

RESEARCH ARTICLE

Problematizing state capacity: the Rwandan case

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(Received 6 January 2022; revised 6 January 2023; accepted 6 January 2023)

Abstract

We argue that the effectiveness of Rwandan governments, both at implementing the 1994 genocide and inducing the current growth miracle, illustrates that the state has high capacity. Yet this capacity is not captured by conventional Weberian concepts, with their focus on taxation and formal bureaucracy. Rather, the capacity of Rwanda's state relies on its ability to leverage dense social networks which connect it to society. The origins of these networks lie in the construction of the historical state which expanded by merging with local lineages and kinship groups. Using data on the historical expansion of the Rwandan state as a proxy for the strength of state–society social networks we show they are uncorrelated with measures of Weberian state capacity. In a fieldwork exercise, we show that rule compliance today is positively correlated with our proxy, but uncorrelated with Weberian state capacity.

Keywords: Rwanda; social networks; state capacity; Weber

JEL codes: J6; H11; O1; O11

1. Introduction

One of the fundamental development challenges in Africa is thought to be its low level of state capacity (Acemoglu and Robinson, 2012, 2019). This is most centrally measured by tax revenues relative to national income, but supposedly ramifies quite generally in the absence of ‘infrastructural power’ (Mann, 1986). Migdal asserts that ‘The rule of state leaders [in Africa] has extended beyond the capital city or the main port only in the most tenuous and intermittent ways’ (1988: 7). Lombard (2020) in her ethnography of state weakness in the Central African Republic coins the expression the ‘PK-12 state’ since the reach of the state in the capital city Bangui does not extend past the PK market, 12 kilometers from the presidential palace. Without doubt African states do lack capacity measured in terms of taxation, and in other senses, and this is plausibly part of the reason why the provision of public goods is so low.

But to what extent can we infer state capacity by looking at the fiscal system? Schumpeter famously said that ‘the budget is the skeleton of the state stripped of all misleading ideologies’ (1991: 99) and this view has dominated recent scholarship. Sociologists such as Mann, Tilly (1990), or Centeno (2003), political scientists such as Slater (2010) and Soifer (2015), and economists such as Besley and Persson (2011), all make fiscal capacity the centerpiece of state capacity and the literature on emergence of Eurasian modern states does the same, focusing on the creation of ‘fiscal-military’ states and the rise of modern tax systems (e.g. Brewer, 1988, for the English case, Glete, 2001, for Europe, and He, 2013, and Comín *et al.*, 2015, for broader comparative discussions). The centrality of ‘fiscal

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sociology' goes hand in hand with a Weberian emphasis on the emergence of bureaucracy. In most studies, seminally Brewer (1988), these things go hand in hand.

In this paper we question this singular focus on the fiscal-bureaucratic side of state capacity using the example of Rwanda. We begin by showing that under any reasonable definition of the word, the Rwandan state has a great deal of capacity. We illustrate this first with the case of the Rwandan genocide. As is well established, the genocide was planned by the government which took power after the death of President Juvenal Habyarimana on April 6, 1994. Thus the murder of possibly as many as 800,000 people in a 100 days or 3 months was the outcome of state policy. It takes a lot of capacity to murder so many people in such a short amount of time (Heldring, 2021; McDoom, 2020; Straus, 2006). We then further illustrate the existence of state capacity by studying the Rwandan 'growth miracle' in the past two decades. The transformation of the rural economy and the re-distribution of the population that has occurred in the past 20 years is again the consequence of a great deal of capacity.

But how is this capacity constituted? The way that the genocide was implemented was not bureaucratically, in the way the Nazi state implemented the Holocaust (on which see Heldring, 2020). Neither did it require large amounts of tax or fiscal resources. Instead, it was driven by mobilizing the transversal social networks that linked state to society. The government leveraged the networked nature of the connections between state and society to achieve the killing. As we shall argue, the same is true for the growth miracle. The government influences the allocation of resources and prioritizes some activities rather than others by manipulating these same social networks.

This type of capacity, which one can think of as a form of Mann's infrastructural power based on social networks, comes from the fact that the modern Rwandan state has deep roots in the pre-colonial Nyiginya kingdom. This state was a type of 'segmentary state', first identified by Southall (1956) in his study of the origins of the Alur state in Uganda. It involved a fusion of centralized state institutions with lineage and kinship structures. This resulted in what Bayart (2009) calls a 'rhizome state' – a state whose roots grow horizontally out into society. It was a type of state well suited to the African context, featuring powerful social structures such as lineages and descent groups and a severe skepticism toward authority (Bohannan, 1958; Henn and Robinson, 2021; Vansina, 1990). As Newbury (1988) and Des Forges (2011) showed, the historical Rwandan state had precisely this segmentary character and the title of Newbury's (1992) book is telling: 'Kings *and* Clans' not 'Kings *or* Clans' (our emphasis). Vansina (2004) calls the state the Nyiginya kingdom, named after the clan of the royal family. Here the state is itself named after a kinship group (Maquet, 1961, is another influential study).

We develop an empirical proxy for this form of capacity using data collected by Leander Heldring in a research project (Heldring, 2021). Heldring constructed a measure of the length of state presence in Rwanda by mapping the historical spread of the pre-colonial state. He found that greater levels of historical state presence, as measured by the length of time the state had been consolidated in a particular area, were associated with greater levels of the genocide. This illustrates that this one measure of 'state capacity' is associated with more violent outcomes in this period.

But what does this capacity really constitute? The historical literature shows that the state expanded by embedding itself in pre-existing segmentary lineages (Des Forges, 2011; Newbury, 1988). Where this process had gone on longer, the state was more embedded, and therefore had more state capacity because it was more connected to society and was able to use and activate social networks more effectively. In line with this interpretation, Heldring also found that a greater history of state presence was associated with greater pro-sociality toward the state. Our main contribution in this paper is to emphasize this network interpretation of what Heldring's state presence variable is capturing and to show that it is not confounded by more conventional ways of conceptualizing state capacity. In particular we here present new results showing that his measure of state presence and also people's pro-sociality toward the state are completely uncorrelated with standard measures of (Weberian) state capacity including tax collection, the provision of services, or the physical presence of the state.

To the extent that scholars, such as Bayart (2009) or many political scientists, such as Turner and Young (1985) or Bratton and van der Walle (1997) have focused on such networks they have followed Weber in associating them with patrimonialism – a type of state organization which is supposedly

anathema to state capacity. The social networks linking state to society undoubtedly have these features too, even in Rwanda, but our contribution here is to illustrate that these networks do not just facilitate redistribution, in the Rwandan case at least, they can also be leveraged to get things done. We show that this capacity is not a proxy for fiscal or other material types of capacity, it is really something distinct. One cannot infer much about the skeleton of the Rwandan state by looking at its fiscal system or its Weberian manifestations.

The Weberian paradigm has become hegemonic among social scientists. When they do not use taxation to measure capacity they use the presence of bureaucratic features (e.g. the qualitative work on the East Asian miracle by Amsden, 1989; Johnson, 1982, and Wade, 1990, and the quantitative studies by Bruszt and Campos, 2019; Dell *et al.*, 2018, or Evans and Rauch, 1999) or just simply the physical presence of state entities and offices (Acemoglu *et al.*, 2015, 2016, see Williams, 2021, for an overview). But as Vansina (1990) so convincingly showed (see also the essays in McIntosh, 1999, and the earlier work of Gluckman, 1965), Africa has followed a different path of political development into the modern world, at least until it was cut short by colonial rule. We hope that our paper illustrates the dangers of making simple analogies to European models of political and state development.¹ The Nazi's murdered Jews in a Weberian way, the Rwandan state murdered Tutsis in a very different way. The different and non-Weberian way in which Rwandan state capacity was manifested makes it no less real.

Though our initial motivation is the nature of state capacity used in the genocide, Heldring (2021) also showed that outside of the period when this was taking place, state presence in Rwanda was actually associated with public good provision in the shape of more order. There is therefore nothing intrinsic to networked state capacity that links it to murder or bad outcomes. We develop this idea by arguing that the economic success of the country since 1994 is precisely due to the use of this networked capacity to promote, for example, agricultural development.

Our paper is related to the recent literature on the nature of the 'developmental state' in Rwanda. Recent work by Booth and Golooba-Mutebi (2012), Booth and Cammack (2013), Kelsall (2013), and Chemouni (2016) has provided some generalizations about the circumstances under which such a state emerges. This literature has the great merit that it recognizes that the states under consideration are still patrimonial, but it allows for patrimonialism under some circumstances to be developmental. Yet this literature has focused on identifying the circumstances under which leaders decide to promote growth and how they organize their regimes accordingly. For example, Kelsall (2013) argues that patrimonialism is developmental in Rwanda because the regime has a long time horizon (an argument reminiscent of that of McGuire and Olson, 1996) and that rents are centralized so there is no 'tragedy of the commons' (following Shleifer and Vishny's (1993) argument about efficient corruption). Chemouni (2016) argues instead that it is the strategy of legitimation that leads the Rwandan state to promote development. Implicitly the authors assume that if the circumstances are right, stronger motivations over-ride the usual negative effects of patronage. Our contribution is different. Our focus is not on explaining the objectives of different states and when this is consistent with economic growth, but rather pointing out that in fact the very aspects of the state which lead it to be categorized as patrimonial can be used for socially desirable objectives. Patrimonialism does not have to be over-riden, quite the opposite. Though it might look patrimonial, there is in fact a great deal of state capacity in Rwanda if not of a canonical Weberian form. This can be used for economic growth, as it has been in Rwanda since 1994, but it can also be used for other things, including murder.

