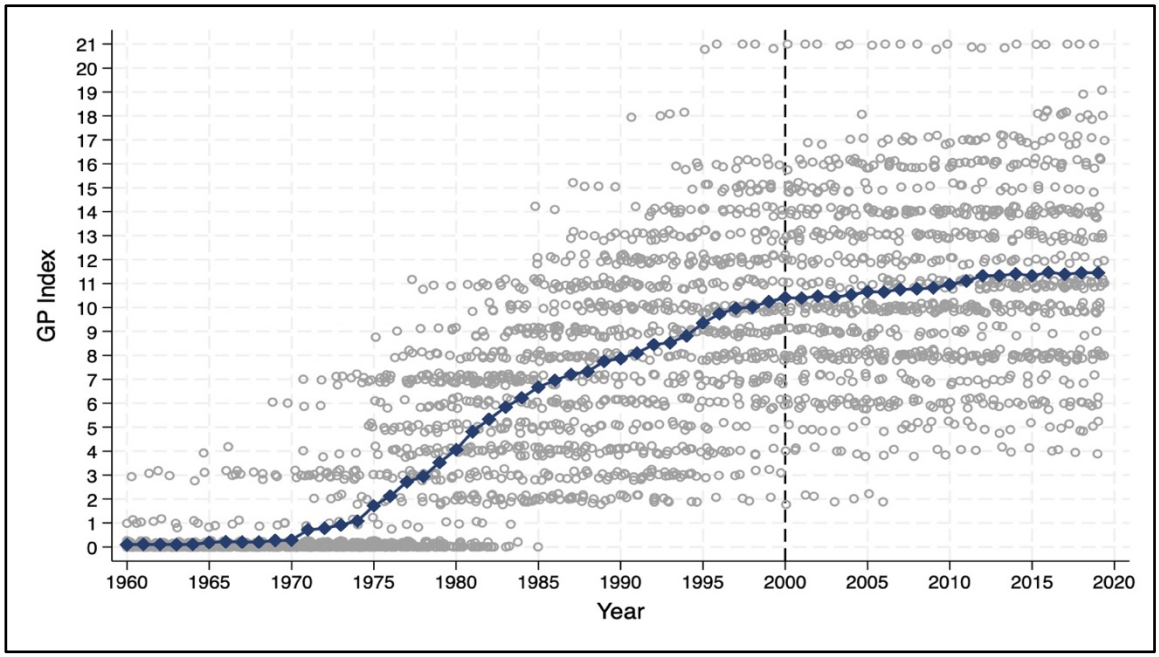
Table 4.2: Summary Statistics – State-Level Grandparents' Rights and Indices 1960-2019

	Obs.	Mean	Std. Dev.	Min	Max	GP Visitation Right Included in Index?			
						GP Index	Weighted Index	Factor Index	Core GP Rights
Grandparents' general standing	2,891	1.569	0.742	0	2	yes	yes (x2)	yes	yes
Legislative Intent	2,891	0.639	0.889	0	2	yes	yes	yes	yes
Death of Adult Child	2,891	1.637	0.767	0	2	yes	yes	yes	yes
Divorce of Adult Child	2,891	1.547	0.830	0	2	yes	yes	yes	yes
After Termination of Parental Rights	2,891	0.736	0.947	0	2	yes	yes	yes	yes
Great- or Step-grandparents	2,891	0.816	0.954	0	3	yes	yes	yes	yes
Adult Child Unmarried or Separated	2,891	1.120	0.978	0	2	yes	yes	yes	yes
Visitation post-adoption	2,891	0.299	0.582	0	2	yes	yes	yes	
Other 3rd Party	2,891	1.061	0.938	0	2	yes	yes	yes	
Statutory Guideline	2,891	1.636	0.667	0	3	yes	yes	yes	
Stepparents	2,891	0.529	0.863	0	2	yes	yes	yes	
Fit Parent Presumption	2,891	0.787	0.958	0	2		yes (negative)		
Gender Neutrality of Law	2,891	1.576	0.500	0	2				
Total Legal Changes	2,891	0.234	0.760	0	6				
GP Index	2,891	11.590	3.791	4	21				
Weighted Index	2,891	10.194	3.972	0	21				
Factor Index	2,891	0.642	0.767	-1	1.683				
Core GP Rights	2,891	8.065	3.003	2	14				

Source – Original data collected by author from State Session Laws.
Note – Visitation Rights are coded from '0' to '2', where a designation of '0' indicates no such right; a designation of '1' indicates an intermediate or limited right; and a designation of '2' indicates the existence of the right in full. Two exceptions to this scheme include great-grandparents (and/or step-grandparents), where a designation of '3' includes both, and Statutory Guidelines, where a designation of '3' indicates that all factors listed in the Law *must* be considered (rather than '*may*'). These data include 2,891 state-years for 49 continental U.S. Jurisdictions.

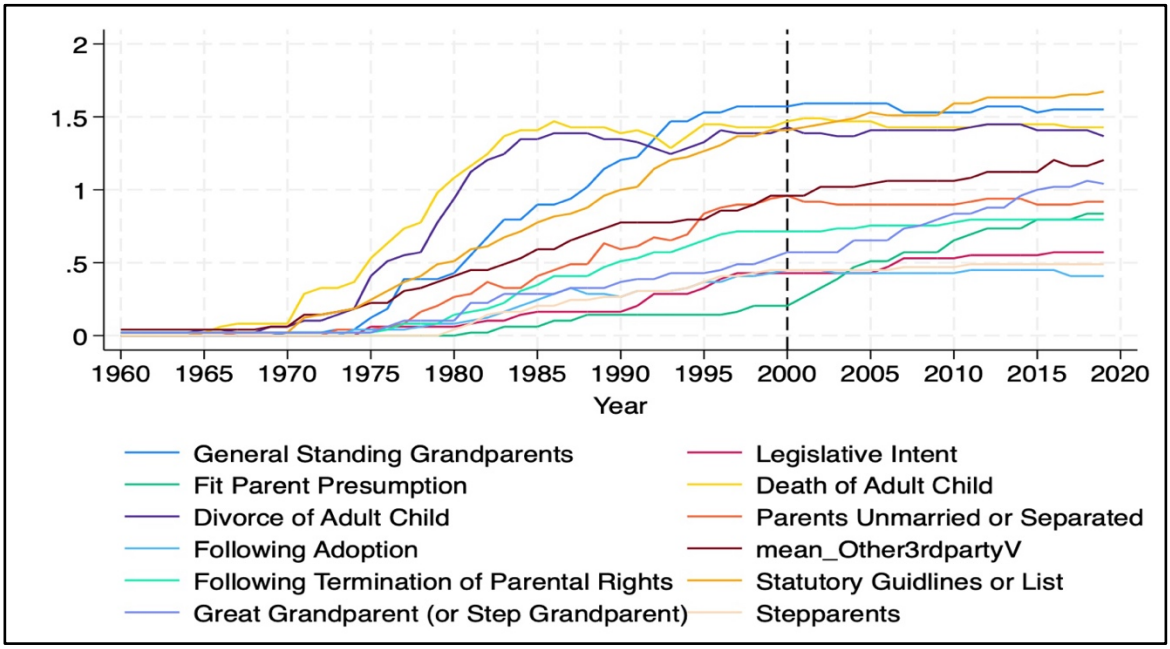
The evolution of grandparents' visitation rights is depicted in Figure 4.3 and Figure 4.2 (the dashed reference line indicated the year *Troxel* was decided). As expected, grandparents' visitation rights went from a state of virtual nonexistence in the early 1960s, to highly prevalent across the nation. Notably, after a period of rapid proliferation, the rights seemed to have stagnated (if not decline), a trend which coincides with *Troxel*, and the Supreme Court's re-balancing of parents' vs. grandparents' rights with respect to grandchildren.

Figure 4.2: Grandparents Rights Index for 49 Continental U.S. Jurisdictions, 1960-2019



Source – Original data collected by author from State Session Laws.
Note – Line represents the national mean of the GP Index (constructed in Table 4.2), and hollow circles represent each state-year in the data. Dashed vertical line indicates *Troxel* (2000). This figure demonstrates the rapid growth of Grandparents' Rights, as well as the rich variation in adoption, across time and space.

Figure 4.3: Grandparents Visitation Rights, by Individual Right 1960-2019

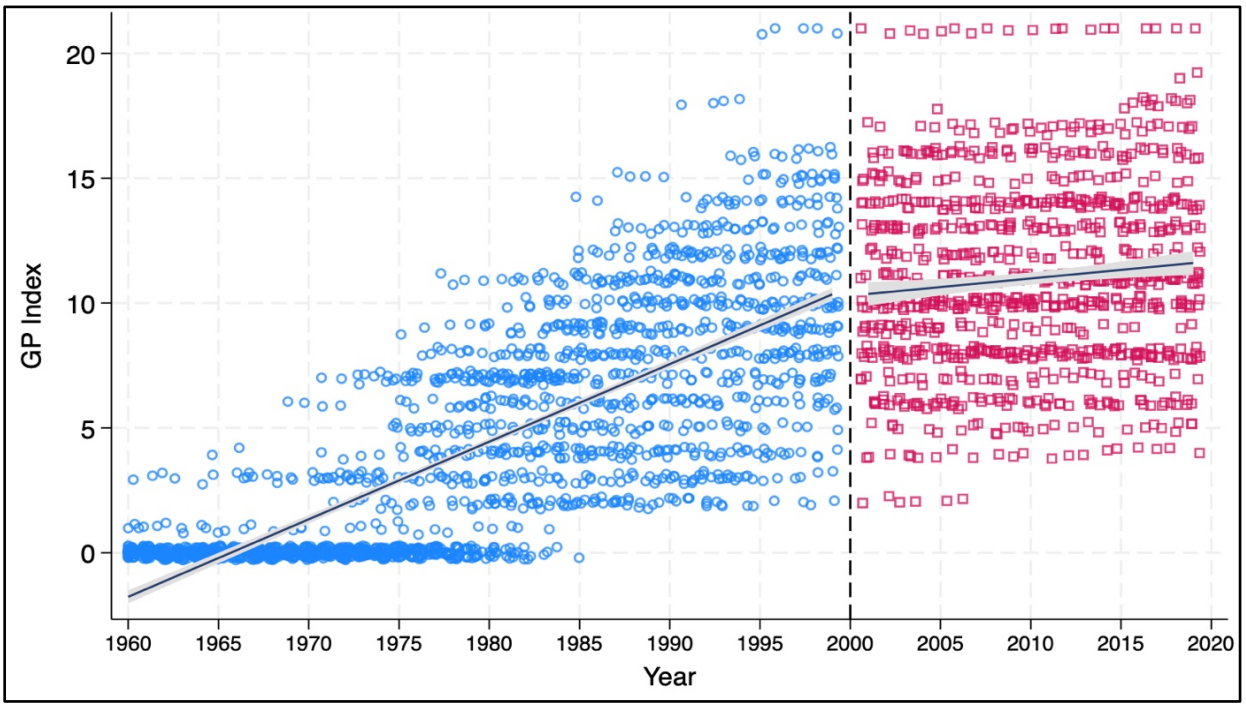


Source – Original data collected by author from State Session Laws.
Note – Presents the national mean of each individual Right coded in the data, where '0' indicates absence of such a right; '1' indicates an intermediate, partial, or conditional right; and '2' indicates explicit, complete, or unconditional right. Vertical line indicates *Troxel* (2000).

However, as is clear from the graphs, the evolution of these rights varied greatly in time and space. Figure 4.3 demonstrates how some rights (e.g., death and divorce) were adopted earlier than others (great-grandparents and adoption). Figure 4.2, depicting the progression of the GP index, also clearly shows the rich inter-state variation in the adoption of rights, as evidenced by the scatter plot of GP index across all state-years (n=2,940). Indeed, the variation increases over time, peaking around the year 2005, then remaining relatively stable.

The role of *Troxel* in eroding of grandparents' visitation rights by the Supreme Court, while not the focus of this paper, is worth closer examination. In Figure 4.4, a knot is placed in the data in the year 2000, and a linear line is fit to the data. While the gradient of the lines before and after 2000 is significantly different ($p<0.000$), this is true when placing the knot in various points from 1994-2004.

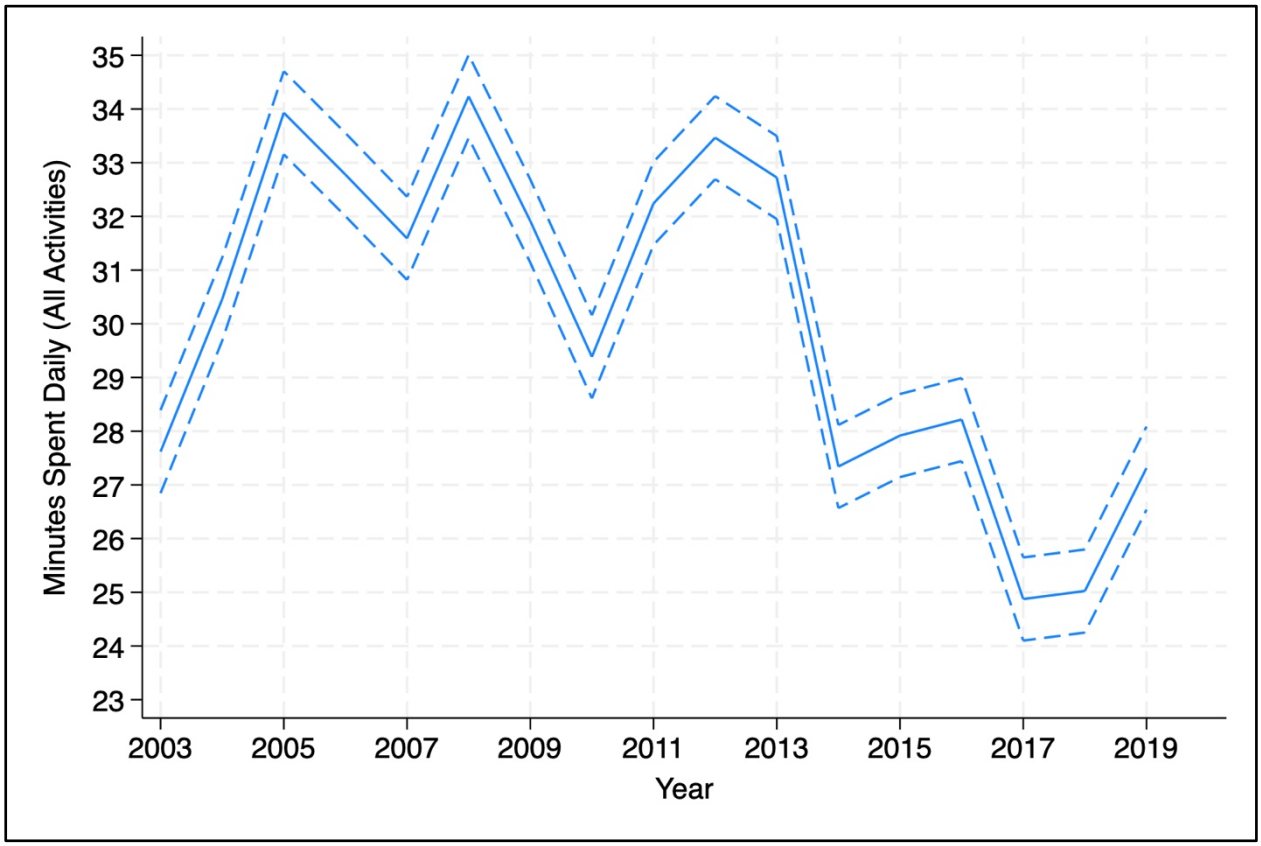
Figure 4.4: Fitting Linear Plot to Grandparents Rights Index, pre- and post-Troxel, 1960-2019



Source – Original data collected by author from State Session Laws.
Note – circles represent GP Index for state-years prior to 2000, squares after 2000, corresponding to pre- and post-*Troxel* time periods. A linear line is fit to the data to demonstrate the break in slope occurring around 2000, however, a similar knot placed in the data anywhere from 1994-2004 yields similar results, suggesting that Troxel cannot be conclusively identified as the cause of the change in the slope of GP Index.

