THE UNIVERSITY OF CHICAGO

FORMAL FIRMS, INFORMAL WORKERS, AND HOUSEHOLD LABOR SUPPLY IN MEXICO

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Para mi Mamá

Disclaimer:

This paper uses confidential data from Mexico's National System of Statistical and Geographical Information (*Sistema Nacional de Informacion Estadistica y Geografia*), accessed through the National Institute of Statistics and Geography (INEGI) Microdata Laboratory and from the Ministry of Labor and Social Welfare's (STPS) Inspection and Sanctions System (*Sistema de Seguimiento Inspectivo Sancionador).* All results reported herein, however, are my own and are not part of INEGI's or STPS's official statistics. All statements and opinions are my own and do not reflect the official stance of INEGI or STPS.

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ABSTRACT

In my dissertation, I analyze the behavior and consequences of informal employment at formal firms in Mexico using a new employer-employee-household matched dataset. The first chapter identifies different types of informal workers, describes the demographic characteristics of each group, and estimates their different job finding and separation rates. This chapter highlights the importance of distinguishing between informal employment that occurs at informal establishments and informality within formal firms. I find that 25% of all employees at formal firms are informal workers. Moreover, the vast majority of quarterly informal-to-formal transitions occur at the same establishment of employment and within a year of the start of the employment relationship.

The second chapter focuses on the effects of labor market regulation on firms' decisions. Using data from the Ministry of Labor's inspections on randomly selected establishments between 2005 and 2016, I analyze the effects of enforcement on formalization, turn-over, and wages. I find that inspections increase the quarterly probability of transitioning from an informal to a formal job within the same establishment from 14% to 20%, but the quarterly probability of job separation also increases. There is no evidence of a change in after-tax wages for informal workers that remain employed after an inspection, suggesting the cost of registration is not levied on the newly formalized workers. Instead, after an inspection, the average after-tax wage for already formal workers at inspected firms is lower relative to non-inspected formal workers, indicating that coworkers of informal employees bear part of the increase in firms' labor costs.

The last chapter analyzes the effects of access to formal jobs' benefits on after-tax reservation wages and household labor supply. I find that after an inspection spouses of informal workers who became formal decrease labor market participation in formal jobs and, conditional on starting a new job, receive higher after-tax wages. These results are consistent with households in Mexico placing a high value in the shared benefits of a formal job.

CHAPTER 1

INTRODUCTION

There is a long-standing debate in the informality literature regarding whether the existence of the informal sector is voluntary or not. Under one perspective, informality arises because individuals trade-off paying taxes and having access to a set of benefits available only to registered workers and firms versus the risk of being caught and fined for violating labor regulation. The side of the debate that argues informality is involuntary sees informal work as a form of disguised unemployment. Workers take jobs that are not covered by labor regulation or social security programs because higher quality, formal jobs are not available.

Recently, the debate was enriched by a revision to the definition of informality. In 2003, the International Labour Organization (ILO) recognized that informality exists not only at the firm level, but also within firms.[28] Firms that are registered and pay taxes on their profits do not always follow all labor regulation, resulting in the existence of informal workers at formal firms. When choosing whether to start a business, individuals do not only decide whether to register their operations with the government and pay the corresponding income taxes. They also face the choice of how many workers to hire and which types of jobs to offer. When registering workers implies costs for businesses and enforcement is not perfect, even employers that register their operations with the government trade-off the risks of getting caught and fined for hiring informal workers against the costs of registering each of their workers, pay the respective social security contributions and payroll taxes, and abide with labor regulation that can increase hiring and firing costs. Unregistered workers at firms that otherwise follow tax regulations are referred to as informal workers at formal firms.

The "intensive" margin of informality depicted in this new definition changes the way in which firms' and workers' maximization decisions are modeled. Firms that choose to register with the government maintain the benefits of participating in the formal sector, such as access to credit markets and government support. Abiding with labor regulation and contributing to mandated social security programs for each of their workers is not necessary to enjoy these

benefits because of imperfect monitoring and enforcement. Therefore, employers can choose how many formal jobs to offer and how they are distributed across their workers, without renouncing the benefits available to firms registered with the government.[1]

From the workers' perspective, formal jobs offer the benefits associated with social security access and labor regulation protection, including minimum wage laws and severance payments. However, workers must pay taxes on their wages as well as their share of the contribution to the social security system. In the case where there is no heterogeneity across formal and informal jobs beyond having access to government mandated benefits and taxes levied a worker will prefer a job offer to be formal if the value he assigns to the benefits received plus the after-tax wage is greater than the wage offered by the firm on an informal job. However, informal jobs can also differ in other characteristics that provide a positive value for some workers, for example, greater flexibility on hours worked, and finding and separation rates. In this case, workers might prefer an informal job over a formal one even if the value of the benefits received from social security exceed the difference between the after-tax and before-tax wage.

Understanding how firms decide how many workers to hire informally, who is hired formally, and how these choices vary with labor regulation is vital to analyze the consequences of informal labor markets. In my dissertation, I shed light into these questions. The first chapter presents an overview of the Mexican labor market. It decomposes the work force by the type of firm where they are employed (whether it is a formal establishment or not) and the type of job they hold (formal versus informal). Additionally, in this chapter I describe the demographic characteristics of each group of workers, and estimate their different job finding and separation rates. This chapter highlights the importance of distinguishing between informal employment that occurs at informal establishments versus informality that occurs within formal firms.