Our research is also related to research on state history as a determinant of development (see Bockstette *et al.*, 2002; Borcan *et al.*, 2018) but provides a completely novel interpretation of how this is related to state capacity. Finally, our study is related to Evans (1995) who argued that social networks between state and society, or the 'embeddedness' of the state, was critical to the effectiveness of the state. The mechanism in his argument however is that this generates critical information flows. He does not emphasize the role of the networks in controlling and motivating society, rather stressing

¹A classic example of the fallacies that this can produce is the book of Herbst (2000). See Osafo-Kwaako and Robinson (2013) for some of the empirical problems of this approach.

how they must be ‘autonomous’ to remain effective and not be captured by society. Our interpretation is rather the other way round: these networks allow the state to capture society and this is what creates state capacity.

The paper proceeds as follows. In the next section we present our argument that the Rwandan genocide illustrates that the Rwandan state has a great deal of capacity in a reasonable sense. Section 3 then presents our main empirical analysis showing that there is no correlation between our proxy for network state capacity and any measure of Weberian capacity in Rwanda emphasizing the point that it is really something distinct. Section 4 then discusses some of the historical and ethnographic literature on the nature of traditional states in Africa stressing their segmentary natures and how this generated dense network connections between the state and society. Section 5 then illustrates our ideas in action by showing that the type of state capacity evident during the Rwandan genocide helps to explain economic growth and the effectiveness of public policy in the post-genocide period. Section 6 concludes and argues that we need to move beyond the Weberian paradigm in thinking about African states and in particular need to consider how to leverage non-Weberian elements of capacity.

2. State capacity in Rwanda

The existence of state capacity in Rwanda is evident both during the genocide and also, as we shall see, more recently. Straus (2006) states the overwhelming view of scholars who have studied the genocide that

‘the episode’s central feature was a deliberate, systematic, state-led campaign to eliminate a racially defined social group’ (p. 1).

He notes how the government ‘mobilized the civilian administration [to] eliminate the Tutsis’ (p. 1) and that ‘Elites planned it. They used the state to implement their plan’ (p. 2). The Rwandan state launched a plan that murdered at least 500,000, possibly 800,000 people in the space of 3 months. Thompson notes ‘killing Tutsi was a state-sanctioned event that brought the authority of key institutions ... to bear’ (2017: 5). McDoom argues that extremists ‘used the state’s considerable power to implement the genocide’ (2020: 33). There is total consensus in the academic literature on this point.

Yet according to World Bank data² at the time of the genocide tax revenues were around 9% of GDP. Rwanda did not have much state capacity as typically measured. How was it able to implement such a policy so effectively? Straus argues that ‘by controlling the state, the hardliners had the capacity to enforce their decisions countrywide’ (p. 8) and ‘the Rwandan state capacity to enforce decisions and mobilize the citizenry was critical to the outcome’ (p. 11). McDoom stresses ‘three distinct dimensions of the state’s power – its capacity, legitimacy, and autonomy – were each consequential for the genocide’ (p. 34).

But what does state capacity mean in Rwanda exactly? We argue that while the Rwandan state did not possess large tax revenues and perhaps other forms of state capacity, what it did have is very dense social links to society. The state was connected to and built upon social networks that criss-crossed the boundaries of state and society. When the state decided to murder Tutsis it could call on these networks, and mobilize them to do the killing. The triggering of social networks in the context of the violence of April 1994 is evident from Straus’ evidence. For example he describes how the carnage started in the commune of Gafunzo after the death of President Habyarimana. He points out that two groups formed, one was of rural elites some of whom ‘had familial ties to the burgomaster’ (p. 70), the other was of military men. The burgomaster was the political head of the commune, at the time of the genocide, the lowest formal administrative unit of the Rwandan state. The first, the elites, ‘issued orders’ (p. 71) to the second, the military men. ‘The armed men in turn went to a common meeting place in the commune – a commercial center – and relayed the order to an assembled crowd. They did so in the name of “the authorities”: the official order became to kill Tutsis’ (p. 71). Here the armed men go to a common meeting place, triggering standard mechanisms for mobilizing

²<https://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS?locations=RW>.

the population. Straus' interviews with participants in the genocide show similar things. One responds to the question 'Did you recruit people for the roadblock?' by saying 'Yes, but always with the other members of the *cellule*' (p. 143). The *cellule* was a level of the Rwandan state below the commune. Another notes that the genocide was 'a communal activity' (p. 141). Straus' data based on his interviews show that 'obedience stemmed from in-group coercion and social pressure: men feared that they would be punished for appearing to refuse to participate in the genocide' (p. 140). In fact 91% of respondents in his survey stated that they had never disobeyed the authorities (Table 5.11: 149).

Straus relates the effectiveness of the genocide to the typical activities of local society noting 'In the Rwandan context, where state institutions are dense at the local level, civilian mobilization is a common state practice' (Straus, 2006: 7) and 'the patterns of mobilization during the genocide strongly resonated with the preexisting practices of labor conscription' (p. 202).³ One such practice is *umuganda* which is unpaid mandatory labor used for 'every thing from digging irrigation ditches to repairing roads to sloganeering for the ruling party' (p. 203). Fully 87% of the people in Straus' survey had taken part in *umuganda*. The practice of *umuganda* is part of an elaborate set of patron client mechanisms via which the state mobilizes civil society.

The way in which the state triggered social networks to implement the violence is recognized in all the studies of the genocide. Thompson (2017: 29) notes 'Social ties, particularly ties to political power at the local level as well as friend, family and business group, shaped how mobs were formed and who led the killing ... Communities where local leaders had close ties to the ruling MRND ... were especially effective leaders of the killing'.

Des Forges, in her seminal analysis (1999: 231) notes that once the decision to implement the genocide had taken place it was also recognized that 'The military ... were too few to kill Tutsi on a massive scale in a short span of time. Executing an extermination campaign rapidly required the mobilization of hundreds of thousands of ordinary people' and 'the interim government directed the administration to carry out this mobilization'. How did that happen? 'Prefects transmitted orders and supervised results, but it was burgomasters and their subordinates who really mobilized the people. Using their authority to summon citizens for communal projects, as they were used to doing for *umuganda*' (Des Forges, 1999: 234). Des Forges again mentions the communal labor. Noting *umuganda* was 'work for the public good, such as repairing roads, digging anti-erosion ditches, or clearing the brush. It was supervised by the *nyumbakumi*, a neighborhood leader in charge of a group of ten households' (p. 42). This is a layer of the state below the *cellule*. The same networks that were used to initiate *umuganda* were used to recruit for the genocide. Des Forges describes how these state officials triggered their networks to begin the Genocide. In Nyakizu the burgomaster was Ladislas Ntaganzwa.

'Ntaganzwa used his inner circle of party and personal supporters to carry out the genocide, backing up the cooperative members of the official hierarchy and supplanting those opposed to the slaughter' (p. 370).

This mobilization of networks is the main theme of Fujii's (2009) book. Her argument, based on ethnographic work in two areas of Rwanda, is that 'What patterned recruitment and targeting were not ethnic allegiances but social and political ties that linked actors across ethnic lines and through multiple roles ... Leaders used ties of family to target family members for recruitment into killing groups. Group ties worked in similar pernicious ways' (p. 153). She emphasizes that 'Not all ties were equal during genocide. The most important were those that emanated to and from those in power' (p. 131).

The case study evidence therefore is overwhelming that the genocide was perpetrated by ordinary Rwandans who were brought into the killing by their networks which linked them to the state. These networks were pre-existing and often were used to initiate other activities such as *umuganda*.

³Purdeková (2016) says 'Contrary to the dominant image of a "weak" African state, the state in Rwanda is dense and intricate' (p. 7) and the state is 'embedded within' society 'in multiple ways' (p. 11). See also Purdeková (2011).

3. Network versus Weberian state capacity

Our argument so far is that the Rwandan state has capacity based on social networks which is not evident from looking at its tax revenues, its bureaucracy, nor necessarily, from its physical presence. Of course at some level, the presence of networks might well be correlated with other aspects of state capacity. To build government offices one can use unpaid labor, and maybe networks can be mobilized to raise tax revenues. As we argue in section 4 however, many traditional African social contracts did not involve taxation. In this section we use data from Heldring (2021) and original sources to investigate the specificity of the type of network state capacity we described above.