Thus, there is no evidence to suggest that Troxel caused any observed change. In other words, as contemplated above, *Troxel* may have led to change, or it may have reflected a change that was already in progress. Furthermore, Figure 4.4 suggests that post-Troxel, there was no obvious decline in grandparents' visitation rights, but rather a stagnation.[31] Once more, the stagnation may be a product of *Troxel*, but it may also be the result of the natural maturation and stabilization of a body of Law. The evolution of grandparents' visitation rights over time aligns with the expectations set out above in the hypothesis and in the literature (Hill 2000; Victor and Middleditch 2009; Koenig 2022; Mears 2023).

Figure 4.5: All Time Spent – Grandparents with Grandchildren (Minutes per Day) 2003-2019

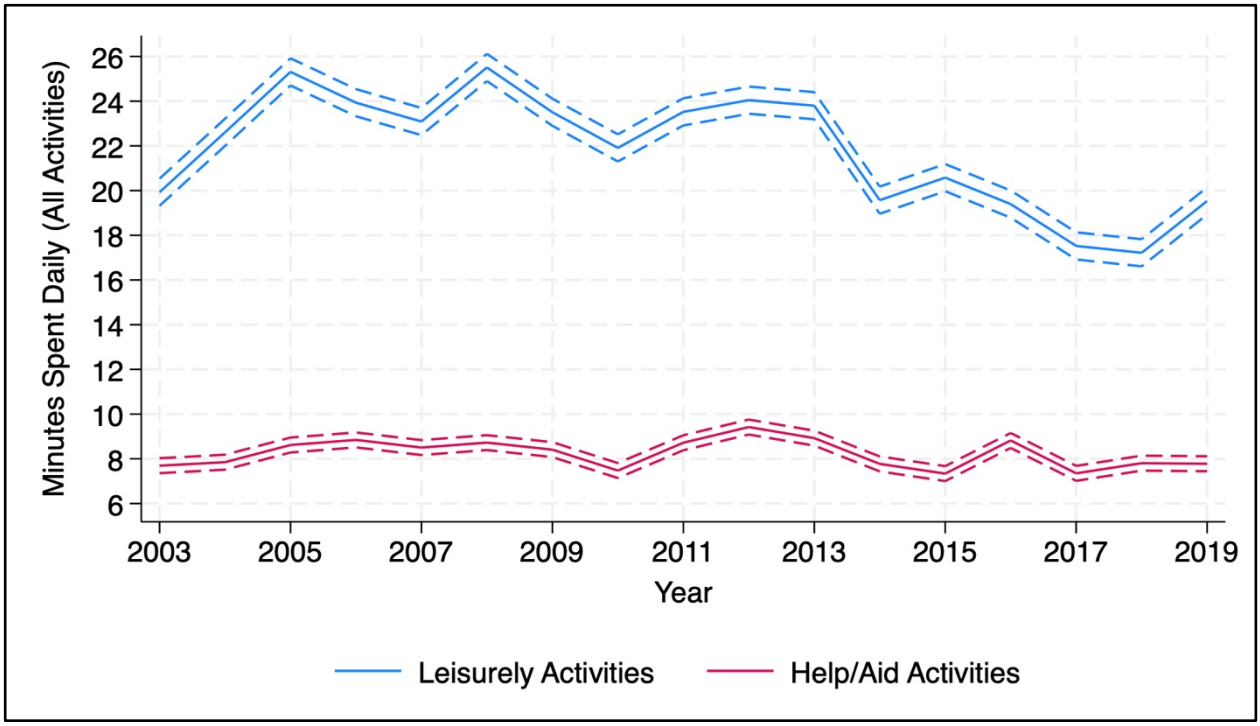


Source – ATUS.
Note – This figure presents the daily minutes spent between grandparent and grandchild engaged in any activity. The dashed lines represent the lower and upper bound of the standard errors.

[31] The year fixed effects included in the regression analysis confirm the stagnation as the coefficient on each year following 2005 is insignificant.

The dependent variable, all time, as depicted in Figure 4.5 proves to vary from year to year, beginning and ending at around 27 minutes, but reaching peaks of 34 minutes, and lows of 25. A more stable trend is observed when all time spent is split into leisure and help/aid activities. As can be seen in Figure 4.6, leisure time amounts to nearly triple the time spent pursuing help activities, which verifies evidence presented in the literature (Craig and Jenkins 2016; Hebblethwaite 2017). Roughly 20-24 minutes are spent daily on leisure activities, while roughly 8 minutes are spent daily in pursiut of help/aid.

Figure 4.6: Time Spent – Grandparents with Grandchildren, by Activity 2003-2019

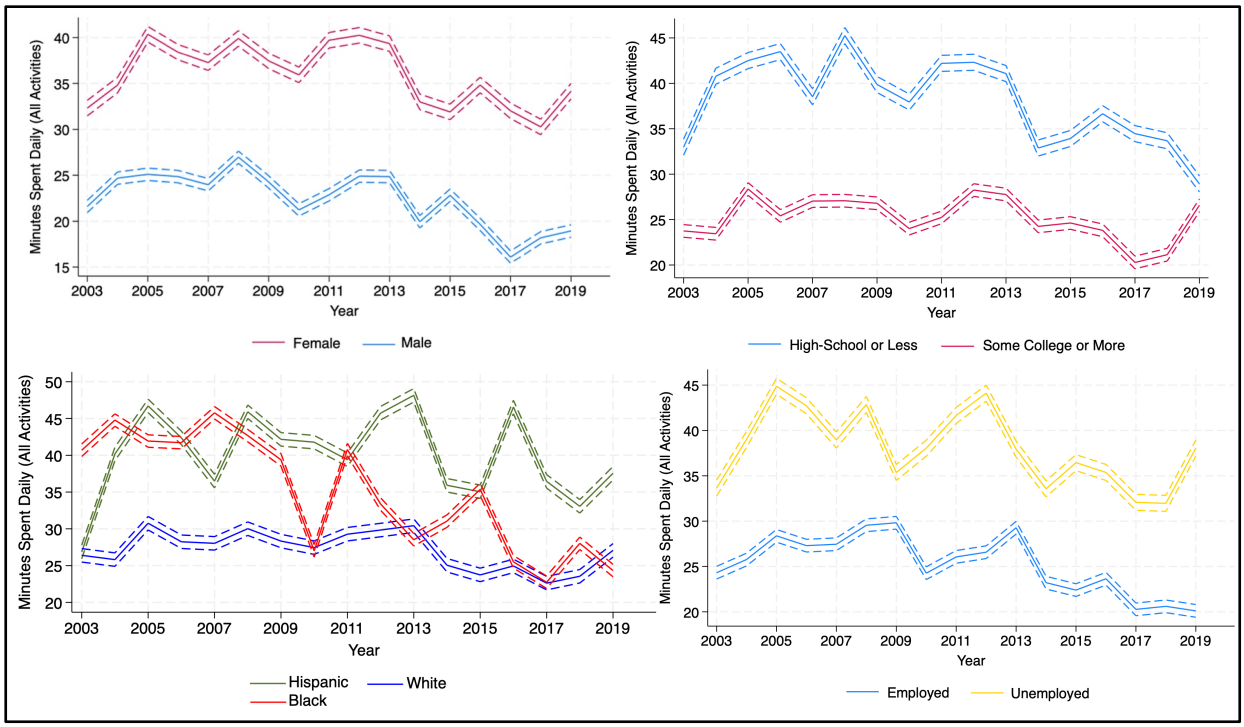


Source – ATUS data, based on author's distinction between Leisure and Help activities.
Note – This figure presents the daily minutes spent split by activity. The dashed lines represent the lower and upper bound of the standard errors.

Figure 4.7 illustrates the impact of various social conditions on grandparents' time with grandchildren, presenting time spent by four variables identified in the literature: Sex, Education, Ethnicity, and Employment Status. Grandmothers exhibit a greater involvement than

grandfathers, nearly doubling the latter's daily minutes, further affirming previous evidence (Voland, Chasiotis, and Schiefenhövel 2005; Aassve, Arpino, and Goisis 2012; Westphal, Poortman, and Van Der Lippe 2015).

Figure 4.7: Time Spent – Grandparents with Grandchildren, by Sex, Education, Ethnicity, and Employment Status 2003-2019



Source – ATUS.
Note – This figure presents daily time spent, by four different social variables: Sex (top left), Education (top right), Ethnicity (bottom left), and Employment Status (bottom right). The dashed lines represent the upper and lower bounds of the standard errors.

Education similarly plays a role in that more highly educated grandparents spend less time with their grandchildren, which is possibly linked to their employment status as well, in that highly educated and employed grandparents have less time to offer (Kneale, Coast, and Stillwell 2009; Leonesio 2012; Pilipiec, Groot, and Pavlova 2021; Posadas and Vidal-Fernandez 2013; Rupert and Zanella 2014), though grandparental investment can then be made via monetary transfers (Coall and Hertwig 2010; Juyeon Kim and Waite 2016), such that if the dependent

variable measured was money, rather than time invested, these results might be reversed. Finally, race and ethnicity are associated with time spent (Poe 1992; Luo et al. 2012; Choi et al. 2021; Mutchler and Velasco Roldán 2023), results here demonstrating that both Hispanic and African American spend more daily minutes with grandchildren compared to white populations.

Regression results using time and county fixed effects with Driscoll and Kraay standard errors are presented for each of the dependent variables (*Table 4.3*). These are the results using a 1-year lag only of the GP index.[32] Notably, all of sex, education, and employment are associated as expected (the race/ethnicity controls return significant result only for African American populations). Cohabitation is negatively associated with help-time, perhaps suggesting that grandparents are less willing to invest in the children of their adult children's unmarried partners, lending further support to the centrality of marital status to grandparental investment and visitation rights (Ferguson 2004; Timonen et al. 2009b; Perry and Daly 2021). The negative association between cohabitation and time spent may also hint at an underlying tradeoff for the primary caregiver: the biological parent is receiving fewer resources (Hao 1996), but at the same time buffering themselves from the interventions of the non-biological parents. Given that the primary caregiver and cohabiting biological parent is more likely to be a woman (Hao 1996; Ice 2023), this is likely to strain investment from paternal grandparents. Furthermore, given the rise in non-marital childbirth and cohabitation union instability (Guzzo and Hayford 2012; Curtin 2014; Cherlin, Ribar, and Yasutake 2016), this can become an increasingly prevalent dynamic.

Of further interest are the legal controls regarding litigation and legislation, both associated negatively with all time and fun-time. Thus, more litigation of visitation rights and more bills introduced, effectively chill grandparental investment, as they are proxies for a

[32] A Full report of the Regression results appears in ***Appendix C***.

dynamic legal system in-flux (Hill 2000), which is marked by high legal uncertainty (D'Amato 1983; Deffains and Dari-Mattiacci 2007), which itself is linked to population dynamics (Trinitapoli 2023). Death/inheritance tax is negatively associated with all three dependent variables; the largest effect is for all-time, whereby in increase of $10,000 dollars in the amount of this tax paid per county (mean=$8.5, SD=$17.3), was associated with a decrease in 1 minute spent per day. Lastly, there is evidence tying the Fit Parent Presumption to less time spent; this is a key aspect in promoting parents over grandparents, a provision that mushroomed after *Troxel* – as is evident in Figure 4.3. Nevertheless, this provision is significantly associated with fewer minutes spent daily, as was the expectation (Koenig 2022; Mears 2023; NeJaime 2024).

Figure 4.8 provides a first glimpse at the association between GP Index and all time. It includes three other constructs to index grandparents' visitation rights and demonstrates that while results are sensitive to the manner in which rights are indexed, they remain robust.[33] Thus, a 1-unit change in the grandparents' rights indices is associated with a later increase in all time spent, hovering around 1 minute per day. In all, this suggests that more legal access to grandchildren (Victor and Middleditch 2009) is associated with more time spent, and thus greater grandparental investment (Coall and Hertwig 2010), accompanied by various benefits to all parties involved (Aassve, Arpino, and Goisis 2012; Hill 2002a; Moore and Rosenthal 2016; Tropp 2018).

[33] The fourth index tested, the product of a factor analysis, is omitted for the incompatibility of scale, and standardization of the indices would render interpretation difficult. The results from the fixed effects regression using the Factor Index as a predictor are presented below in Table 4.