To motivate our approach it is useful to recall Vansina's characterization of the traditional Rwandan state where he points out that

'there was no central administration in the country except for the ritualists. The administrative structure of the realm was formed only by the conscription of the whole population into armies, on the one hand, and by the chains of patron-client relations whose supreme patron was the king, on the other' (p. 95).

People certainly did pay 'tribute' in kind. Herders were taxed in terms of cattle and farmers paid 'in the form of cereals or beer or certain manufactures such as bark cloth, skins, honey, and new and used hoes' (Vansina, 2004: 97). But Vansina also points out that 'corvée labor is more important than tribute in maintaining the upper class' (p. 97). Contemporary descriptions of the Rwandan state are quite similar. Purdeková notes the lack of taxation today but stresses the existence of 'alternative but not less potent forms of non-monetary taxation' (2016: 102). This works through the 'ability of the Rwandan state to "mobilize" bodies' leading to the 'indirect but effective ... targeting of people in Rwanda' (2016: 102, 103). Figure 1, reproduced from Newbury (1988), illustrates this system schematically. This shows the spread of the Rwandan state during the period when Rwabugiri was king, between 1853 and 1895. Rwabugiri appointed a provincial chief on the left of the figure under the Ubutaka system. The main objective of this, apart from governance, was the collection of tribute from the land. 'The provincial chief appointed hill chiefs to represent him on the hills under his control. Each hill chief exercised authority over people on one or two hills, and his major role was to collect prestations for land in food products or other items such as hoes, fiber bracelets, or banana beer' (Newbury, 1988: 42). The right of the figure shows another parallel system of Umuheto chiefs whose original role had been to raise men for military service and 'umuheto (unlike ubutaka) authority was not defined on the basis of territorial units' (Newbury, 1988: 43). Instead, it was based on kinship and the umuheto chief was responsible for the 'recruitment of new lineages for umuheto' (p. 43).

What we have been emphasizing in the last subsection is in effect the modern version of Vansina's 'chains of patron-client relations'. Vansina already suggests that these may not be much related, at least historically, to the sorts of things that we typically associate with state capacity (taxation, state buildings). We now investigate more systematically how these chains are correlated with other more conventional measures of state capacity.

How to measure these chains? Following Heldring (2021) we do so by exploiting the historical spread of the Nyiginya kingdom.

3.1. Data and measurement

In the empirical section of this paper we relate our proxy for network state capacity to the presence of Weberian state capacity, and we relate both together to rule following today. In this section we introduce the data we use and discuss measurement.

3.1.1. Network state capacity

We take our measure of state capacity from Heldring (2021). The Nyiginya state expanded slowly over time introducing variation in exposure of different parts of Rwanda to Nyiginya rule. At the time of

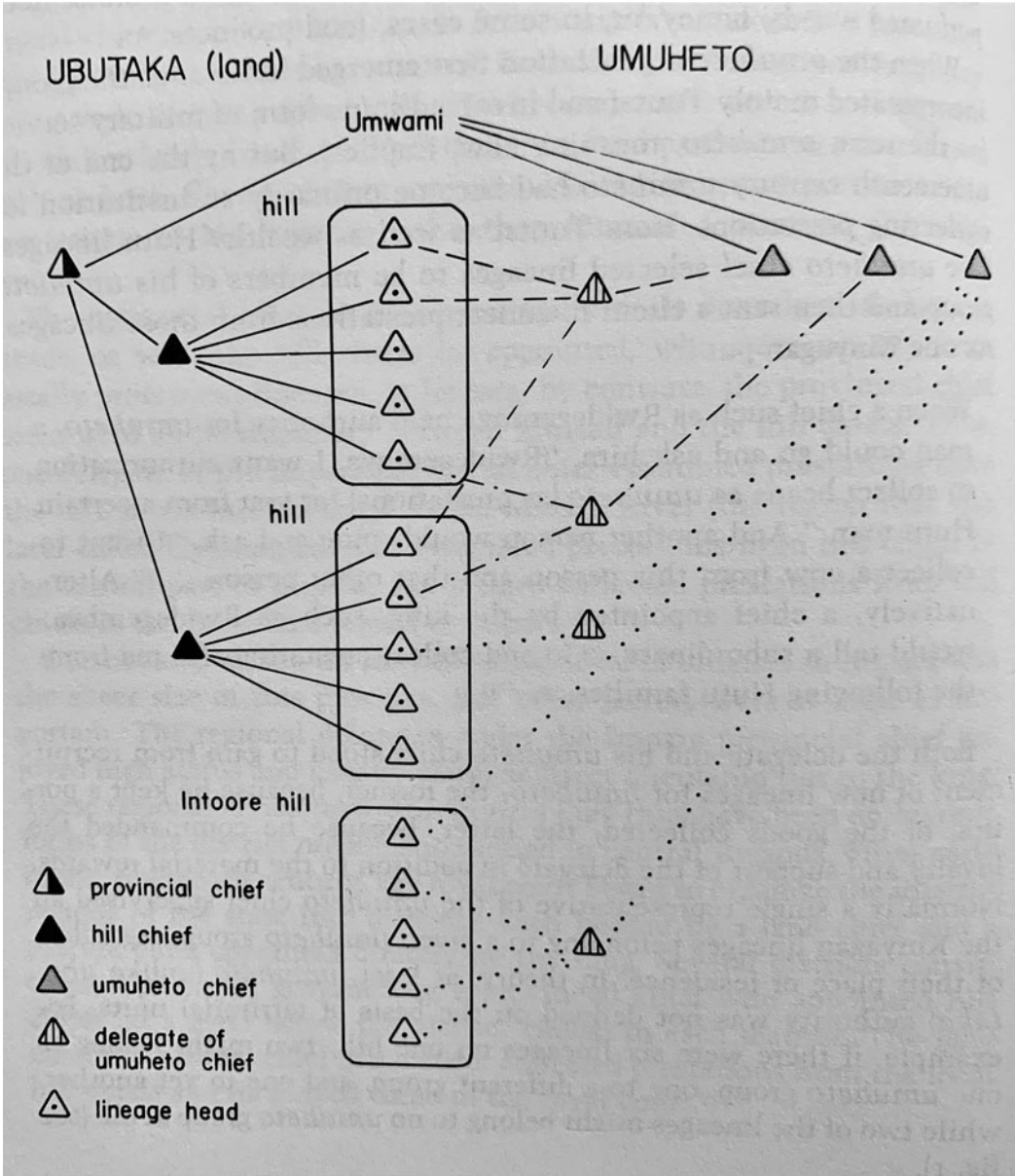


Figure 1. Rwandan segmentary state.

Notes: This is a reproduction of Figure 1 on p. 44 of Newbury (1988). It shows the Rwandan segmentary state. At the top is the King, the Umwami. His former military commanders that conquered an area are now provincial chiefs or umuheto chiefs. They are at the top of the traditional hill and family lineages. The ubutaka and umuheto sides of the segments involve patronage relationships based on the transfer and or usufruct of land or cattle, respectively.

colonization in 1897, some parts of Rwanda had been under Nyiginya rule for over 200 years, whereas others were *de facto* outside state control and were only incorporated with the help of German and, later, Belgian troops (see Botte, 1985a, 1985b on these expeditions). Heldring (2021) reconstructed the timing of the expansion of the state at the level of the regions that the Nyiginya state successively

incorporated. The process he followed is described in depth in the online Appendix to Heldring (2021).⁴

Longer exposure to the Nyiginya state led to higher network state capacity because conquest entailed embedding into the pre-existing segmentary lineage systems (see Vansina, 2004, and in particular Newbury, 1988, on this process). The leaders of the individual armies that conquered a new territory set themselves up – together with the existing lineages – as a new segment. In Figure 1 these are the ‘Provincial chiefs’. These provincial chiefs became the highest level of the bureaucracy, co-opting the lineage segments into a larger segment, mobilizing their traditional authority within the lineage for the purposes of the state. This process had not been completed in newly conquered area by the time the Germans arrived. In particular, Des Forges (2011: 110–111) describes that when a new territory had been incorporated the former army generals (now called ‘notables’):

‘... addressed their demands for goods and services to the lineage head, the spokesman for his family group. When the lineage failed to meet their demands, the notable took him captive and sometimes tortured him until his kin ransomed him. As the lineage heads became responsible for satisfying the demands of the outside authority, some began to seek control over their kin commensurate with their new duties ... they began to rely on their association with the outsiders to build their own authority within their family group’.

In parts of Rwanda where the integration had been going on longer, state capacity was higher, and the Nyiginya state exerted more control. Heldring (2021) describes the full process of the build-up of state capacity in this network sense in more detail in his online Appendix.

We measure network state capacity in two samples. The first is a sample covering all of Rwanda, which we map in Figure 2. The second is a subsample of villages in which Heldring (2021) conducted fieldwork and gathered data on the propensity of Rwandan inhabitants of these villages to follow an unenforced rule in a lab-in-the-field setting. We map these villages in Figure 3. This subsample was collected on either side of the Akanyaru river which was chosen because the expansion of the state stopped for idiosyncratic reasons on the west of the river for almost a century. Thus this border features a large discontinuous jump in the presence of the state and allows for a more controlled comparison than just examining the whole of Rwanda. Econometrically, we can implement a regression discontinuity design.

3.1.2. Weberian state capacity

We measure Weberian state capacity in two ways. For our Rwanda-wide example we collect data from Lamoure (1980), Government of Belgium (1960), and Parliament of Belgium (1935). These sources measure, for each of 142 *communes* the presence of public utilities, schools, hospitals and clinics, other infrastructures such as trade and commercial centers, as well as tax revenue and public expenditure. We normalize these measures by controlling for population of the commune in the 1978 Rwandan census (Ministère du Plan, 1982). We use the historical data because of a concern that if the genocide was heavily dependent on networked capacity, our interpretation of Heldring’s (2021) findings, and if the genocide caused damage and disruption to manifestations of Weberian capacity, using more contemporary measures might lead one to spuriously find a zero correlation between the different measures of capacity.

For the fieldwork sample, Heldring (2021) collected data on the presence of police offices, local government offices, corruption, and bureaucratic accountability in each of the 21 fieldwork villages.⁵

⁴Available at <http://www.leanderheldring.com/>.

⁵Though these measures of state capacity are all standard in the literature it would be desirable, especially from a Weberian perspective, to be able to measure the extent of bureaucratization, as in Evans and Rauch (1999). Unfortunately, we do not have analogous measures to these at the sub-national level in Rwanda and in any case it is doubtful that the type of data they collected varies at this level.

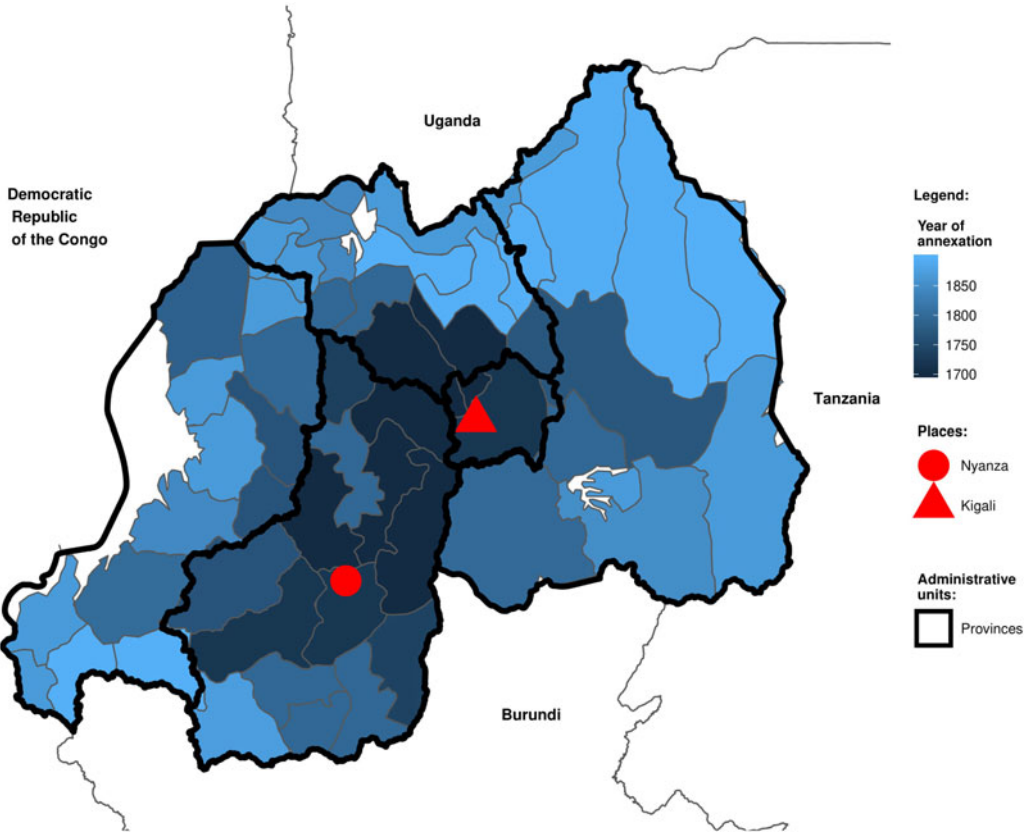


Figure 2. Map of the Nyiginya expansion.

Notes: This map is reproduced from Heldring (2021). It shows districts in pre-colonial Rwanda. A darker shade indicates districts that have a longer history of centralized rule as part of the Nyiginya kingdom. Additionally, Nyanza and Kigali, as well as modern province boundaries are indicated.

3.1.3. Rule following in the field

For our fieldwork sample, we relate network and Weberian state capacity to the tendency of contemporary Rwandans to follow an unenforced rule. Heldring (2021) implemented the random allocation game pioneered by Hruschka *et al.* (2014), in which participants make a sequence of monetary allocations between themselves and a partner. The allocations are based on a rule, which applies based on a coin flip. Not following the rule privately benefits participants, who are un-monitored in the experiment. In our implementation, the partner is the Rwandan government. Randomization through the coin flip is key. It ensures that over larger numbers of participants, we expect allocations to be in line with the (fair) coin. Comparing actual allocations to predicted allocations, Heldring (2021) interprets compliance with the rule as a measure of obedience or pro-sociality toward the government. Heldring (2021) implemented this experiment on either side of one of the boundaries separating one of the expansions of the Nyiginya state as we discussed. Heldring (2021) finds that Rwandans are more likely to follow an unenforced rule in a lab setting where the state established earlier. In this paper, we relate rule following in this experiment to the presence of the local ‘Weberian’ state as well.

We present full summary statistics for all variables used in this paper in Table 1.

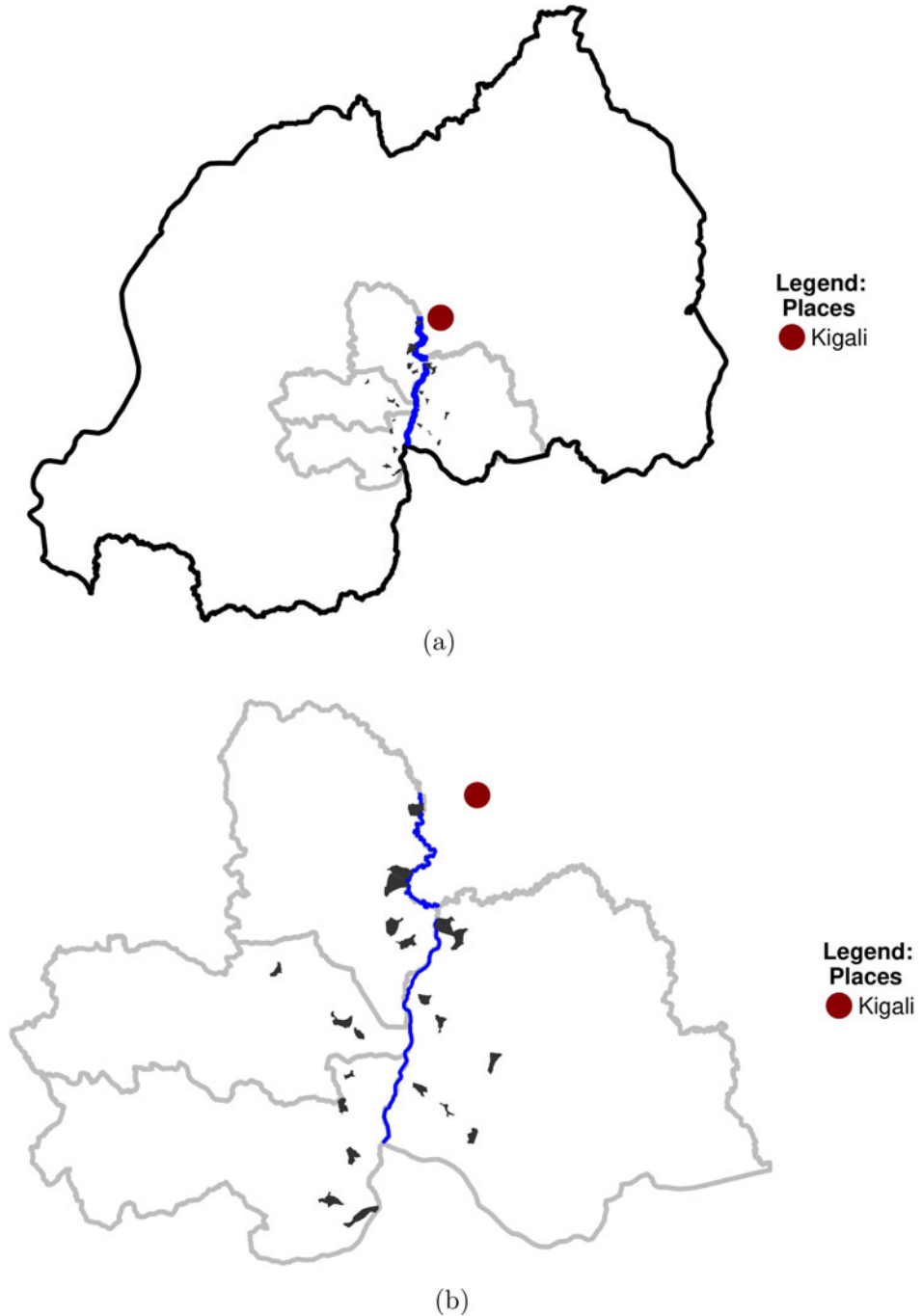


Figure 3. Location of participants in the rule-following experiment.