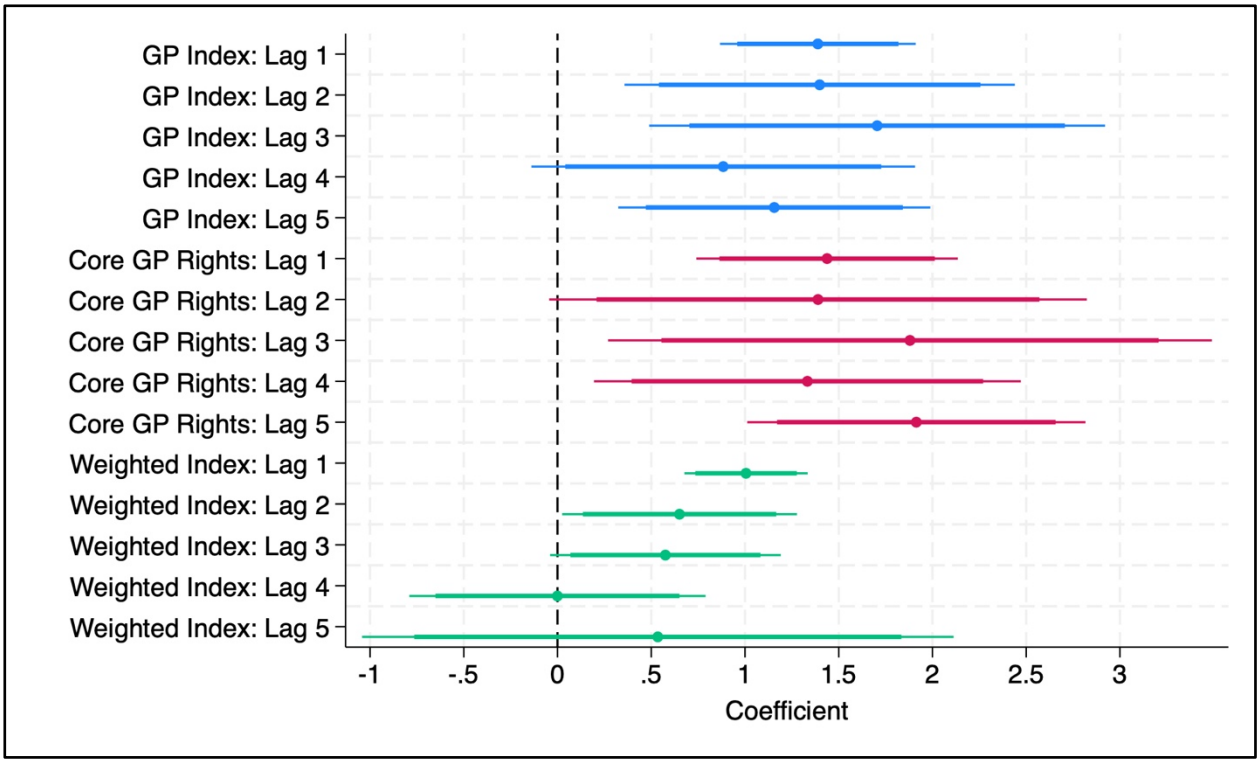
Table 4.3: All-, Fun- and Help-Time Spent Grandparents with Grandchildren (Daily Minutes) – Control Variables Only (Base model, no legal predictors) 2003-2019

	All-Time	Fun-Time	Help-Time	Help (Culled)
Republican Vote Share	0.014	0.032	-0.022	0.089
	(0.22)	(0.77)	(-0.56)	(1.35)
Family Income	0.117	0.514	-0.352	-0.501
	(0.20)	(1.55)	(-1.12)	(-1.28)
Number of Children in Household	2.122†	2.071*	0.036	1.912*
	(1.86)	(2.21)	(0.08)	(2.66)
Number of Adults in Household	3.104***	2.397***	0.489	-1.640
	(5.37)	(4.99)	(0.86)	(-1.73)
Age	0.086	0.084	-0.014	0.151
	(0.75)	(1.03)	(-0.28)	(1.41)
Sex (1=male; 2=female)	13.951***	7.287**	6.639***	9.650***
	(4.52)	(3.28)	(6.59)	(5.15)
Urbanicity	6.599	3.782	2.818	3.103**
	(0.80)	(0.57)	(1.50)	(3.03)
White	8.884	4.181	5.325*	5.535
	(1.32)	(0.67)	(2.40)	(0.95)
Hispanic	8.900	7.494	1.537	0.755
	(0.98)	(1.07)	(0.50)	(0.49)
Black	28.358***	16.677*	12.749*	17.366
	(4.05)	(2.56)	(2.56)	(1.65)
Education	-3.618**	-1.775*	-1.997*	-1.991**
	(-3.63)	(-2.51)	(-2.62)	(-3.89)
Employment Status	-6.094*	-4.513*	-1.669	-0.899
	(-2.21)	(-2.40)	(-1.67)	(-0.51)
Cohabiting partner	-7.596	-2.107	-5.735**	-11.478*
	(-1.17)	(-0.40)	(-3.41)	(-2.80)
Proportion Married	10.740*	5.797	4.365*	-1.193
	(2.28)	(1.42)	(2.21)	(-0.23)
Proportion Divorced	8.735	8.173*	-0.086	1.475
	(1.28)	(2.27)	(-0.02)	(0.25)
Foreign born	5.976	0.154	6.043	6.663
	(0.73)	(0.04)	(1.00)	(0.89)
Dependency ratio	19.791	18.388	3.286	8.138
	(0.42)	(0.84)	(0.11)	(0.28)
Age-adjusted death rate, 65+	0.004	0.003	0.001	0.005
	(0.96)	(0.85)	(0.46)	(1.45)
Population Density	0.006†	0.006†	0.001	0.001
	(1.95)	(2.06)	(0.88)	(1.21)
Death/Inheritance Tax (in $1k)	-0.075**	-0.037*	-0.037†	-0.066
	(-3.88)	(-2.29)	(-1.89)	(-1.67)
Grandparents' Rights litigation per 100k	-1.708*	-1.611*	-0.099	0.035
	(-2.39)	(-2.69)	(-0.30)	(0.05)
Grandparents' Rights Bills Introduced	-2.564***	-2.190***	-0.343	-0.834
	(-4.13)	(-8.09)	(-0.55)	(-1.11)
Fit Parent Presumption (focal)	-1.388*	-0.292	-1.082*	-1.080†
	(-2.46)	(-0.43)	(-2.49)	(-1.98)
Fit Parent Presumption (neighbor)	-0.956	0.076	-0.973	-0.150
	(-0.59)	(0.07)	(-1.45)	(-0.20)

Sources – Original data collected by author from State Session Laws, and ATUS.
Note – Std. Err. In parentheses. † $p< 0.1$; * $p< 0.05$, ** $p< 0.01$, *** $p< 0.001$.

Sources – Original data collected by author from State Session Laws, and ATUS.

Figure 4.8: Fixed Effects Coefficient Plot – All Time Spent Grandparents with Grandchildren (Daily Minutes), by GP Index Type with 5 Lags 2003-2019



Sources – Original data collected by author from State Session Laws, and ATUS.
Note – This figure presents the results of a fixed effects regression on all time spent. The coefficients of three indices for grandparents' visitation rights are presented: (1) GP Index (the default index utilized herein); (2) Core GP Rights (including all rights but for: Statutory List, Stepparents, and Third Party Standing); and (3) Weighted Index (giving double weight to the General Standing provision, and to the Fit Parent Presumption). Each Index is lagged by 1-5 years. The horizontal bars represent confidence intervals: thin bars 95% CI, thick bars 90% CI.

With the exception of the Factor index,[34] all indices yield consistently significant results. A 1-unit increase in the GP index, is associated with a later increase in roughly 1.4 daily minutes spent one and two years after the legal change. After three years, daily minutes spent increases by about 1.7 minutes, and by years four and five, the increase is roughly 0.8 minutes and 1.1 minute, respectively. Results for the Core GP Rights index are very similar,[35] but results for the weighted index are lower. The differences can be explained by the composition of the weighted

[34] This may be due to the poor fit of the factor used, able to capture only 0.57 of the variance in the rights variables.
[35] That the Core GP Rights index yields similar results may signal that the "bundle" of grandparents' visitation rights is most impactful with respect to grandparents rather than other extended kin.

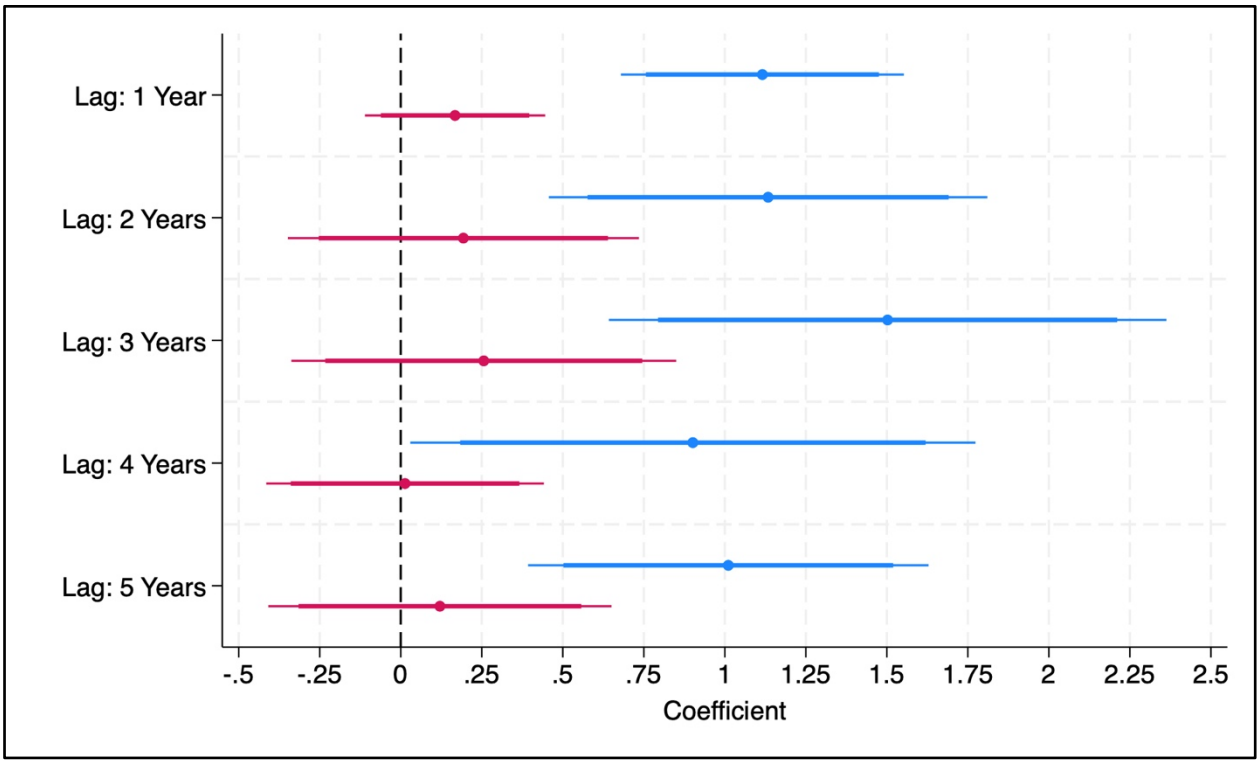
index, which gives double weight to the Fit Parent provision in the negative, meaning that it subtracts from the index score, and naturally will yield lower estimates. These results support the *general hypothesis*, whereby grandparents' visitation rights (via the GP index, and other indices) are positively and significantly associated with a later increase in daily minutes spent between grandparents and grandchildren.

Table 4.4: Fixed Effects Regression Results – All Time Spent Grandparents with Grandchildren (Daily Minutes), by Index and Lagged Year

	Lag 1	Lag 2	Lag 3	Lag4	Lag 5
GP Index (focal)	1.389***	1.398*	1.705**	0.884†	1.156**
	(5.64)	(2.85)	(2.97)	(1.83)	(2.94)
GP Index (neighbor)	0.460	0.368	-0.388	-0.821	-0.654
	(1.24)	(0.83)	(-0.61)	(-1.52)	(-1.16)
Core GP Rights (focal)	1.438***	1.39†	1.88*	1.333*	1.914***
	(4.37)	(2.05)	(0.025)	(2.48)	(4.5)
Core GP Rights (neighbor)	0.432†	0.45	-0.47	-1.02	-1.04
	(1.95)	(0.9)	(-0.69)	(-1.17)	(-1.2)
Weighted Index (focal)	1.006***	0.651*	0.576†	0.001	0.535
	(6.48)	(2.2)	(1.98)	(0.01)	(0.72)
Weighted Index (neighbor)	0.788†	1.31*	0.96†	0.794	0.135
	(1.92)	(2.81)	(1.86)	(1.62)	(0.23)
Factor Index (focal)	8.36**	7.66	6.455	3.116	0.463
	(2.95)	(1.49)	(1.38)	(0.92)	(0.15)
Factor Index (neighbor)	-3.014	-4.401***	-8.053***	-8.133***	-7.069***
	(-1.24)	(-4.93)	(-8.13)	(-4.48)	(-5.31)

Sources – Original data collected by author from State Session Laws, and ATUS.
Note – *t* statistics in parentheses.
† $p< 0.1$
* $p< 0.05$
** $p< 0.01$
*** $p< 0.001$

Figure 4.9: Fixed Effects Coefficient Plot – Fun-Time vs. Help-Time Spent Grandparents with Grandchildren (Daily Minutes), with Grandparents Rights Index 2003-2019