Notes: These maps are reproduced from Heldring (2021). Subfigures (a) and (b) map the villages that are in the fieldwork sample. In (a), the black line demarcates Rwanda's national boundaries and the districts within which participating villages are randomly selected are depicted in gray. Villages are depicted in black. The boundary separating the villages by their exposure to the Nyiginya kingdom is indicated in blue. Subfigure (b) depicts districts in gray, villages in black, and the boundary separating the villages by their exposure to the Nyiginya kingdom is indicated in blue. Kigali, Rwanda's capital city, is also indicated.

Table 1. Summary statistics

	<i>N</i>	Mean	SD	10th percentile	90th percentile
Unit of observation: commune					
Energy centers 1980	142	0.19	0.44	0.00	1.00
Energy transformers 1980	142	0.25	0.70	0.00	1.00
Water installations 1980	142	0.39	0.64	0.00	1.00
Water pumps 1980	142	0.15	0.39	0.00	1.00
Primary schools 1980	142	11.04	3.90	7.00	16.00
Secondary schools 1980	142	0.87	0.83	0.00	2.00
Secondary technical schools 1980	142	0.05	0.22	0.00	0.00
Hospitals 1980	142	21.35	62.51	0.00	80.00
Maternity clinics 1980	142	10.16	14.93	0.00	32.00
Health clinics 1980	142	16.09	18.15	0.00	40.00
Other clinics 1980	142	2.45	20.61	0.00	0.00
Social centers 1980	142	3.45	1.43	2.00	5.00
Reading centers 1980	142	1.97	2.09	0.00	5.00
Nutritional centers 1980	142	0.68	0.68	0.00	1.00
Orphanages 1980	142	0.25	0.67	0.00	1.00
Agricultural cooperatives 1980	142	0.14	0.35	0.00	1.00
Markets 1980	142	1.29	0.99	0.00	3.00
Trade centers 1980	142	1.11	0.90	0.00	2.00
Commercial centers 1980	142	0.11	0.31	0.00	1.00
Tax received per capita (RWF) 1980	117	3,886.99	1,548.83	2,564.20	5,579.90
Trade tax received per capita (RWF) 1980	117	956.98	1,070.38	275.00	1,821.30
Other taxes received per capita (RWF) 1980	117	1,076.24	1,251.02	152.30	2,158.60
Public expenditure per capita (RWF) 1980	134	3,821.35	1,462.72	2,567.10	5,240.00
Administrative expenditure per capita (RWF) 1980	134	1,915.46	428.68	1,498.80	2,391.90

(Continued)

Table 1. (Continued.)

	<i>N</i>	Mean	SD	10th percentile	90th percentile
Social expenditure per capita (RWF) 1980	134	566.16	275.94	317.60	850.70
Economic expenditure per capita (RWF) 1980	134	844.75	474.03	375.00	1,369.10
Hospitals 1935	142	0.02	0.05	0.00	0.10
Hospitals 1960	142	0.06	0.06	0.00	0.13
Number of missionary stations 1924	142	0.01	0.03	0.00	0.05
Number of missionary stations 1935	142	0.02	0.05	0.00	0.10
Number of schools 1960	142	1.06	0.58	0.47	1.90
Population density 1978	142	178.19	220.59	72.37	302.81
Travel distance to Nyanza along 1988 road (m)	142	102,604.16	47,893.03	42,656.09	164,035.97
Travel distance to Kigali along 1988 road (m)	142	97,901.29	52,864.96	32,918.60	156,975.97
Distance to country border (m)	142	22,830.37	13,556.94	5,275.98	42,420.54
Unit of observation: individual. Sample: experiment participants					
Compliance with tax demand (% of base)	416	71.34615	27.29979	40	100
State presence (dummy)	422	0.6184834	0.4863354	0	1
Age	420	39.9119	13.53734	24	58
Male dummy	422	0.450237	0.498108	0	1
Education in years	420	5.454762	3.462772	0	11
Daily income (RWF)	420	1,261.986	5,116.758	0	2,555.556
Unit of observation: village. Sample: villages in experiment					
Local government office dummy (m)	21	0.3333333	0.4830459	0	1
Police office dummy (m)	21	0.047619	0.2182179	0	1
Distance to local government office (m)	21	1,066.554	871.0438	0	2,738.301
Distance to nearest police office (m)	21	7,602.264	4,814.07	891.8403	17,859.45
Corruption cases	21	0.8571429	1.49284	0	6
Calls to reach local government	21	4	2.32379	2	10

Data sources are in the body of this paper.

3.2. Results

In this section we present our main results: in our Rwanda-wide sample the state capacity inherent in Rwanda's social networks is uncorrelated with Weberian state capacity. In our fieldwork sample, our proxy for network state capacity is predictive of rule following, whereas Weberian state capacity is not.

3.2.1. Econometric models

We start with studying the relationship between network and Weberian state capacity across all of Rwanda. Results are given in Table 2. Each panel studies a different class of Weberian state outcomes, which we regress on historical state presence, measured in years in the following simple model, which we estimate using ordinary least squares (OLS):

$$Y_c = \beta_0 + \beta_1 \text{StatePresence}_d + X'_c \beta_3 + \epsilon_c \quad (1)$$

Here, Y_c is a measure of Weberian state capacity, such as total tax revenue, for commune c ($n = 142$). StatePresence_d is the number of years before 1897 that a commune was part of the Nyiginya state, as introduced in the previous section. This measure varies at the level of the pre-colonial district (labeled d , $n = 48$). X_c is a vector of covariates. We control for driving distances to Kigali and Nyanza, Rwanda's current and historical capitals (both are mapped in Figure 2), along the 1988 road network. We also control for population density in the 1978 census, and distance to the national border. Finally, we include a vector of modern province fixed effects, which divide the country up in four quadrants – north, east, south, west – and the area around Kigali. ϵ_c is a heteroskedasticity robust standard error, which we cluster at the pre-colonial district level since this is the level of the treatment. We standardize all variables to have zero mean and unit standard deviation. All estimated effects are therefore expressed in standard deviations.

For our fieldwork evidence, we estimate the following model, also using OLS:

$$Y_{iv} = \beta_0 + \beta_1 \text{StatePresence}_v + X'_{iv} \beta_3 + f(\text{location}) + \epsilon_{iv} \quad (2)$$

Here, Y_{iv} is the amount allocated to the government in the fieldwork by individual i in village v , normalized by a full compliance benchmark. StatePresence_v is an indicator variable equal to 1 if village v was incorporated early, rather than late, into the Nyiginya state. $f(\text{location})$ is a linear function of distance to the study boundary interacted with StatePresence_v , allowing for differential effects of proximity to the study boundary. X_{iv} is a vector of covariates. It includes age, age squared, and a gender dummy, as well as equivalent daily income in Rwandan Francs (RWF) and education in years. Given the low number of clusters ($n = 21$), we follow Young (2019) and compute p -values from a permutation test to assess statistical significance if heteroskedasticity robust standard errors suggest the presence of a correlation. We standardize variables here as well, as in our observational sample.

Heldring (2021) proposed various strategies to resolve concerns that omitted variables might be correlated with both StatePresence_d and outcome variables of interest. In this exercise we are less interested in proposing a causal interpretation of our results – we are not arguing that StatePresence_d causes Weberian capacity in any sense. For our purposes the correlation is sufficient to make our point. Nevertheless, it is worth observing that, as anticipated, (2) is a simple form of a regression discontinuity design and as long as all other variables change smoothly at the boundary then we will estimate the causal effect of StatePresence_d by estimating this equation. We find this casual effect to be zero.