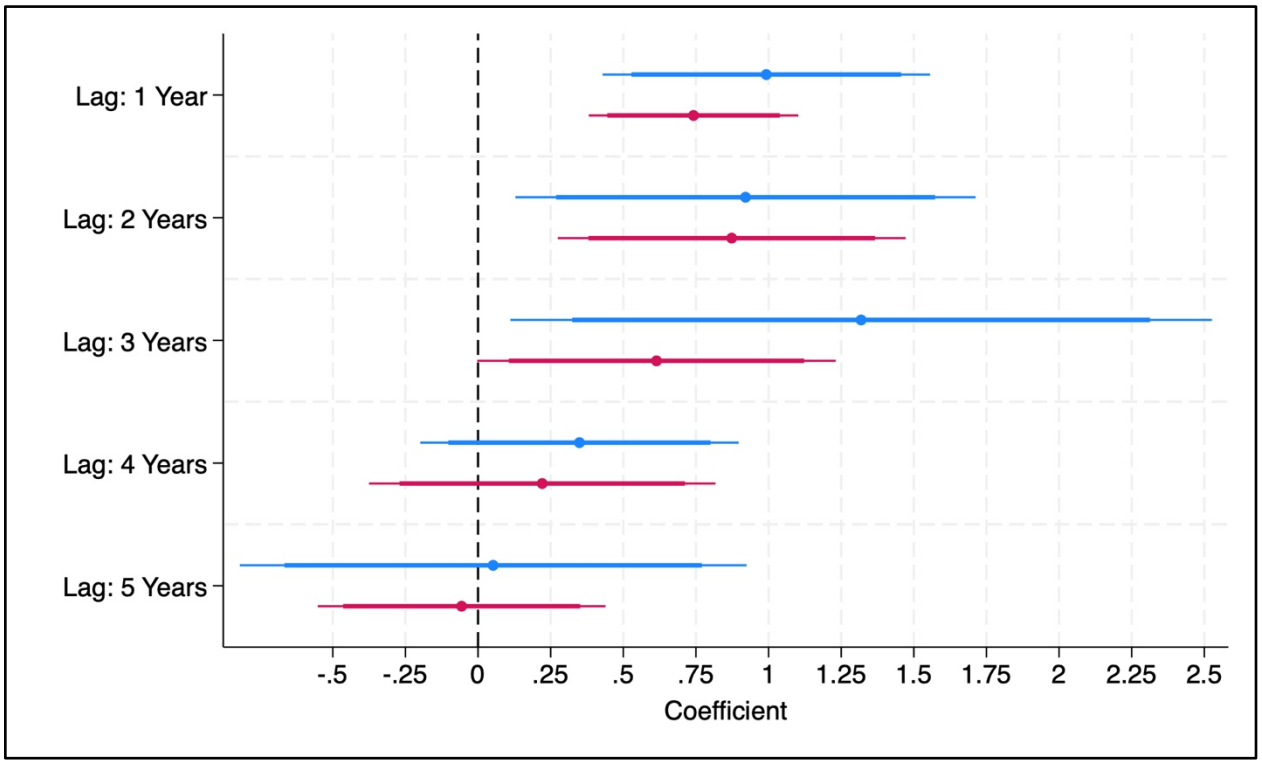


Sources – Original data collected by author from State Session Laws, and ATUS.
Note – This figure presents the coefficient plots of fun-time (blue) and help-time (red) distinctly, based on the regression results obtained using the GP Index. The horizontal bars represent confidence intervals: thin bars 95% CI, thick bars 90% CI.

Figure 4.9 illustrates the importance of fun-time; when all time is split into fun-time and help-time, only the latter yields significant results. The estimates for fun-time remain significant across all lags, and are similar in size to the estimates obtained for all-time above – around 1 daily minute; this may suggest that the lion's share of time spent can be attributed to fun time (Craig and Jenkins 2016; Hebblethwaite 2017). This Supports the *leisure hypothesis*, such that more legal access to grandchildren is in fact associated with more leisure time spent. Conversely, the *help hypothesis* is not supported by the results, so that a change in GP index has no significant association with a later change in time spent on help/aid activities. However, when

the sample is culled to include only counties with above average number of multigenerational households (or extended kin), these results change.

Figure 4.10: Fixed Effects Coefficient Plot – Fun-Time vs. Help-Time Spent Grandparents with Grandchildren (Daily Minutes), with Grandparents Rights Index 2003-2019 (Culled Sample)

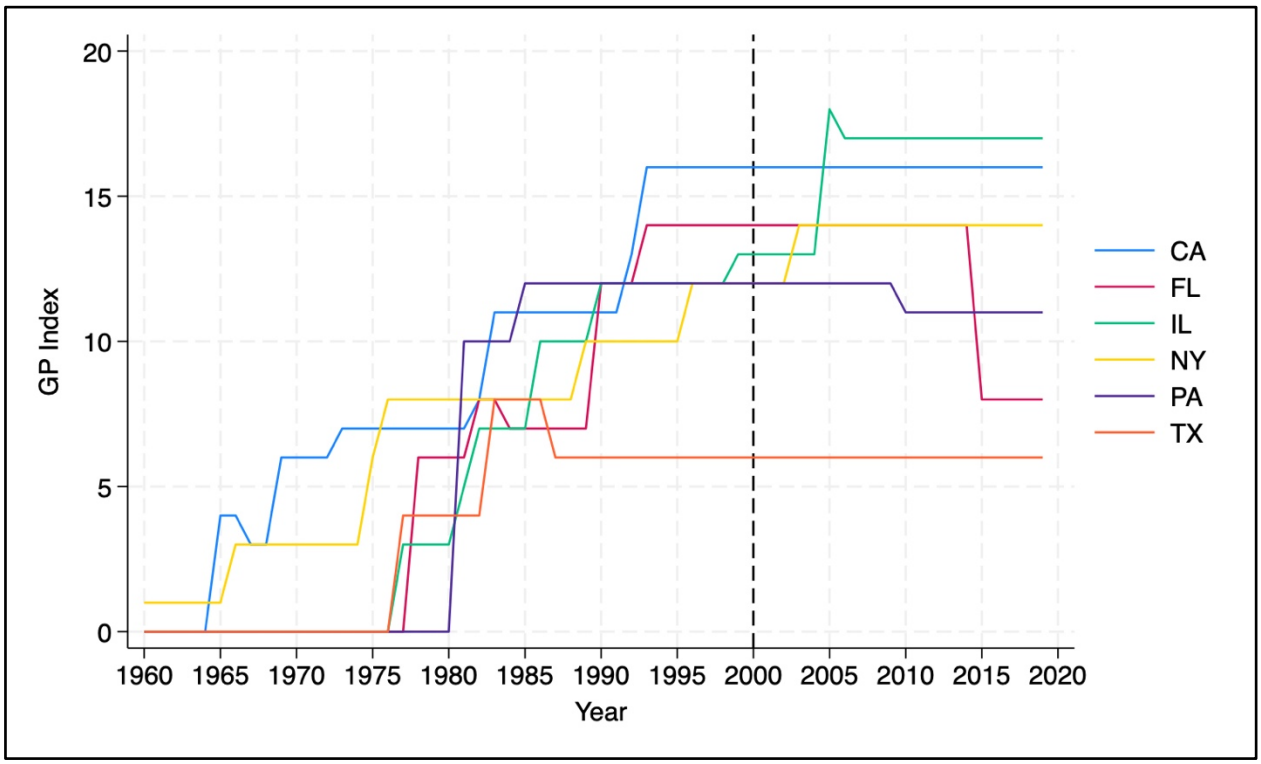


Sources – Original data collected by author from State Session Laws, and ATUS.
Note – This figure presents the coefficient plots of fun-time (blue) and help-time (red) distinctly, based on the regression results obtained using the GP Index on a culled sample of the counties with above average number of multigenerational or extended households. The horizontal bars represent confidence intervals: thin bars 95% CI, thick bars 90% CI.

Grandparents' visitation rights become a significant factor in predicting help-time, once the sample is limited to broadly defined co-residential households, as is evident in Figure 4.10. The significant and positive association is consistent for both help-time and fun-time up to and including a 3-year lag. The estimates for fun-time still hover around 1 daily minute, while help-time appear slightly lower. These findings hint at the practical differences in grandparental investment patterns across varying household formations (Juyeon Kim and Waite 2016), and

further demonstrate how these patterns are susceptible to changes in Family Law. As the confidence intervals for each predictor overlap substantially in both the complete and culled sample, no direct comparison between fun-time and help-time can be made and thus the corresponding competing hypotheses cannot be supported.

Figure 4.11: Grandparents Rights Index, by Six Largest U.S. States 1960-2019



Sources – Original data collected by author from State Session Laws, and ATUS.
Note – This figure presents the GP Index for each of the six largest U.S. States, by their 2020 population: California, Florida, Illinois, New York, Pennsylvania, and Texas. The dashed horizontal line signifies the year *Troxel* was decided.

The role of grandparents' rights in facilitating fun-time is not to be underestimated, as the addition of a full right (corresponding to a 2-point jump in the GP index) will increase leisure time spent with grandchildren by roughly 2 minutes daily, which amounts to over 12 hours yearly. Consider the state of Pennsylvania (purple line), where the GP Index jumped from 0 to 12 in a span of 5 years (1980-1985); given the estimates obtained here, if a similar change were to

occur today, it would correspond to an increase of 24 additional daily minutes, amounting to roughly 6 days per year. Compare to Texas (orange line), where the GP index has stagnated around 6 since the late 1980s, meaning that a great deal of potential grandparental time investments have been "left on the field". Similarly, a drop in GP index is expected to erode time spent; in post-*Troxel* Florida, the GP index fell from 14 to 8 in one year (2014), corresponding to a decrease of about 3 days in time spent, yearly. These are just a few examples – and rather dramatic ones – but the same applies on the national level, adding up over time and space.

4.6 Discussion

This work explored the association between grandparental time investments in their grandchildren and the legal access grandparents are afforded through grandparents' visitation rights. This interrogation is conducted within a unique legal and demographic milieu characterized on the one hand by legal stagnation (Koenig 2022), and on the other, by fluid population dynamics pertaining to shifting age compositions and intergenerational overlap (Falk 2010; Harper 2016). Within this context, Family Law and grandparents' visitation rights are found to be positively associated with a later increase in the time grandparents spend with their grandchildren, particularly in pursuing leisure activities. When the sample was culled to include counties with above average representation of extended households (or co-residential households), grandparents' visitation rights were found to be positively associated with the time spent pursuing activities serving a help/aid function. These findings implicate the relationship between Law and populations, and subsequently the character of social policy formed in their shadow.

First, it is important not to overlook the fact that the Law is significantly associated with the outcome interrogated. This provides further evidence in a new legal subfield to support the influence of the *Shadow of the Law* and its power to orient social action (Simmel 1964), whether via its penal (Weber 1954; van Rooij and Sokol 2021) or expressive function (McAdams 2015), meaning that people will alter behavior to comply with the Law even when it carries no penalty; this remains true despite the fact that most people hold an inaccurate knowledge of Law generally, and of Family Law in particular (Saunders 1975; Pleasence and Balmer 2012), as even an imagined version of Law can be influential (Van Rooij 2021). Results suggest that this is the case with regards to grandparents' visitation rights.

As mentioned, this is a relatively rare case where the Law (and the Supreme Court) went against a clear population dynamic (Barnett and Reed 1985; Rosenberg 2008). What happened when the unstoppable force (Law) met the immovable object (population dynamics)? The answer is typical of social science: it depends. One understanding may be that due to legal pressure and/or intergenerational friction (Fawcett et al. 2010; Hartog 2012; Hoang, Haslam, and Sanders 2020), the legal environment changed, and so did grandparental time investments, both of which have not markedly increased or declined in the period examined (2003-2019). In other words, from a broad perspective, it appears not much has happened. It is possible that the Law dragged time spent with grandparents into stagnation, it is possible that the opposite is true, and it is possible that neither is true.

A narrower can focus on the influence of Law in a vacuum (which is what the regression analysis sets out to do). In other words, grandparents' visitation rights do what they are supposed to do, which is to facilitate more visitation and thus more investment in grandchildren to the benefit of both, *Troxel* and population dynamics be damned. The association was significant for

leisure activities, likely reflecting the majority of non-residential households (Fomby and Johnson 2022), and when culling the sample to co-residential arrangements, help/aid functions were also significantly and positively associated with an increase in visitation rights, where they are in higher demand (Juyeon Kim and Waite 2016). In short – more rights, more time/investment. Therefore, from the narrow perspective – like the broad one – the apparent tension between Law and populations was not very impactful.

But the middle ground may be most instructive and provide lessons for the future. The apparent tension did not render visitation rights uninfluential,[36] nor did it lead to any observed erosion to visitation rights, as was demonstrated above, though possibly to stagnation. The question is not whether everything worked as expected (it did), but rather *should* everything work as it does? This normative question pertains to legal rights (Gilles 2001), and social policy (Falk 2010), one that can be linked to the individual vs. collective rights debate (Hardin 1968). Making a value-based argument for or against grandparents' is beyond the scope of this paper, but the results obtained herein provide new insight regarding the opportunity costs of the current approach, as well as its incompatibility with other stated values and goals of the legal system.

Since the Supreme Court's decision eroding grandparents' rights in *Troxel* (or thereabouts), the legal balance between parents and grandparents has shifted (Buss 2000; Doyle 2002), resulting in grandparents having less access to their grandchildren. Recall Figure 4.11 presenting the GP index for the 6 largest U.S. states (by population); when considering the national-level, the mean GP index in 2019 was approx. 11.5, but this number belies the rich interstate variance, ranging from 4 to 21 (see Figure 4.2), meaning that while grandparents' rights

[36] As there are no data for the pre-*Troxel* era, it is impossible to compare between the association between visitation rights and time spent pre- and post-*Troxel*, so that this statement refers only to the observed significant positive effect in the post-*Troxel* period.

have perhaps stagnated, there is still "untapped potential" to utilize if indeed the goal of legislators is to strengthen intergenerational ties to reap the benefits associated therewith. This is not a trivial amount either; this means that visitation rights can nearly double in their prevalence, subsequently associating with a later increase in time spent. The long list of benefits linked with grandparental investments, specifically time investments, may have cumulative long-term community and social benefits that have not been fully quantified in the U.S. (Cherlin and Furstenberg 2009; Coall and Hertwig 2010; Brank and Demaine 2019). These potential benefits have to be offset by the potential of inviting more intergenerational conflict (Fawcett et al. 2010; Hoang, Haslam, and Sanders 2020), and thus placing more stress on the legal system via litigation and general litigiousness (Gilles 2001; Victor and Middleditch 2009), though the latter also help shape Law to fit new social realities (Hill 2002b).

A preference for parental rights, even if vague (Buss 2000), is also counter to states' explicit goal of promoting the privatization of dependency (Cossman 2005). Within Family Law, especially in the past 5-7 decades, legislators have made concerted efforts to shift towards flexibility in lieu of rigidness; this is manifested in the well-known transition from status to contract (Cott 2002; Hartog 2002; Grossman and Friedman 2011), but also in the rise of standards such as 'The Best Interest of the Child' (Mason 2011), or the legal recognition of novel family arrangements (Brank and Demaine 2019; NeJaime 2024). Introducing legal presumptions such as the 'Fit Parent Presumption' provide judges less flexibility, and more importantly, send an unequivocal signal to grandparents (and extended kin) regarding their lesser role (McAdams 2015), which may ultimately lead to a change in the social and/or institutional role of grandparents (Sunstein 1996; Hill 2002a; Coall and Hertwig 2010).

Additionally, the privatization of dependency has a very simple quantifiable aspect, in that legislators seek to shift expenses on to family members rather than to dip into state coffers, whenever possible. This is clearly demonstrated in Family Law in subfields such as Child Support & Child Custody, Marriage & Divorce, Guardianship, and Alimony (Czapanskiy 1993; Cott 2002; Elrod and Dale 2008), and is often clearly expressed in the Law itself. Scaling down grandparental investment by eroding visitation rights means that private intergenerational transfers are underutilized, forcing the state to extract more of its own resources.

The findings and the discussion herein must be taken in light of the limitations of this paper. First, the data and findings are not nationally representative; as counties with fewer than 100,000 residents are unidentified, the sample effectively disregards the rural population. This is a vulnerable and important population to study, and further work would do well to extend the study of grandparents' visitation rights to rural populations. Second, individual level variables associated with grandparental investment are not considered here. For instance, it is less likely that a grandparent will engage in leisure activity with their grandchild when the latter is of a very young age – any time spent will likely be in service of the parents; these two dynamics (child's age and help/aid to parents) are not directly measured by the data. Using individual level data can shed more light on these dynamics. Third, the two variables of interest – time spent and grandparents' visitation rights – may interact in the opposite direction contemplated here, i.e., time spent may drive changes to the Law. This is not only possible, but likely, and indeed there is evidence to suggest this does occur (Hill 2000). Time lags were created to chronologically separate dependent variable from predictor, but this effect is hard to completely rule out. If anything, this demonstrates the importance of pursuing quantitative research on the bi-lateral relationship between Law and Demography.

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4.8 Appendix A: Grandparents' Visitation Rights Coding Guide

Table 4.5: Variables and Coding Scheme: Grandparents' Visitation Rights

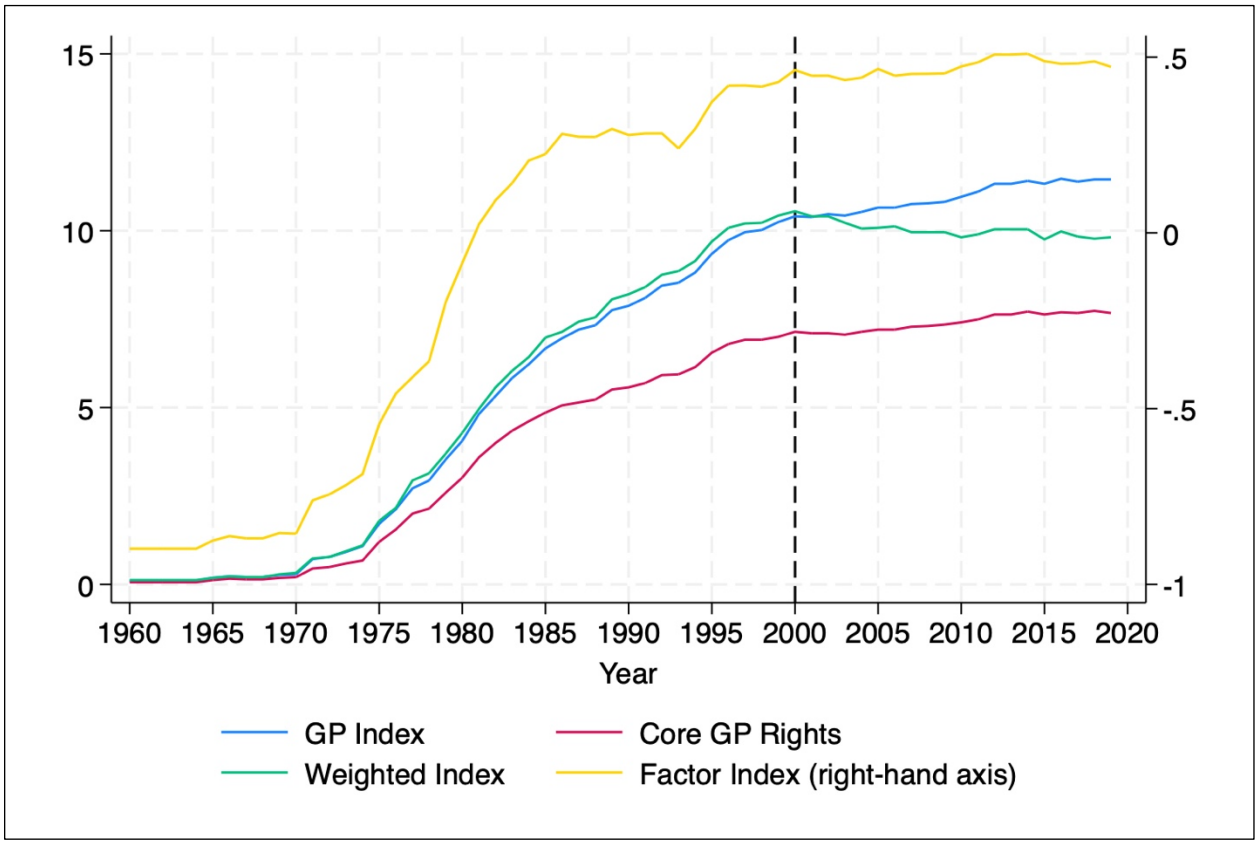
Variable/Right	Coding Scheme	Elaboration	Notes
Stepparents Visitation	2: yes; 1: intermediate; 0: no	0: no mention; 1: general/vague mention; 2: specific mention with general standing	Can Stepparents sue for Visitation?
GP general Visitation	2: yes; 1: intermediate; 0: no	0: no mention; 1: general/vague mention; 2: specific mention with general standing	Is there a general right or procedure for GPs to sue for visitation rights of grandchildren?
Legislative intent	2: yes; 1: intermediate; 0: no	0: no mention; 1: general indication; 2: general visitation standing.	Does the law make any statement RE the importance of GPs and their role in grandchildren's' lives?
Fit Parent Presumption	2: yes; 1: intermediate; 0: no	0: no presumption; 1: general/vague mention; 2: explicit mention	does the law include a presumption that fit (married) parents are deciding in the best interest of the child RE GP visitation? (or any general/explicit statement that parents rights' superior to grandparents)
Death of Adult Child	2: yes; 1: intermediate; 0: no	0: no mention; 1: general/vague mention, or specific limitations, like only when both parents are dead - or when death of a parent is only a consideration in granting visitation); 2: specific mention with general standing	Visitation rights of a grandchild are made available upon the death of a GP's adult child
Parents unmarried/separated	2: yes; 1: intermediate; 0: no	0: no mention; 1: general/vague mention; 2: specific mention with general standing	Visitation rights of a grandchild are made available when GP's adult child is unmarried
Adoption	2: yes; 1: intermediate; 0: no	0: no mention; 1: general provision or only when adopting parent is stepparent or other natural relative; 2: general visitation standing	Custody/visitation rights of a grandchild are made available when grandchild is being adopted
Other 3rd party	2: yes; 1: intermediate; 0: no	0: no mention; 1: general/vague mention; 2: specific mention with general standing	Is there a general right or procedure for other 3rd party relatives to sue for visitation rights of children? This may include Aunts, Uncles, Siblings, Great-grandparents, etc.

Table 4.5: Variables and Coding Scheme: Grandparents' Visitation Rights Continued

Variable/Right	Coding Scheme	Elaboration	Notes
After termination of parental rights	2: yes; 1: intermediate; 0: no	0: no mention; 1: general/vague mention; 2: specific mention with general standing	Visitation rights of a grandchild are made available upon the termination of a GP's adult child's parental rights (e.g., for cases of abuse, abandonment, etc.)
Best Interest of the Child	3: high; 2: medium; 1: low; 0: none	0: no mention/recognition; 1: general mention; 2: flexible standard with vague criteria; 3: strict standard with specific criteria set	the difference between a '2' and '3' will depend on how the "best interest of a child' is defined by law: few vague indicators (health, education, sex & age, etc.) with a MAY designation; vs a more specific definition of the best interest using multiple lower level criteria (distance from parent, time spent, quality of relationship, past interactions, special needs, etc.), and can have a MUST designation
Statutory Guidelines	3: high; 2: medium; 1: low; 0: none	0: no list - Full discretion; 1: General list of factors - high discretion; 2: specific list a judge MAY consider - low discretion (e.g., grandchild has resided with GP for X months); 3: formula	The law may include general or very specific factors/conditions that may/must ("shall") be considered by judges when making a custody determination. Serves as indicator for the degree of discretion a judge has in awarding custody.
Great/Step GP	3: high; 2: medium; 1: low; 0: none	0: no mention; 1: general mention (or specific mention in adjacent law (e.g., custody); 2: specific mention (with conditions); 3: both designations (g-gp and step-gp)	Are great grandparents or step-grandparents also considered by law as grandparents for the purpose of visitation?
Gender Neutral	2: yes; 1: intermediate; 0: no	0: Strongly Gendered; 1: Weakly Gendered; 2: Gender Neutral	Strong means most laws have different/separate laws for F/M; weakly gendered means that only 1-2 laws are gendered; and gender neutral can usually be identified by an explicit law that states that from hereon, all such laws in these categories must be gendered neutral (or interpreted as such).
Uncoded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are not captured by the coding scheme. For examples, see the sheet on boundary rules.
Coded Changes	1: yes; 0: no		these are changes to a relevant law (examined herein) that are captured by the coding scheme.
Total Changes	Count	Sum of uncoded and coded changes	

4.9 Appendix B: Sensitivity Analysis

Figure 4.12: All Indices for Grandparents' Visitation Rights – National Mean, 1960-2019

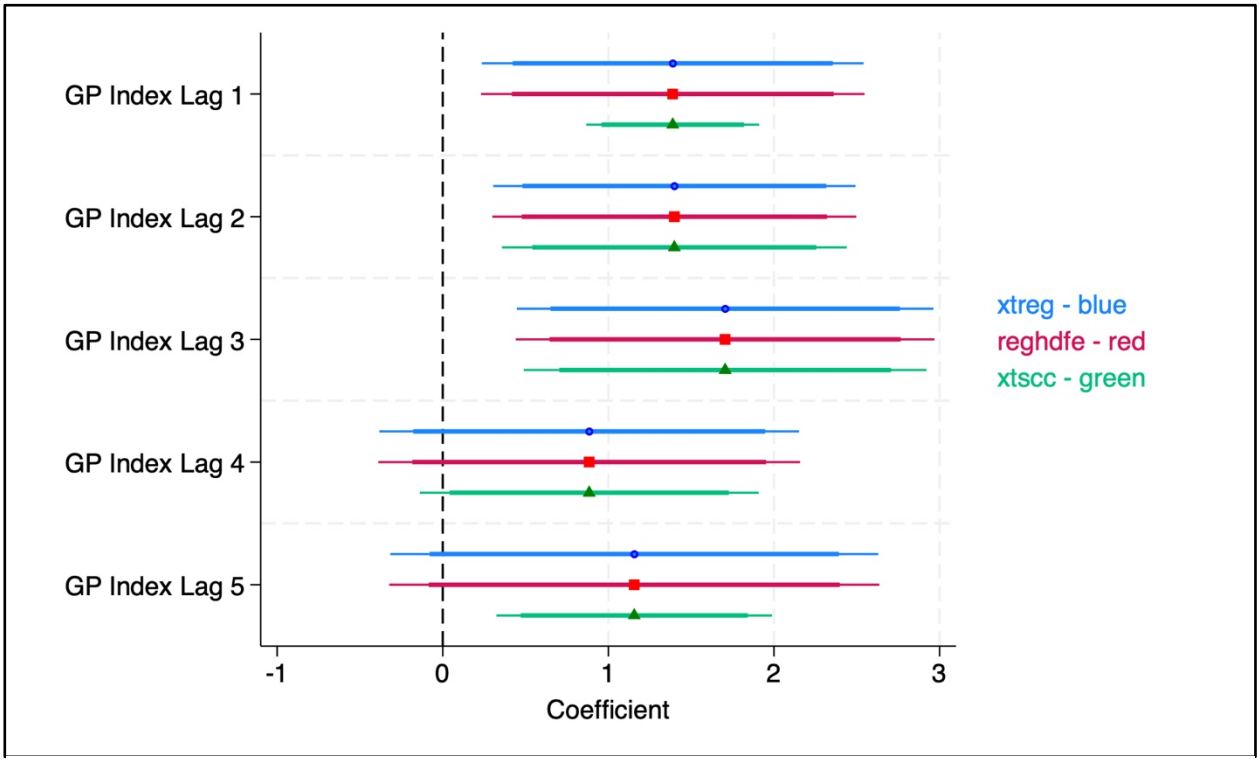


Source – Original data collected by author from State Session Laws.
Note – presents all four indices for Grandparents' Rights, as constructed in Table 4.2. While all four indices are slightly different due to the manner in which they were constructed, they all exhibit similar trends. The dashed vertical line represents the year *Troxel v. Granville* was decided by the Supreme Court.

In Figure 4.12, all four of the indices constructed are presented, referring to the left axis, but for the factor index, referring to the right axis. The Core GP Index, including fewer rights (only those explicitly tied to grandparents) naturally is lower, while the GP index (simple tally of rights, excluding fit parent presumption), and the weighted index (double weight to the general standing provision for grandparents, double subtraction for fir parent presumption) are actually very close, but begin to break apart post-*Troxel*, as this is the period that the fit parent presumption become most popular among states. In all, the four indices tell a very similar story,

one of stagnation around 2000, when *Troxel* was decided. The one exception is the weighted index which actually dips after *Troxel*.