3.3. Results: observational evidence

Table 2 reports estimates of equation (1). Panels I–VII each report different classes of measures of Weberian state capacity. In panels I and II we study various categories of tax receipts in RWF, as well as government expenditures. As we control for population density, these are the Rwandan local equivalents of the most widely used measures of Weberian state capacity in the literature cited

Table 2. Estimates of the effect of state presence on local government in 1980

	(1)	(2)	(3)	(4)
<i>Panel I: Fiscal capacity</i>	Tax received per capita 1980	Trade tax received per capita 1980	Other taxes received per capita 1980	
State presence (years)	-0.000119 (0.0959)	0.0587 (0.0564)	0.0533 (0.146)	
Observations	113	113	113	
R^2	0.556	0.476	0.415	
<i>Panel II: Government expenditure</i>	Public expenditure per capita 1980	Administrative expenditure per capita 1980	Social expenditure per capita 1980	Economic expenditure per capita 1980
State presence (years)	0.0404 (0.102)	0.117 (0.0728)	0.00757 (0.0807)	0.0820 (0.143)
Observations	129	129	129	129
R^2	0.487	0.453	0.317	0.305
<i>Panel III: Energy and water</i>	Energy centers 1980	Energy transformers 1980	Water installations 1980	Water pumps 1980
State presence (years)	0.0503 (0.105)	-0.113 (0.105)	-0.142 (0.181)	-0.0483 (0.103)
Observations	137	137	137	137
R^2	0.180	0.100	0.064	0.082
<i>Panel IV: Education</i>	Primary schools 1980	Secondary schools 1980	Secondary technical schools 1980	
State presence (years)	-0.320** (0.124)	-0.0288 (0.123)	-0.0174 (0.0834)	
Observations	137	137	137	
R^2	0.399	0.101	0.066	

(Continued)

Table 2. (Continued.)

	(1)	(2)	(3)	(4)
<i>Panel V: Health</i>	Hospital beds 1980	Maternity clinics 1980	Health clinics 1980	Other clinics 1980
State presence (years)	−0.0418 (0.0942)	0.0574 (0.0884)	0.345** (0.145)	0.0512 (0.0527)
Observations	137	137	137	137
R^2	0.099	0.092	0.125	0.127
<i>Panel VI: Social services</i>	Social centers 1980	Reading centers 1980	Nutritional centers 1980	Orphanages 1980
State presence (years)	0.0483 (0.125)	0.218 (0.165)	0.0449 (0.179)	−0.124 (0.129)
Observations	137	137	137	137
R^2	0.132	0.078	0.098	0.026
<i>Panel VII: Commercial institutions</i>	Agricultural cooperatives 1980	Markets 1980	Trade centers 1980	Commercial centers 1980
State presence (years)	−0.149 (0.118)	0.00754 (0.125)	0.171 (0.153)	0.0755 (0.120)
Observations	137	137	137	137
R^2	0.141	0.093	0.149	0.045
Population density 1978	Y	Y	Y	Y
Travel distance to Nyanza along 1988 road	Y	Y	Y	Y
Travel distance to Kigali along 1988 road	Y	Y	Y	Y
Distance to country border	Y	Y	Y	Y
Number of clusters	48	48	48	48

Notes: All regressions are estimated using OLS. The unit of observation is an administrative commune in 1980. All estimated coefficients are standardized. State presence (years) is the number of years a sector was under centralized rule before colonization in 1897. All regressions include fixed effects at the modern province level. Parentheses report clustered standard errors at the level of the pre-colonial district. * indicates significance at the 10% level, ** at the 5% level, *** at the 1% level.

Table 3. Estimates of the effect of state presence on local government

Dependent variable	Hospitals 1935 (1)	Hospitals 1960 (2)	Hospital beds 1980 (3)	Number of missionary stations 1924 (4)	Number of missionary stations 1935 (5)	Number of schools 1960 (6)
State presence (years)	0.163 (0.180)	-0.101 (0.183)	-0.0182 (0.0991)	0.111 (0.0936)	-0.0690 (0.126)	-0.117 (0.108)
Travel distance to Nyanza along 1988 road	Y	Y	Y	Y	Y	Y
Travel distance to Kigali along 1988 road	Y	Y	Y	Y	Y	Y
Distance to country border	Y	Y	Y	Y	Y	Y
Number of clusters	50	50	50	50	50	50
Observations	137	137	137	137	137	137
R^2	0.048	0.017	0.085	0.051	0.057	0.396

Notes: All regressions are estimated using OLS. The unit of observation is an administrative commune. All point estimates are standardized. State presence (years) is the number of years a sector was under centralized rule before colonization in 1897. Travel distance is defined as the distance (in kilometers) between the centroid of a pre-colonial district and an endpoint along the Rwandan road network in 1988. All regressions include fixed effects at the modern province level. Parentheses report clustered standard errors at the level of the pre-colonial district.

* indicates significance at the 10% level, ** at the 5% level, *** at the 1% level.

in the Introduction. Panels III–VII capture different aspects of Weberian state capacity and public good provision, from public utilities (panel III) to education (panel IV) to health infrastructure (panel V), to social and commercial services and infrastructure, such as orphanages and agricultural cooperatives (panels VI and VII). Across nearly all measures of Weberian state capacity we find a precise zero correlation. In only one case, health clinics in 1980, there is a statistically significant positive correlation. Moreover, there is no clear pattern in the signs. Some correlations are positive while others are negative. In other words, network state capacity is uncorrelated with Weberian state capacity across communes in Rwanda in 1980. In [Table 3](#) we extend this result back in time into the colonial period for two variables for which we have information going back: the presence of hospitals (in 1935 and 1960, as well as hospital beds in 1980) and schools (in 1960) or missionary stations (in 1924 and 1935).⁶ We – similarly – find no effect of network state capacity for Weberian state capacity going back in time.⁷

3.4. Results: experimental evidence

In [Table 4](#) we take a different approach and study whether individual rule following behavior of Rwandans *today* can be explained by network or Weberian state capacity in a horse race exercise.

⁶Though the presence of missions is not part of the traditional Weberian state, missionaries did play key roles in bolstering state authority during the colonial period in Rwanda, so it is interesting to study how their presence correlates with historical state presence.

⁷Note that column (3) of [Table 3](#) and column V-(1) of [Table 2](#) are the same. We have added this column to [Table 3](#) to compare across time.

Table 4. Effect of state presence and the modern state on rule following

Dependent variable	Rule following (% of full-compliance benchmark)					
	(1)	(2)	(3)	(4)	(5)	(6)
Early state	0.161**	0.193**	0.151*	0.194**	0.159**	0.158**
<i>Robust SE</i>	(0.0761)	(0.0767)	(0.0775)	(0.0789)	(0.0760)	(0.0765)
<i>Permutation test p-value</i>	0.028	0.042	0.003	0.0236	0.019	0.022
Local government presence						
Local government office dummy	0.0204					
	(0.0485)					
Distance to local government office		0.0394				
		(0.0468)				
Police office dummy			-0.0768			
			(0.0631)			
Distance to police office				0.0714		
				(0.0772)		
Local accountability						
Corruption					0.0891	
					(0.0694)	
Calls to reach local government						0.0346
						(0.0612)
Demographic controls	Y	Y	Y	Y	Y	Y
<i>f(location)</i>	Y	Y	Y	Y	Y	Y
Observations	414	414	414	414	414	414
R^2	0.039	0.047	0.039	0.039	0.038	0.039

Notes: All regressions are estimated using OLS. The unit of observation is an individual respondent. All coefficients are standardized. Local government office dummy is an indicator variable equal to 1 if a sample village has a sector office within its boundaries. Police office dummy is an indicator variable equal to 1 if a sample village has a police station within its boundaries. Distance to nearest local government office is the distance in meters to the nearest sector office. Distance to nearest police station is the distance in meters to the nearest police office. Corruption is the number of corruption cases recorded by the Rwandan ombudsman involving village government in 2010–2013. Calls to reach local government is the number of business-hour phone calls it takes to reach the sector and cell secretaries in December 2015. Early state is an indicator equal to 1 if a respondent lived on the West side of the study boundary when the fieldwork was conducted in October 2014. The *p*-values of the permutation test give the fraction of *t*-statistics greater than the *t*-statistic of the estimated effect using the observed early state dummy across 5,000 permutations of the early state dummy. Demographic controls include age, age squared, and a dummy for gender. *f(location)* is the distance to the study boundary interacted with the early state dummy. Distance to Kigali is included as a covariate in all regressions.

* indicates significance at the 10% level, ** at the 5% level, *** at the 1% level.

Our outcome in all columns is individual rule following, expressed as a fraction of a full compliance benchmark in the rule following experiment that we described above. The mean of this variable is about 0.7. A central result in Heldring (2021) is that Rwandans who today live close to a boundary where the expanding Nyiginya kingdom halted for 100 years are more likely to follow an unenforced rule than Rwandans who are on the other side of this boundary. We reproduce this result in row 1 of

Table 4 where we observe a positive and significant relationship between state presence (now measured by an indicator) and rule following. In this paper we add several measures of Weberian state capacity in each regression.