Figure 4.13: Coefficient Plot Comparing Regression Parameters – Different Fixed Effects and Standard Errors in Estimating Association between Grandparents Rights Index and Time Spent 2003-2019

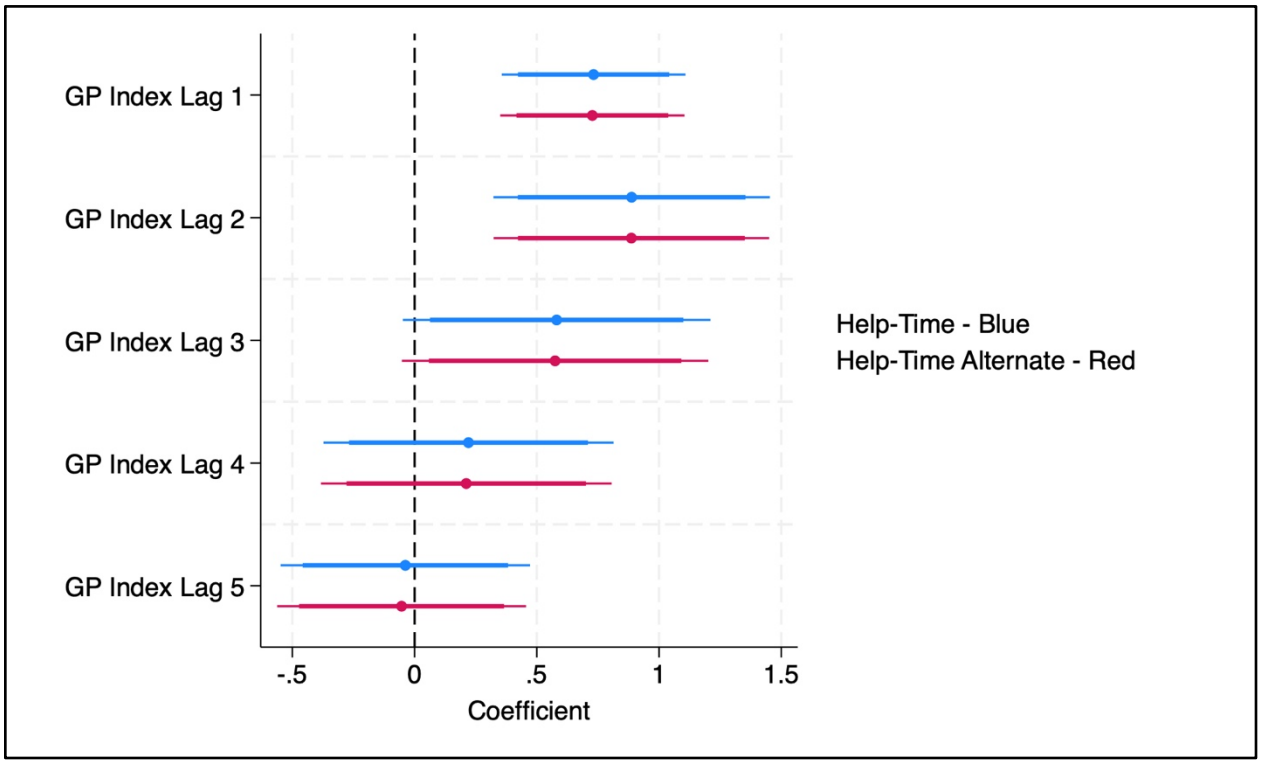


Sources – Original data collected by author from State Session Laws, and ATUS.
Note – This figure compares between different regression techniques: fixed effects regression with year fixed effects and robust standard errors (blue); high dimensional fixed effects regression with state, county, and year fixed effects (red); and fixed effect regression with year fixed effects and Driscoll and Kraay standard errors (green). While the standard errors differ (wide whiskers represent 95% CI, thin whiskers 90% CI), the estimates are near-identical, indicating results are robust to the regression employed.

In Figure 4.13, a coefficient plot employing the GP index on 'all-time' is presented. The blue lines represent results from fixed effects regression with year fixed effects and robust standard errors; the red lines represent results from high dimensional fixed effects regression with state, county, and year fixed effects; and the green lines represent results from the fixed effect regression with year fixed effects and Driscoll and Kraay standard errors. All three models employed an otherwise identical specification. As can be seen, the estimates are virtually

identical, though the standard errors vary. With the exception of the 5th year lag, all three models yield similar results, such that the analysis is robust to the fixed effects model employed. This remained true across different indices tested.

Figure 4.14: Coefficient Plot Comparing Time-Use Variable Construction – Help-Time vs. Alternate Help-Time in Estimating Association between Grandparents Rights Index and Time Spent 2003-2019

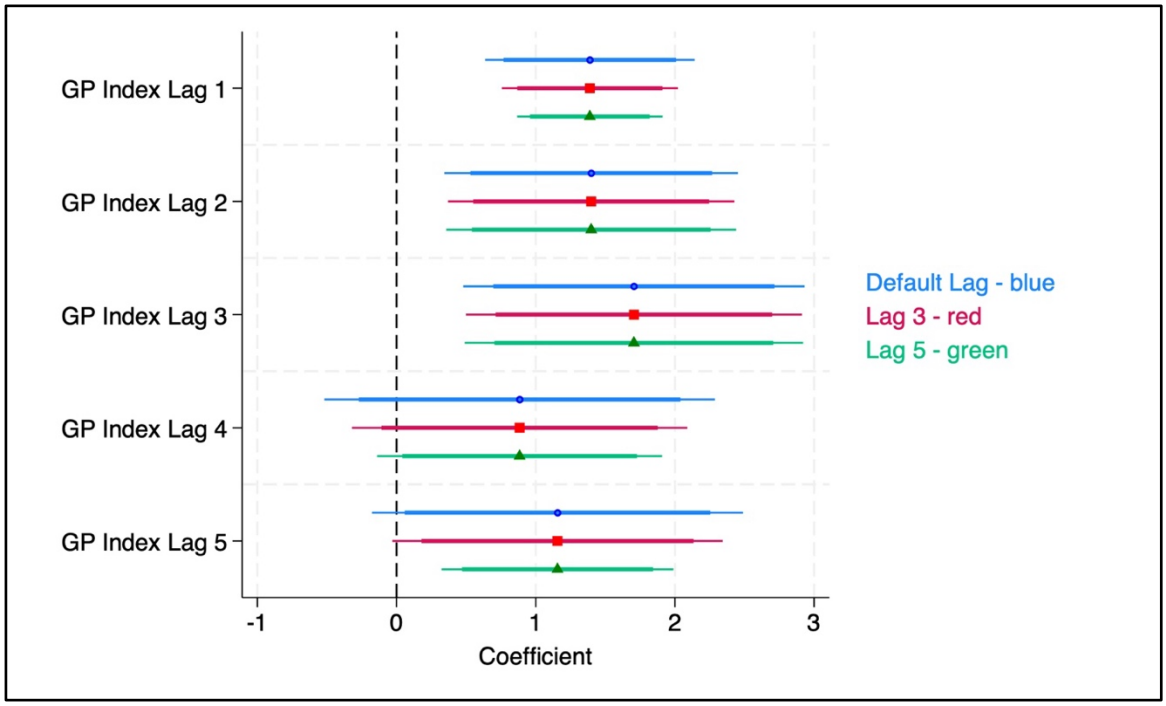


Source – Original data collected by author from State Session Laws, and ATUS.
Note – Compares two different constrictions for "Help-Time": the constrict used herein for analysis (blue), and the alternative including three new activities (education, work and phone calls) (red). While estimates vary slightly, there is virtually no difference in significance, association size, or direction. This suggests that results are robust to the manner in which activities were grouped by "leisure" and "help".

In Figure 4.14, a coefficient plot presents results for a regression using the dependent variable "help-time" and the most distant alternate construct of help-time (with three activities being different: education, work, and phone calls). The differences are barely perceptible, demonstrating that analysis is robust to the manner in which all-time was split into fun-time and

help-time. The differences between fun-time and its alternate are even small that those presented in Figure 4.14, so that they are not presented here.

Figure 4.15: Coefficient Plot Comparing XTSCC Regression Lags in Estimating Association between Grandparents Rights Index and Time Spent 2003-2019



Source – Original data collected by author from State Session Laws, and ATUS.
Note – Compares between the number of lagged years utilized in the autocorrelation structure: the default lag (blue), a 3-year lag (red), and a 5-year lag (green). While standard errors differ, estimates are identical, so that results prove robust to the specification of the lag parameter.

A final parameter tested in the sensitivity analysis is the lag length (number of years) to be considered in the autocorrelation structure of the data; as the default length included in Stata ($m(T) = \text{floor}[4(T/100)^{2/9}$) can be too small. Therefore, the default lag length, is tested against two other lag lengths (3, and 5 years). Results in Figure 4.15 show a deviation in standard errors (but not in estimates). Given the results and the theoretical use of 5-year lags for the predictors (here using the GP Index), the lag length selected for consideration of autocorrelation in the xtscc regression was 5.

4.10 Appendix C: Regression Results

Table 4.6: Regression Results - All-Time and Fun-Time

	All-Time					Fun-Time				
	Lag 1	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**	**Lag 1**	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**
Year=2003(ref.)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Year=2004	6.959***	6.902***	6.930***	6.880***	6.938***	5.708***	5.630***	5.660***	5.634***	5.665***
	(9.58)	(10.07)	(10.28)	(9.47)	(8.96)	(15.07)	(15.33)	(14.34)	(14.63)	(14.30)
Year=2005	9.868***	9.877***	9.852***	9.843***	9.898***	8.530***	8.500***	8.495***	8.510***	8.529***
	(8.59)	(9.01)	(8.80)	(8.59)	(8.33)	(11.08)	(11.49)	(11.32)	(11.22)	(10.79)
Year=2006	2.208	2.424	2.467	2.458	2.528	2.140	2.311	2.354	2.370	2.415
	(0.99)	(1.13)	(1.14)	(1.10)	(1.13)	(1.50)	(1.67)	(1.66)	(1.64)	(1.67)
Year=2007	4.250	4.229	4.272	4.275	4.409	3.241†	3.229†	3.239†	3.279†	3.374†
	(1.61)	(1.62)	(1.65)	(1.57)	(1.60)	(2.07)	(2.06)	(2.03)	(1.98)	(2.03)
Year=2008	4.699†	4.635†	4.645†	4.828†	4.935†	4.549*	4.498*	4.509*	4.660*	4.737*
	(1.88)	(1.94)	(1.93)	(1.96)	(1.96)	(2.60)	(2.66)	(2.65)	(2.69)	(2.67)
Year=2009	5.154	5.171	5.016	5.244	5.299	4.183†	4.196†	4.060†	4.252†	4.295†
	(1.66)	(1.72)	(1.71)	(1.70)	(1.70)	(1.94)	(1.97)	(1.94)	(1.95)	(1.95)
Year=2010	1.261	1.245	1.243	1.420	1.547	1.693	1.685	1.675	1.817	1.902
	(0.44)	(0.45)	(0.45)	(0.50)	(0.53)	(0.85)	(0.87)	(0.87)	(0.93)	(0.94)
Year=2011	7.821*	7.908*	7.881*	8.100*	8.106*	5.575*	5.643*	5.628*	5.804*	5.795*
	(2.62)	(2.75)	(2.73)	(2.75)	(2.72)	(2.65)	(2.75)	(2.73)	(2.77)	(2.71)
Year=2012	3.984	4.140	4.132	4.350	4.331	1.372	1.495	1.497	1.675	1.642
	(1.47)	(1.61)	(1.62)	(1.67)	(1.66)	(0.64)	(0.72)	(0.72)	(0.80)	(0.77)
Year=2013	5.450†	5.655*	5.763*	6.075*	6.118*	3.456	3.669	3.736†	3.991†	3.994†
	(1.92)	(2.13)	(2.22)	(2.30)	(2.29)	(1.52)	(1.70)	(1.75)	(1.84)	(1.81)
Year=2014	-2.569	-2.593	-2.353	-1.940	-1.851	-2.970	-2.895	-2.758	-2.435	-2.392
	(-0.86)	(-0.90)	(-0.84)	(-0.70)	(-0.66)	(-1.26)	(-1.28)	(-1.24)	(-1.08)	(-1.04)
Year=2015	0.204	0.320	0.408	0.894	0.903	-0.956	-0.784	-0.732	-0.369	-0.381
	(0.06)	(0.10)	(0.13)	(0.30)	(0.31)	(-0.40)	(-0.34)	(-0.32)	(-0.16)	(-0.17)
Year=2016	1.494	0.894	1.125	1.576	1.581	-0.983	-1.425	-1.272	-0.948	-0.992
	(0.42)	(0.25)	(0.32)	(0.45)	(0.46)	(-0.37)	(-0.55)	(-0.49)	(-0.37)	(-0.39)
Year=2017	-3.288	-2.955	-3.414	-2.819	-2.869	-3.452	-3.100	-3.508	-3.067	-3.197
	(-0.87)	(-0.78)	(-0.90)	(-0.77)	(-0.79)	(-1.35)	(-1.24)	(-1.42)	(-1.26)	(-1.32)
Year=2018	0.313	0.155	0.748	0.587	0.565	-3.077	-3.084	-2.673	-2.878	-2.976
	(0.09)	(0.04)	(0.20)	(0.17)	(0.16)	(-1.09)	(-1.10)	(-0.98)	(-1.09)	(-1.13)
Year=2019	0.592	0.617	0.936	1.287	0.864	-0.568	-0.424	-0.205	0.042	-0.458
	(0.14)	(0.14)	(0.22)	(0.32)	(0.22)	(-0.18)	(-0.14)	(-0.07)	(0.01)	(-0.16)
Republican Vote Share	0.014	0.007	-0.004	-0.009	-0.011	0.032	0.025	0.016	0.011	0.010
	(0.22)	(0.12)	(-0.06)	(-0.13)	(-0.18)	(0.77)	(0.60)	(0.39)	(0.26)	(0.22)
County Family Income	0.117	0.113	0.110	0.117	0.098	0.514	0.513	0.509	0.516	0.501
	(0.20)	(0.19)	(0.19)	(0.20)	(0.16)	(1.55)	(1.57)	(1.57)	(1.58)	(1.49)
County Number of Children in Household	2.122†	2.112†	2.101†	2.021†	2.099†	2.071*	2.057*	2.050*	1.983†	2.054*
County Number of Adults in Household	3.104***	3.156***	3.111***	3.127***	3.181***	2.397***	2.434***	2.394***	2.399***	2.441***
	(5.37)	(5.60)	(5.46)	(5.60)	(5.65)	(4.99)	(5.15)	(5.08)	(5.12)	(5.16)
County Age	0.086	0.083	0.080	0.083	0.087	0.084	0.082	0.079	0.081	0.085
	(0.75)	(0.71)	(0.69)	(0.73)	(0.75)	(1.03)	(0.97)	(0.95)	(1.00)	(1.02)
County Sex	13.951** *	13.870** *	13.892** *	13.924** *	13.817***	7.287**	7.232**	7.249**	7.271**	7.188**
	(4.52)	(4.39)	(4.37)	(4.41)	(4.48)	(3.28)	(3.17)	(3.14)	(3.20)	(3.24)
County Urbanicity	6.599	6.604	6.117	6.658	6.775	3.782	3.689	3.326	3.761	3.934
	(0.80)	(0.80)	(0.75)	(0.82)	(0.86)	(0.57)	(0.56)	(0.51)	(0.57)	(0.62)
Proportion White	8.884	8.561	8.649	8.620	8.448	4.181	3.900	3.977	3.951	3.789
	(1.32)	(1.25)	(1.29)	(1.27)	(1.24)	(0.67)	(0.62)	(0.64)	(0.63)	(0.61)

Table 4.6: Regression Results - All-Time and Fun-Time Continued

	All-Time					Fun-Time				
	Lag 1	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**	**Lag 1**	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**
Proportion Hispanic	8.900	8.712	8.836	8.736	8.376	7.494	7.354	7.459	7.346	7.017
	(0.98)	(0.94)	(0.97)	(0.96)	(0.92)	(1.07)	(1.03)	(1.06)	(1.04)	(0.99)
Proportion Black	28.358***	28.050***	28.335***	28.455***	28.134***	16.677*	16.490*	16.707*	16.793*	16.536*
	(4.05)	(4.05)	(4.07)	(4.06)	(3.99)	(2.56)	(2.52)	(2.58)	(2.59)	(2.55)
County Educational Attainment	-3.618**	-3.625**	-3.641**	-3.715**	-3.699**	-1.775*	-1.787*	-1.801*	-1.860*	-1.848*
	(-3.63)	(-3.64)	(-3.61)	(-3.79)	(-3.78)	(-2.51)	(-2.55)	(-2.53)	(-2.60)	(-2.58)
County Employment Status	-6.094*	-6.101*	-6.102*	-6.102*	-6.041*	-4.513*	-4.521*	-4.525*	-4.533*	-4.487*
	(-2.21)	(-2.20)	(-2.20)	(-2.20)	(-2.17)	(-2.40)	(-2.39)	(-2.39)	(-2.40)	(-2.38)
County Proportion Cohabiting partner	-7.596	-7.449	-7.327	-7.773	-7.933	-2.107	-2.038	-1.887	-2.237	-2.352
	(-1.17)	(-1.18)	(-1.14)	(-1.22)	(-1.25)	(-0.40)	(-0.40)	(-0.37)	(-0.44)	(-0.46)
County Proportion Married	10.740*	10.944*	11.112*	11.074*	10.903*	5.797	5.981	6.131	6.103	5.945
	(2.28)	(2.41)	(2.44)	(2.39)	(2.35)	(1.42)	(1.52)	(1.56)	(1.52)	(1.49)
County Proportion Divorced	8.735	8.853	9.060	8.898	8.805	8.173*	8.306*	8.456*	8.313*	8.224*
	(1.28)	(1.32)	(1.34)	(1.31)	(1.29)	(2.27)	(2.31)	(2.33)	(2.29)	(2.26)
County Foreign born	5.976	5.585	5.346	5.414	5.390	0.154	-0.196	-0.398	-0.343	-0.351
	(0.73)	(0.70)	(0.65)	(0.67)	(0.67)	(0.04)	(-0.05)	(-0.10)	(-0.09)	(-0.09)
County Dependency ratio	19.791	21.129	21.005	23.996	23.491	18.388	19.990	19.627	21.849	22.028
	(0.42)	(0.46)	(0.44)	(0.50)	(0.48)	(0.84)	(0.92)	(0.90)	(1.00)	(0.98)
County Age-adjusted death rate, 65+	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.003
	(0.96)	(0.95)	(0.93)	(0.86)	(0.88)	(0.85)	(0.82)	(0.79)	(0.75)	(0.76)
County Population Density	0.006†	0.006†	0.006†	0.006†	0.006†	0.006†	0.006†	0.006†	0.006†	0.006†
	(1.95)	(1.92)	(1.94)	(1.94)	(1.93)	(2.06)	(2.04)	(2.06)	(2.04)	(2.04)
Death/Inheritance Tax (in $1k)	-0.075**	-0.075***	-0.074***	-0.071**	-0.071***	-0.037*	-0.037*	-0.036†	-0.033†	-0.033*
	(-3.88)	(-4.13)	(-4.02)	(-3.92)	(-4.24)	(-2.29)	(-2.18)	(-2.04)	(-2.07)	(-2.14)
Grandparents' Rights litigation per 100k	-1.708*	-1.706*	-1.655*	-1.701*	-1.720*	-1.611*	-1.615*	-1.568*	-1.609**	-1.624**
	(-2.39)	(-2.30)	(-2.39)	(-2.55)	(-2.68)	(-2.69)	(-2.60)	(-2.75)	(-2.96)	(-3.16)
Grandparents' Rights Bills introduced (Failed)	-2.564***	-2.635**	-2.405**	-2.270**	-2.306**	-2.190***	-2.218***	-2.036***	-1.947***	-1.984***
Fit Parent Presumption (focal)	-1.388*	-1.462*	-1.231†	-1.360†	-1.488†	-0.292	-0.265	-0.117	-0.253	-0.404
	(-2.46)	(-2.46)	(-2.12)	(-2.09)	(-2.08)	(-0.43)	(-0.44)	(-0.21)	(-0.39)	(-0.59)
Fit Parent Presumption (neighbor)	-0.956	-0.907	-0.541	-0.368	-0.513	0.076	0.286	0.502	0.596	0.448
	(-0.59)	(-0.59)	(-0.37)	(-0.27)	(-0.36)	(0.07)	(0.25)	(0.46)	(0.59)	(0.45)

Table 4.6: Regression Results - All-Time and Fun-Time Continued

	All-Time					Fun-Time				
	Lag 1	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**	**Lag 1**	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**
GP Index (focal) Lag 1	1.389***					1.201***				
	(5.64)					(6.02)				
GP Index (neighbor) Lag 1	0.460					0.431				
	(1.24)					(1.65)				
GP Index (focal) Lag 2		1.398*					1.138**			
		(2.85)					(3.69)			
GP Index (neighbor) Lag 2		0.368					0.101			
		(0.83)					(0.26)			
GP Index (focal) Lag 3			1.705**					1.436**		
			(2.97)					(3.66)		
GP Index (neighbor) Lag 3			-0.388					-0.414		
			(-0.61)					(-0.66)		
GP Index (focal) Lag 4				0.884†					0.866†	
				(1.83)					(2.07)	
GP Index (neighbor) Lag 4				-0.821					-0.689	
				(-1.52)					(-1.49)	
GP Index (focal) Lag 5					1.156**					1.019**
					(2.94)					(3.50)
GP Index (neighbor) Lag 5					-0.654					-0.433
					(-1.16)					(-1.14)
Constant	-70.106	-69.172	-62.875	-49.854	-54.430	-60.913*	-56.454†	-52.955	-44.227	-48.711
	(-1.52)	(-1.36)	(-1.23)	(-0.98)	(-1.13)	(-2.15)	(-1.81)	(-1.61)	(-1.39)	(-1.63)

Source – Original data collected by author from State Session Laws, and ATUS.
Note - *t* statistics in parentheses
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

Table 4.7: Regression Results: Help-Time and Help-Time (Culled Sample)

	Help-Time					Help-Time (Culled Sample)				
	Lag 1	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**	**Lag 1**	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**
Year=2003(ref.)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Year=2004	1.230*	1.253*	1.247*	1.229*	1.268*	2.853*	2.909*	2.948*	3.004*	3.039*
	(2.24)	(2.32)	(2.21)	(2.22)	(2.23)	(2.42)	(2.57)	(2.55)	(2.57)	(2.65)
Year=2005	1.550**	1.585**	1.565**	1.544**	1.595**	3.009**	3.063***	3.079***	3.225***	3.241***
	(3.30)	(3.48)	(3.29)	(3.17)	(3.31)	(3.75)	(4.10)	(4.03)	(4.13)	(4.24)
Year=2006	0.004	0.040	0.038	0.015	0.045	1.318	1.317	1.400	1.469	1.471
	(0.00)	(0.04)	(0.04)	(0.01)	(0.04)	(0.82)	(0.84)	(0.90)	(0.93)	(0.94)
Year=2007	0.913	0.909	0.933	0.898	0.943	3.652†	3.665†	3.659†	3.745†	3.640†
	(0.64)	(0.65)	(0.66)	(0.63)	(0.65)	(1.86)	(1.87)	(1.89)	(1.91)	(1.88)
Year=2008	0.051	0.039	0.035	0.064	0.102	3.423*	3.385*	3.508*	3.654*	3.710*
	(0.05)	(0.04)	(0.03)	(0.06)	(0.10)	(2.27)	(2.36)	(2.47)	(2.50)	(2.54)
Year=2009	0.850	0.852	0.830	0.870	0.885	3.294	3.305	3.245	3.375	3.397
	(0.62)	(0.63)	(0.62)	(0.63)	(0.64)	(1.33)	(1.33)	(1.34)	(1.38)	(1.40)
Year=2010	-0.508	-0.512	-0.509	-0.474	-0.411	0.633	0.639	0.707	0.793	0.881
	(-0.36)	(-0.37)	(-0.37)	(-0.34)	(-0.29)	(0.28)	(0.29)	(0.32)	(0.36)	(0.40)
Year=2011	2.171	2.189	2.176	2.219	2.246	5.770*	5.830*	5.924*	6.007*	6.080*
	(1.48)	(1.52)	(1.51)	(1.51)	(1.53)	(2.63)	(2.68)	(2.78)	(2.82)	(2.84)
Year=2012	2.534†	2.562†	2.549†	2.592†	2.622†	3.820	3.901	4.000	4.071	4.157
	(1.80)	(1.84)	(1.84)	(1.85)	(1.87)	(1.34)	(1.37)	(1.42)	(1.46)	(1.48)
Year=2013	1.894	1.875	1.905	1.963	2.028	4.773	4.771	4.972	5.112†	5.265†
	(1.21)	(1.21)	(1.25)	(1.27)	(1.30)	(1.63)	(1.63)	(1.74)	(1.78)	(1.82)
Year=2014	0.299	0.200	0.287	0.373	0.443	3.731	3.688	3.934	4.047	4.142
	(0.17)	(0.11)	(0.16)	(0.21)	(0.25)	(1.22)	(1.20)	(1.31)	(1.34)	(1.36)
Year=2015	1.311	1.255	1.291	1.410	1.463	5.510†	5.580†	5.810†	5.818†	6.026†
	(0.70)	(0.66)	(0.69)	(0.75)	(0.77)	(1.85)	(1.84)	(2.00)	(1.97)	(2.01)
Year=2016	2.257	2.113	2.179	2.306	2.390	4.029	3.846	4.027	3.964	4.205
	(1.00)	(0.92)	(0.97)	(1.01)	(1.05)	(1.22)	(1.14)	(1.22)	(1.19)	(1.25)
Year=2017	-0.000	-0.039	-0.085	0.065	0.206	6.134	6.288	6.141	6.138	6.543
	(-0.00)	(-0.02)	(-0.03)	(0.02)	(0.08)	(1.68)	(1.65)	(1.70)	(1.68)	(1.74)
Year=2018	3.153	3.003	3.166	3.216	3.349	6.134	6.143	6.338	6.112	6.501
	(1.26)	(1.18)	(1.26)	(1.27)	(1.31)	(1.60)	(1.54)	(1.62)	(1.57)	(1.64)
Year=2019	0.944	0.821	0.916	1.009	1.161	4.394	4.405	4.564	4.455	4.831
	(0.32)	(0.28)	(0.31)	(0.34)	(0.39)	(1.06)	(1.01)	(1.09)	(1.04)	(1.12)
Republican Vote Share	-0.022	-0.022	-0.024	-0.024	-0.025	0.089	0.086	0.081	0.082	0.084
	(-0.56)	(-0.55)	(-0.58)	(-0.58)	(-0.59)	(1.35)	(1.30)	(1.22)	(1.28)	(1.27)
County Family Income	-0.352	-0.355	-0.353	-0.353	-0.357	-0.501	-0.507	-0.511	-0.507	-0.514
	(-1.12)	(-1.13)	(-1.12)	(-1.12)	(-1.12)	(-1.28)	(-1.30)	(-1.31)	(-1.31)	(-1.32)
County Number of Children in Household	0.036	0.042	0.039	0.027	0.032	1.912*	1.965*	1.874*	1.851*	1.814*
	(0.08)	(0.09)	(0.09)	(0.06)	(0.07)	(2.66)	(2.66)	(2.53)	(2.54)	(2.52)
County Number of Adults in Household	0.489	0.499	0.488	0.497	0.504	-1.640	-1.612	-1.629	-1.627	-1.627
	(0.86)	(0.88)	(0.86)	(0.87)	(0.90)	(-1.73)	(-1.72)	(-1.71)	(-1.74)	(-1.71)
County Age	-0.014	-0.014	-0.014	-0.013	-0.014	0.151	0.148	0.151	0.154	0.154
	(-0.28)	(-0.27)	(-0.29)	(-0.27)	(-0.28)	(1.41)	(1.39)	(1.41)	(1.41)	(1.42)
County Sex	6.639***	6.623***	6.631***	6.643***	6.617***	9.650***	9.615***	9.635***	9.688***	9.683***
	(6.59)	(6.57)	(6.53)	(6.58)	(6.57)	(5.15)	(5.15)	(5.05)	(5.09)	(5.10)
County Urbanicity	2.818	2.925	2.799	2.908	2.831	3.103**	3.482**	3.222**	3.654**	3.631**
	(1.50)	(1.50)	(1.48)	(1.60)	(1.55)	(3.03)	(3.63)	(3.35)	(3.78)	(3.62)
Proportion White	5.325*	5.298*	5.313*	5.313*	5.318*	5.535	5.475	5.449	5.461	5.356
	(2.40)	(2.40)	(2.40)	(2.38)	(2.33)	(0.95)	(0.94)	(0.93)	(0.95)	(0.92)
Proportion Hispanic	1.537	1.498	1.523	1.537	1.527	0.755	0.668	0.707	0.720	0.564
	(0.50)	(0.48)	(0.50)	(0.50)	(0.50)	(0.49)	(0.43)	(0.46)	(0.48)	(0.37)
Proportion Black	12.749*	12.656*	12.739*	12.775*	12.761*	17.366	17.314	17.358	17.471	17.430
	(2.56)	(2.53)	(2.55)	(2.55)	(2.51)	(1.65)	(1.65)	(1.64)	(1.66)	(1.63)
County Educational Attainment	-1.997*	-1.992*	-1.996*	-2.012*	-2.010*	-1.991**	-1.979**	-2.044**	-2.024***	-2.030**
	(-2.62)	(-2.59)	(-2.62)	(-2.66)	(-2.67)	(-3.89)	(-3.85)	(-3.93)	(-4.13)	(-3.92)