In column (1) we add an indicator whether there is a local government office located in a fieldwork villages. The relevant local government level is the *sector* and there are several villages in a sector. Therefore, one village within a sector will be home to the sector office. We observe that either having a sector office in a village or being closer to one (column (2)) does not correlate with rule following. In columns (3) and (4) we observe the same for police offices. Although the effect of the historical presence of the state stays stable and robust, there is no correlation between the presence or proximity of the police on rule following. In column (5) we measure corruption in a fieldwork village using publicly available data on corruption from the Rwandan ombudsman. In column (6) we measure the responsiveness of the Weberian bureaucracy, in the following way: we measure the total number of calls it takes to reach the lowest level government official that has an office, the cell executive secretary. All calls to a specific government official were made within the same day by a native Rwandan. In order to reach the cell executive secretary it is necessary to call the district office and obtain the cell phone number of the sector executive secretary who, in turn, has the contact details of the cell executive secretary. At the district level, there is generally a dedicated person to pick up the phone, but at lower levels, the executive secretary himself answers the phone. When a call is answered at the district level we ask for relevant phone numbers. At the sector and cell levels we avoid raising suspicion by asking about the number of employees at each level. This number is regulated by law and was the same in all offices which were called (nine individuals at the sector level, and two at the cell level). We measure of responsiveness by the sum of the number of calls it takes to reach the sector executive secretary and the number of calls it takes to reach the cell executive secretary. We consider a person reached when the call is either answered or returned. Neither corruption nor our measures of bureaucratic responsiveness correlate significantly with individual rule following.

In this section we have provided empirical evidence consistent with the main assertion in this paper: the network state capacity that enabled the Rwandan state to organize an extermination campaign in 1994 is of a different nature than traditional Weberian state capacity: although our proxy for network state capacity correlates strongly with violence in the genocide and with less violence before and after the genocide when the state pursued peace (Heldring, 2021) it is uncorrelated with Weberian state capacity. Even today, variation in rule following behavior is correlated with network state capacity, and not at all with Weberian state capacity. This second finding is the basis for the rest of our paper, where we argue that Rwanda's current growth miracle is driven in part by the ability of the government to once again leverage its' capacity which is inherent in the social networks linking state to society.

4. African social contracts: traditional and modern

Our argument here is that the modern Rwandan state is a continuation of a particular type of traditional state in Africa first identified by Southall (1956). Southall based his notion of the 'segmentary state' on several key ideas. First, that African society was very personalistic and based on what Miers and Kopytof (1977) called 'wealth in people' where social connections were valued more than material objects (classic studies are Berry, 1989; Bledsoe, 1980; Guyer, 1993). Second, that Africans, as we mentioned above, were intent to 'safeguard the internal autonomy of each community' as Vansina puts it (1990: 119). In consequence the desire to take advantage of larger scale 'led to the birth of new forms of association to safeguard the autonomy of the basic community in a time of expansion' (Vansina, 1990: 119). Thus when states formed, as they did in the area of Uganda that Southall studied, and in Rwanda, they had to respect these fundamental principles as constraints.

The segmentary state was an innovation which achieved this. Southall (1988) defined this as a state in which

the spheres of ritual suzerainty and political sovereignty do not coincide. The former extends widely towards a flexible, changing periphery. The latter is confined to the central, core domain (p. 52).

Southall's use of the word 'suzerainty' was meant to emphasize that a segmentary state had the property that it fused a centralized state with independent social groups which remained autonomous from centralized control.

Why did Africans place so much emphasis on autonomy? One idea which recurs persistently in the academic literature is the importance of the community above, or in tandem with, the individual in African philosophy (see Gyekye, 1996). Since the creation of centralized authority posed a threat to the community and its values, this led to greater opposition to centralization than would have occurred in a society which was purely individualistic. This might be the root of Vansina's emphasis on autonomy. Another perspective, developed initially by Tempels (1959), is that Africans were ideologically committed to the lineage as an institution. As he puts it, Africans have 'an ontological duty to preserve the clan ... It is consequently impossible for them to will the destruction of the clan' (p. 152) and 'a political set-up which conflicted with this principle could never be received as consonant with the Bantu mind' (p. 123). State formation had to reconcile this ideology with the benefits of centralization and did so by innovating the segmentary state. It is significant that more dramatic instances of centralization in Africa usually have oral histories which associate state builders with incest and violations of rules of exogamy, symbolic of a rejection of clan-lineage principles (see Vansina, 1978, for the Kuba case, or de Heusch, 1982, for other examples).

Instead of being integrated through bureaucracy or the types of centralized institutions associated with Weberian states, segmentary states were integrated by kinship, for example with members of the Alur marrying into the societies with which they fused, something which we see in Rwanda as well.

Though the existing accounts of the formation of the Rwandan state which emphasize its' segmentary nature focus on the second half of the 19th century (Des Forges, 2011; Newbury, 1988) there is a great deal of evidence which speaks to the persistence of these structures. Lemarchand studied in detail the persistence of traditional institutions into the post-independent period even calling the first republic a 'mwamiship' after the name from the king of the pre-colonial Nyiginya kingdom, the mwami. His terminology emphasizes how post-colonial institutions got their legitimacy from pre-colonial structures. He notes 'behind the formal institutional framework of the republic lies a traditional role structure which continues to mould the attitudes and strategies of most political actors' (1970: 278). On the relationship between burgomasters of communes and chiefs see Reyntjens (1987) and McDoom (2020) who comment on how the 'modern day prefects and burgomasters resembled the traditional chiefs and sub-chiefs' (p. 251). Purdeková (2016) notes that the modern 'intricate state organization has roots that reach to the pre-colonial Nyiginya kingdom' (p. 91). She also observes that 'More than control over territory ... administrative governance emphasizes the direct and indirect control over people produced through access' (2016: 91). Exactly the key feature of a state formed in the context of 'wealth in people'.

A final aspect of the traditional segmentary state, stressed by Southall, is worth flagging here: such states did not typically involve taxation (Robinson, 2022). From the perspective of the people who were integrated into a state by the Alur, the advantage of this particular type of state is that it created some benefits of scale while preserving their autonomy. Thus the social contract was limited in the sense that people did not want to create a state with massive penetrative power. Tribute there was, but not taxation. What we have seen in the Rwandan case is similar. Despite the state being able to mobilize society to a much greater extent than other similar states, the segmentary capacity has not manifested itself in Weberian capacity. One might have thought this was odd; could one not use segmentary capacity to induce people to pay taxes, or perhaps get them to build public buildings or other trappings of a Weberian state? We believe the answer to this is no because even the contemporary Rwandan Patriotic Front (RPF) regime is limited by African's traditional ideas of the legitimate actions of a state and indeed, it is because the RPF understands and respects this, that it is so effective today.

5. The Rwandan growth miracle

Since the genocide Rwanda has turned from a very poorly performing economy, indeed, one of the poorest places in the world, into a very rapidly growing one. There is a lot of debate about why the goals of the current government under President Paul Kagame have focused so relentlessly on development (see Straus and Waldorf, 2011; for overviews see Chemouni, 2016; Kimonyo, 2019). Our purpose here however is to illustrate that whatever the reason for this, the ability of the Rwandan state to be ‘developmental’ has rested critically on the same type of state capacity that perpetrated the genocide. The success of this development experience is based on leveraging exactly the type of state capacity we described above. Heldring (2021) showed that before and after the genocide, when the goals of the state were different from murdering the Tutsis, there was actually a negative correlation between state history and violence. Now we use case study and qualitative evidence to show that after 1994, when the goals of the RPF regime involved development, they have used the network capacity of the state to promote it.

At some level this has not escaped scholars of Rwanda who have observed that ‘post-genocide Rwanda exhibits strong patterns of continuity with pre-genocide Rwanda’ (Straus and Waldorf, 2011: 15).⁸ Moreover, analyzing the reach of the post-genocide RPF state, Ingelaere notes how the ‘power structures are precisely what made the administration of violence so viciously efficient in 1994’ (2011: 68). Purdeková, (2016) describes the organization of the post-genocidal state from her fieldwork using the same concepts as the scholars who have tried to explain the unfolding of the genocide noting ‘the primary governance tool ... is tracing through the spreading webs of people that make up the administration’ (p. 91).

The elements of the Rwandan growth story are many.⁹ Central, however, has been a focus on export agriculture with programs of land reclamation and tiling, village-ization, the enrolment of people into cooperatives focused on the production of export crops in areas most suited for their production (Huggins (2017: 39) summarizes the many planks of the agenda). The preponderance of research on this rural transformation shows that it is, ‘an engineered facet of Rwandan society today’ (Huggins, 2017: 72, quoting Johan Pottier). The government has not left it to the market to decide what to plant and how to organize production, instead, like all developmental states, it has developed a plan and implemented it. Our interest is in how, in a seemingly weak state, it has been able to do this.¹⁰

The state has systematically re-organized rural populations. Moving hundreds of thousands into new villages and inducing them to join cooperatives to take advantage of scale economies. The state has also stipulated which crops are to be grown where in an attempt to make different parts of Rwanda specialize in export crops for which they are particularly suited in terms of ecology. The state decided that cooperatives were ‘useful mechanisms for implementation of policy and insisted that citizens join them’ (Huggins, 2017: 77). What happened if people did not want to join such cooperatives? Huggins and other scholars record that they were subject to significant penalties and he compares these mechanisms to ‘the fabric of the government system that led the population into genocide’ (p. 77). Huggins shows how ‘government blueprints for agricultural production are implemented through recourse to highly context-specific relationships’ (p. 3) and just like threats and sanctions were wielded during the genocide to induce killing, now ‘state actors called upon people to grow maize because it was their patriotic duty to do so’ (p. 4) and ‘farmers avoiding government-approved crops risk being accused of sedition and hatred of the Rwandan nation itself’ (2017: 5).