Table 4.7: Regression Results: Help-Time and Help-Time (Culled Sample) Continued

	Help-Time					Help-Time (Culled Sample)				
	Lag 1	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**	**Lag 1**	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**
County Employment Status	-1.669	-1.671	-1.672	-1.666	-1.657	-0.899	-0.863	-0.869	-0.823	-0.842
	(-1.67)	(-1.67)	(-1.67)	(-1.66)	(-1.64)	(-0.51)	(-0.49)	(-0.50)	(-0.46)	(-0.47)
County Proportion Cohabiting partner	-5.735**	-5.652**	-5.673**	-5.772**	-5.836**	-11.478*	-11.433*	-11.375*	-11.367*	-11.512*
	(-3.41)	(-3.39)	(-3.37)	(-3.42)	(-3.49)	(-2.80)	(-2.79)	(-2.73)	(-2.67)	(-2.69)
County Proportion Married	4.365*	4.388*	4.407*	4.391*	4.376*	-1.193	-1.073	-1.046	-1.172	-1.204
	(2.21)	(2.20)	(2.24)	(2.24)	(2.21)	(-0.23)	(-0.21)	(-0.20)	(-0.22)	(-0.23)
County Proportion Divorced	-0.086	-0.103	-0.056	-0.081	-0.099	1.475	1.640	1.595	1.555	1.520
	(-0.02)	(-0.03)	(-0.02)	(-0.02)	(-0.03)	(0.25)	(0.27)	(0.26)	(0.26)	(0.25)
County Foreign born	6.043	6.012	5.978	5.992	5.970	6.663	6.497	6.332	6.379	6.393
	(1.00)	(1.00)	(0.99)	(1.00)	(0.99)	(0.89)	(0.88)	(0.86)	(0.88)	(0.88)
County Dependency ratio	3.286	2.957	3.137	3.917	3.041	8.138	6.729	9.159	11.533	10.587
	(0.11)	(0.10)	(0.10)	(0.13)	(0.10)	(0.28)	(0.23)	(0.30)	(0.38)	(0.35)
County Age-adjusted death rate, 65+	0.001	0.001	0.001	0.001	0.001	0.005	0.005	0.005	0.005	0.005
	(0.46)	(0.49)	(0.46)	(0.43)	(0.44)	(1.45)	(1.47)	(1.42)	(1.45)	(1.44)
County Population Density	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.88)	(0.84)	(0.88)	(0.91)	(0.95)	(1.21)	(1.16)	(1.21)	(1.09)	(1.19)
Death/Inheritance Tax (in $1k)	-0.037†	-0.037†	-0.037†	-0.037†	-0.037†	-0.066	-0.067†	-0.064	-0.063	-0.063
	(-1.89)	(-1.94)	(-1.91)	(-1.83)	(-1.86)	(-1.67)	(-1.76)	(-1.68)	(-1.68)	(-1.64)
Grandparents' Rights litigation per 100k	-0.099	-0.092	-0.088	-0.093	-0.098	0.035	0.050	0.054	0.059	0.053
	(-0.30)	(-0.28)	(-0.27)	(-0.28)	(-0.29)	(0.05)	(0.07)	(0.07)	(0.08)	(0.07)
Grandparents' Rights Bills introduced (Failed)	-0.343	-0.385	-0.341	-0.297	-0.287	-0.834	-0.898	-0.697	-0.724	-0.638
	(-0.55)	(-0.60)	(-0.56)	(-0.46)	(-0.45)	(-1.11)	(-1.17)	(-0.92)	(-0.91)	(-0.76)
Fit Parent Presumption (focal)	-1.082*	-1.186*	-1.105*	-1.102*	-1.054†	-1.080†	-1.159†	-1.162†	-1.263*	-1.199*
	(-2.49)	(-2.47)	(-2.45)	(-2.30)	(-2.04)	(-1.98)	(-2.11)	(-2.07)	(-2.26)	(-2.12)
Fit Parent Presumption (neighbor)	-0.973	-1.147†	-1.007	-0.936	-0.914	-0.150	-0.247	-0.065	-0.131	0.043
	(-1.45)	(-1.83)	(-1.65)	(-1.74)	(-1.66)	(-0.20)	(-0.38)	(-0.09)	(-0.20)	(0.07)

Table 4.7: Regression Results: Help-Time and Help-Time (Culled Sample) Continued

	Help-Time					Help-Time (Culled Sample)				
	Lag 1	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**	**Lag 1**	**Lag 2**	**Lag 3**	**Lag 4**	**Lag 5**
GP Index (focal) Lag 1	0.152					0.732***				
	(1.24)					(4.13)				
GP Index (neighbor) Lag 1	-0.018					-0.044				
	(-0.10)					(-0.30)				
GP Index (focal) Lag 2		0.228					0.888**			
		(0.91)					(3.33)			
GP Index (neighbor) Lag 2		0.234					0.080			
		(1.56)					(0.64)			
GP Index (focal) Lag 3			0.249					0.581†		
			(0.89)					(1.96)		
GP Index (neighbor) Lag 3			0.004					-0.261		
			(0.02)					(-1.51)		
GP Index (focal) Lag 4				-0.000					0.221	
				(-0.00)					(0.79)	
GP Index (neighbor) Lag 4				-0.142					0.006	
				(-0.89)					(0.03)	
GP Index (focal) Lag 5					0.125					-0.038
					(0.48)					(-0.16)
GP Index (neighbor) Lag 5					-0.312					-0.380†
					(-1.72)					(-1.75)
Constant	-7.121	-10.833	-8.278	-4.148	-3.299	-48.013*	-51.120*	-43.526*	-44.211*	-36.226†
	(-0.36)	(-0.49)	(-0.38)	(-0.20)	(-0.16)	(-2.65)	(-2.69)	(-2.21)	(-2.36)	(-2.04)

Source – Original data collected by author from State Session Laws, and ATUS.
Note - *t* statistics in parentheses
† $p < 0.1$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

5 CONCLUSION

"To see things clearly—that is the aim. Then one can act with certainty. Only then does one progress forward—discover new horizons."

- Hercule Poirot, Peril at End House[1]

Three unique empirical studies using different data demonstrated that Law is linked to fertility and family time use patterns. These three studies sought to apply the spirit of Monsieur Poirot's "*order and method*" in interrogating the link between Law and Demography, using a set of principles founded on demographic and legal theory. Particular provisions within legal subfields regulating family life were identified, and placed in their correct topical and spatial context, to explore whether and how they are associated with population dynamics, while holding socio-economic confounders constant. At the very least, this dissertation serves as proof of concept for Law and Demography research. But it is now time to arouse a few *little grey cells* and discuss the greater implications.

At the outset, the role of Law in population studies was presented as important, yet supplementary. Both the theory presented, and the results clearly show that Law is a mirror to society, though an imperfect one that may still have some independent contribution of its own to population dynamics. In this respect, Law may be the French Horn of population studies, not quite the center piece, but more than an accent. This means that Law is not doing the heavy lifting in explaining population dynamics – the brawn is coming from the trio of microeconomics, sociocultural, and uncertainty (and others) – but it is doing enough lifting so

[1] (Christie 1932, 150)

that it is a valuable addition. This supplementary role of Law is illustrated by its theoretical function as a modifier of existing mechanisms, and empirically, through relatively small associations (though they do add up).

This unique role played by Law reaffirms its inherent bilateral relationship with Society, and as an extension, Demography and population dynamics (Barnett 1982; Barnett and Reed 1985). Referring once more to the mirror metaphor, Law is an imperfect reflection of society. This reflection will not stray too far from its object, nor will it reflect it perfectly (save for rare cases). In the margin between perfect and imperfect reflections, Law and Demography shines. By definition this ascribes a seemingly minor role to Law in population studies, but this is a case of "thinking at the margin". Small changes, especially those in the lower reaches of Law, add up. Each seemingly innocuous provision is a small piece in a larger puzzle. We can postulate that legal provision A will raise costs, while legal provision B will loosen norms, but taken together (in correct context) the whole is greater than the sum of its parts. It is difficult to provide any conclusive definition for what constitutes the "Whole" or where to draw boundaries. This is a task for the future, requiring more research.

Law on the margins can also be thought of as "*perversions*" (Abbott 2022). Without dissecting the macro processes, a great deal of variation and nuance is lost; the data – particularly in Chapters 2 and 4 – clearly demonstrate that these small variations are meaningful. Incorporating these legal perversions, i.e., small changes in lesser explored legal provisions, into population studies, helps combine the puzzle pieces into the "Whole". When Law is used to proxy policy on topics such as no-fault divorce or child support, these perversions are lost. Use of Law that is devoid of nuance presents an inaccurate portrait of the relationship between Law

and Demography, especially when it is not placed in the correct context. This may sound daunting, but the juice is worth the squeeze.

In the Science-based segment of the hypertrophy training community (bodybuilding), there is well known concept, typically referred to as the "stimulus to fatigue ratio" (SFR) (Hoffmann et al. 2021). This is a measure of the stimulus for muscle growth an exercise can provide relative to the systemic fatigue it creates. Exercises with a higher SFR are thought to be superior to those with a low SFR, as they achieve more for less. Law and Demography has a relatively high SFR. In practice this has two ramifications.

First, Law and Demography are good value-for-money. Law is omni-present, it is highly visible and accessible, and is present on multiple levels of analysis: super-national, national, and local. Importantly, as was demonstrated in Chapter 3, Law has been shown to be significantly linked to population dynamics even in regions that are typically thought to have a weaker rule of Law. But nothing costs nothing. The under-utilization of Law in population studies, as envisioned here, may be a product of disciplinary barriers. Though Law is visible and accessible, it does require some specialized knowledge to track, code, and place in the correct topical context. This does raise the costs for Law and Demography research somewhat but should be far from prohibitive, especially as Law is increasingly being quantified (Shaffer and Ginsburg 2012), and projects such as this work and others (Elkins, Ginsburg, and Melton 2009), make coded data available.

Second, Law and Demography truly does provide great stimulus while incurring relatively low levels of fatigue. Topical applications extend far beyond fertility and Family Law. The most obvious candidates are mortality and migration, both population dynamics that are directly regulated by supernational, national, and local Law. Moreover, the basic research design

employed in Chapters 2 and 3 are easily applicable outside the U.S.; some such studies already exist (Ginsburg and Versteeg 2014; Pizzarossa and Perehudoff 2017). For instance, the design employed in Chapter 2 can be replicated for any particular global region with enough states, by tracking state-level Family Law and exploring its ties to the region's population dynamics.

In addition to topical and geographical extensions, Law and Demography research includes the reverse direction, whereby Law is shaped in the shadow of population dynamics. This is a topic that has received some attention (Hill 2000; Barnett 2006), but would benefit by establishing a more robust theoretical and quantitative link between the disciplines – in the direction contemplated. Ultimately, interactions in both directions will contribute to a deeper understanding of the bilateral relationship between Law and Demography.

Other extensions may include different levels of analysis and different research designs in the spirit of Law and Demography. A particularly good example is based on the concept "*historicality of individuals*" (Abbott 2005): individuals and cohorts are the product of their previous encoding process; if Law casts a shadow on social action, it should be considered part of the encoding process. This type of research would benefit most from micro-level data and a life course perspective, as it would explore the role of Law (placed in context) on later life outcomes. In addition to providing a new perspective on the effects of Law, this type of research design could also get at micro and meso level mechanisms to decompose the outcomes observed on the population level.

Similarly, ethnographies and survey data are extremely useful in shedding light on personal preferences and fleshing out micro level mechanism tied to population dynamics (Trinitapoli and Richou 2015; Trinitapoli and Yeatman 2018). In this sense they are superior to the quantitative work conducted in this dissertation as they alleviate the necessary inferences

made from population level observations to the individual level, inferences that can be misleading (Johnson-Hanks 2007). While it is highly unlikely that a respondent would indicate that they decided to have an additional child due to a change in Law X, data obtained from respondents can nevertheless be cross-referenced with legal data.

Some limitations should be discussed. First, spatial regression is highly demanding; as spatial regression models the effects of neighbors, the past, and past neighbors, missing observations are very difficult to treat and are usually avoided. However, social data typically exhibit some level of missingness, at times levels that are too high to be imputed or completed via other computational means. The number of observations is also a concern; for instance, 3,084 counties across 49 U.S. jurisdictions provide ample variation, as do the 47 states in Sub-Saharan Africa. However, South America sans Central America or the Caribbean, includes only 13 states and would not be viable for the research design employed in Chapter 2.

A second limitation of the Law and Demography relates to the manner in which Law is defined. One important component of Law – though this varies by region – is case law (Merryman and Pérez-Perdomo 2018). Court cases and the judiciary are a part of Law and do play a role in population dynamics (Gostin 2023), especially as Law is adjusted and even created by Supreme Courts (Horowitz 2010). This is further evidenced by the discussion of *Troxel v. Granville* in Chapter 4, where the U.S. Supreme Court made a ruling that effectively re-balanced parents and grandparents right in favor of the former. To create a fully encompassing context for Law, case-law must be considered as well, especially in Common-Law legal systems such as the U.S. and the U.K., where precedent set in court plays a special legal (Barnett 1982) and social role (Zelizer 2009).

5.1 References

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