Particularly revealing are Huggins’ case studies of the impact of the state’s agricultural policies in different regions. One study focuses on the formation of agricultural cooperatives in Musanze district. Here he shows how ‘farmers are under pressure from state agronomists and local authorities to devote

⁸See also Desrosiers and Thomson (2011) on continuities.

⁹See Behuria and Goodfellow (2017) for example, on the importance of services.

¹⁰Mirroring the dominant literature on the implications of patrimonialism, segmentary structures have also certainly been used for redistributive purposes and patronage, e.g. Ansoms (2013).

most of their land to ... commercial crops' (p. 120). Farmers were threatened with fines if they did not do this and 'local officials threatened to uproot all crops' (p. 121) except those stipulated and indeed 'crops were uprooted'. Huggins shows that this development had many networked elements. Central was the role of Mr. Nsansuwa in the local cooperatives an event which showed that 'the lines between an essentially private initiative and a government program were blurred' (p. 124). Huggins notes the significance of Nsansuwa was that 'Of the approximately eighty families living in this area, a significant proportion were distant relations of Nsansuwa' (p. 124). Nsansuwa became a powerful intermediary between local society and the state in the implementation of the new agricultural policy. His power derived from 'state policy, but also from his wealth, personal kinship networks and other geographically specific forms of power' (p. 135). He connected the local networks to the state in ways which helped to implement the new policy.

Another case study examines the expansion of maize production in Kirehe district. Here the government decided that 7 of the district's 12 sectors should specialize in maize production. 'Farmers were obliged to collect government approved maize seed (supplied free) and fertilizers (for which the farmers signed a credit agreement) from cellule offices' (Huggins, 2017: 160). The productivity impact was impressive leading to a 500% increase in production between 2004 and 2011 (p. 163). Farmers who criticized the policy 'were punished, mostly through fines' (p. 165) and those who could not repay their fertilizer debts 'had household possessions – bicycles or goats – seized' (p. 165). All of this was put under the control of a private firm Enterprise Nkubili Alfred and Sons (ENAS) and Huggins comments that 'the success of ENAS stems in part from its connections with the local authorities and the police' (p. 166).

What is remarkable here is the ability of the state to stipulate and implement such a complex array of rules and punishments. Ingelaere (2011: 74) reproduces an official document specifying 29 different classes of infringements that people might commit including various types of refusal to take part in collective activities (such as digging canals and taking part in 'nocturnal security patrols', 'Cutting trees without permission', 'Consumption of beers in cabarets or at home with straw' to being 'Someone without clean clothing and body hygiene'). Infractions of these rules are punished with fines of 10,000 RWF, about 30 times the average daily wage at the time. All the evidence suggests that people are indeed punished for violations of such rules. As a testament to the effectiveness of this, Gaspard, a judge, told Thompson 'at the lowest levels, it can feel very heavy. If you are having an affair, they know. If you are drunk or if your house is in disrepair, they know. If you fail to attend sensitization meetings, they know ... So there are a lot of people watching you, checking on your actions and the people you are with' (Thompson, 2017: 205).

The administration of the state reaches deeply into society. Ingelaere (2011: 70) outlines the structures prior to the administrative reform of 2002. The multiple layers were prefectures (provinces), communes (municipalities), sectors, cells *cellule*, a layer called *umudugudu*, and at the lowest level *nyumbakumi* which were groups of 10 households (p. 68). Even members of the councils of the higher sector structures are not paid. Beneath the level of the sectors there was an executive secretary of the cell but apart from this position no other positions at this level or below were salaried (see also Ansoms, 2009; Purdeková, 2016: 93). This perhaps helps to explain how the Rwandan state can have so much capacity yet at the same time not be a 'fiscal state'. The penetration of society by the state is very evident at the lower levels and Huggins points out that 'These committee structures ensure that many adult members of the local population are involved in the administrative machinery in some way' (2017: 102).

Since 1994 the state is of course closely associated with the RPF political party. These develop networks and integrate those that exist. Thompson's characterization of this situation is that 'good citizens are members of the RPF family' (2017: 159). Indeed, 'The full name of the RPF is *Umuryango RPF-Inkotanyi*. *Umuryango* has different shades of meaning, it can mean "association" but is used most often to mean "extended lineage" or simply "family"' (Purdeková, 2016: 94). Purdeková reports one interviewee, an RPF recruit, as telling her that 'the RPF is not a party but rather like a family and that all Rwandans should be part of it' (2016: 94). Moreover, 'The ruling RPF also seeks to incorporate

most citizens into its vanguard party – known as the *umuryango* (family lineage) – through recruitment drives, “animation” sessions’ (Straus and Waldorf, 2011: 10). Rather like the Nyiginya state, the RPF attempts to create a segmentary model of society.

The case study evidence then is overwhelming that the post-genocide RPF state uses the same strategies and instruments to promote development that were used to promote murder during the genocide. It can promote economic growth because it can tap into the dense social networks that link the state to society and it can also use these to transform the economy. This can implement policy without any relationship to the physical presence of the state or without being geographically correlated with Weberian aspects of the state, such as tax receipts. A relevant example comes from Chemouni (2018) who documents that Rwanda is the country with the highest enrolment in health insurance on the African continent. Even if the policy was not very popular, it was achieved by non-paid community health workers – networked state capacity in action.

6. Conclusion

In this paper we made an attempt to use the Rwandan case to problematize the notion of state capacity. We have argued that on any sensible definition the Rwandan state has a lot of capacity. Yet, in opposition to a Weberian state, which relies on taxation and formal bureaucracies to implement its policies, the Rwandan state relies on dense networks of horizontal and vertical social ties to society to implement policies.

Historically, the pre-colonial state in Rwanda expanded by embedding itself into the pre-existing segmentary lineages that structured social life on each of its thousand hills. We follow Heldring (2021) and use this expansion as a way to measure differences in the strength of the networks connecting state and society. We show that state capacity, measured in this way, is uncorrelated with Weberian state capacity measured in 1980. These results are consistent with our claim that network state capacity is not just another proxy for Weberian state capacity, but a separate object of interest. We bolster this claim by presenting evidence from a fieldwork exercise in rural Rwanda. Rwandans who today live in villages that have a longer history of being under a segmentary state have a higher propensity to follow an unenforced rule in a laboratory setting. The presence of the Weberian state in a village does not correlate with rule following.

A large case study literature has showed that the 1994 Rwandan genocide was organized by the government, and Heldring (2021) showed that parts of Rwanda that were incorporated into its historical Nyiginya kingdom experienced more violence. We build on this result by showing this effect works through the network structure of the state. This does not mean, however, that network state capacity is particularly well suited to implement socially destructive policies. We survey the recent literature on Rwanda’s post-genocide growth miracle, and reach two conclusions. First, Rwanda’s recent fast growth is organized by the government, especially in agriculture. Second, the implementation of growth-promoting policies is once again done through the social networks emanating from the state.

In sum, Rwanda’s success in implementing policy relies on its network, rather than Weberian, state capacity. Like the canonical Weberian state, Germany, the Rwandan state can direct this capacity toward development or destruction of its own citizens.

Though Rwanda is just one case, we believe that our evidence should make one re-think what we mean by state capacity, particularly in the African case. In Rwanda, what previous scholars have associated with patrimonialism and state ineffectiveness, are the basis of startling capacity. Networks don’t have to just be used to redistribute and gut the state, they can also be used to transform society and economy. As a large literature in African studies, most centrally Vansina (1990), has pointed out, the construction of African states historically diverged from those of Eurasia. So far the social science literature has failed to internalize this perspective seeing African states as more or less failed attempts to create Weberian states. The Rwandan case is a striking example of why taking the distinct nature of

African states seriously is critical to deepening our understanding of many of the developmental problems of Africa.

Finally, one should note that the arguments of Vansina (1990) apply broadly across the areas of Bantu expansion in central Africa; in which case one would expect to find traces of network capacity everywhere, even if perhaps not as well articulated as in Rwanda. This is indeed the case. For example, the studies of Sánchez de la Sierra (2021) and Sánchez de la Sierra *et al.* (2022) reveal the presence of powerful state capacity in the Democratic Republic of Congo, even if not used to provide collective benefits. Further, Harmon (2014) showed that what we would interpret as the network capacity of the state in Lagos and Port Harcourt, Nigeria, was critical to its ability to quash a potential outbreak of Ebola.

Acknowledgements. We thank participants at the UNU-WIDER workshop on fiscal states for their comments, particularly An Karoline Bak, Odd-Helge Fjeldstad, Matthias vom Hau, Anne Mette Kjær, Marina Nistotskaya, Antonio Savoia, and Kunal Sen. We also thank a journal editor and six anonymous referees for their constructive comments and suggestions.

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