1. See Ulyssea (2014) [47] for an example of how to incorporate the "intensive" margin of informality in a theoretical model of firm decision making calibrated for Brazil.

The second chapter focuses on the effects of labor market regulation on firms' decisions. Using data from the Ministry of Labor's randomly applied inspections between 2005 and 2016, I analyze the effects of enforcement on formalization, turn-over, and wages. I find that inspections increase the quarterly probability that a worker will transition from an informal to a formal job within the same establishment from 14% to 20%, but the quarterly probability of job separation also increases. There is no evidence of a change in after-tax wages for informal workers that remain employed after an inspection. This suggests the cost of registration is not levied on the newly formalized workers. Instead, after an inspection, the average after-tax wage for other, previously formal workers at inspected firms is lower, indicating that coworkers of informal employees bear part of the increase in firms' labor costs.

The last chapter analyzes the effects of access to formal jobs' benefits on after-tax reservation wages and household labor supply. I find that after an inspection spouses of informal workers who became formal decrease labor market participation in formal jobs and increase after-tax reservation wages, consistent with assigning a high value to the shared benefits of a formal job.

CHAPTER 2

THE 'INS' AND 'OUTS' OF INFORMALITY IN MEXICO

2.1 Introduction

In this chapter, I analyze how informal employment options affect labor market trajectories for different groups of people. I then study the implications of the existence of these informal jobs on aggregate dynamics. Following the definition established by the Seventeenth International Conference of Labour Statisticians[28], I distinguish between different types of jobs based on the whether the firm of employment is registered with the government (formal firms) or not (informal firms), and on whether the worker is registered with the Social Security Institute (IMSS) and therefore has access to government mandated benefits (formal jobs) or not (informal jobs). This categorization leads to 3 types of informal jobs and 2 types of formal jobs: (in)formal jobs at formal firms, (in)formal self-employment, and informal jobs at informal firms.

First, I show that this categorization of informal jobs is a relevant one. There is a great degree of heterogeneity across workers in each of them. Job finding and job separation rates differ significantly across them, too. Inflows to informal self-employment are high among women and older men. Meanwhile, informal jobs at formal firms are most common among younger workers. Transitioning to a formal job is more likely for informal workers already employed by a formal establishment. By contrast, the average quarterly probability that an informal worker at an informal firm transitions to a formal job is less than half than that of an informal worker at a formal establishment.

Next, I show how the 'ins' and 'outs' from each of these 5 types of jobs affect unemployment dynamics. I find evidence that informal self-employment acts as a safety valve that eases upwards pressures on the unemployment rate during downturns. Meanwhile, transitions from informal employment at formal firms towards unemployment increase during downturns. However, job finding rates for informal jobs at formal firms recover faster than

those of formal jobs. Finally, I analyze the recent change in the correlation between informality and growth in Mexico. Up until 2013, formal employment and GDP showed a consistent, positive correlation. Starting on 2013, the growth rate in the number of workers registered with IMSS (that is, formal workers) has been consistently larger than that of GDP. The government attributed this growth in formal employment to the implementation of labor reforms aimed at making the formal sector more attractive.[16]

I show that over half of this growth in formal employment can be attributed to an increase in the formalization rate for workers that were already employed at formal firms. The increase in formal employment, therefore, is not due to job creation but rather to changes in the types of jobs offered to individuals who are already employed at formal establishments. Moreover, I show that this effect was particularly strong among workers with wages above the median. This also explains the increase in the average wage for workers registered at IMSS.

2.2 Formal Jobs, Government Mandated Benefits, and Payroll Taxes in Mexico

2.2.1 Mandatory Benefits and Taxes

In Mexico, employers must register all employees with the Mexican Social Security Institute (IMSS) within 5 business days of hiring.[13] Mandated registration applies to all remunerated, subordinate employees including temporary, part-time, and outsourced workers. Registration with IMSS gives workers access to a set of benefits including health care for themselves and their family members, day care services and maternity leave for female workers, sick leave, disability insurance, and a retirement fund, among other goods and services. Registered workers are also covered by minimum wage laws and severance payment regulations.

These benefits for formal workers and their family members are financed using payroll taxes levied on employers and employees. Once a worker is registered with IMSS, the employer must calculate the total contributions, make the corresponding deductions to workers'

earnings and forward the payments to IMSS each time the employee is paid. Employers and workers must contribute to financing all of the benefits, regardless of whether workers use or want them.

As shown in Table 2.1, the tax on employers has a fixed and a variable component. The fixed cost is equal to 20.4% of the daily minimum wage (MW), times the number of days the employee worked in the period. There is an upper bound on employers' contributions at a daily wage of MXN$1,826 pesos (USD$101.45) or 25 daily MW. For employers, the cost of registering a worker with IMSS ranges from 17% of the wage for an employee that earns 25 minimum wages to 35% for a minimum wage earner.

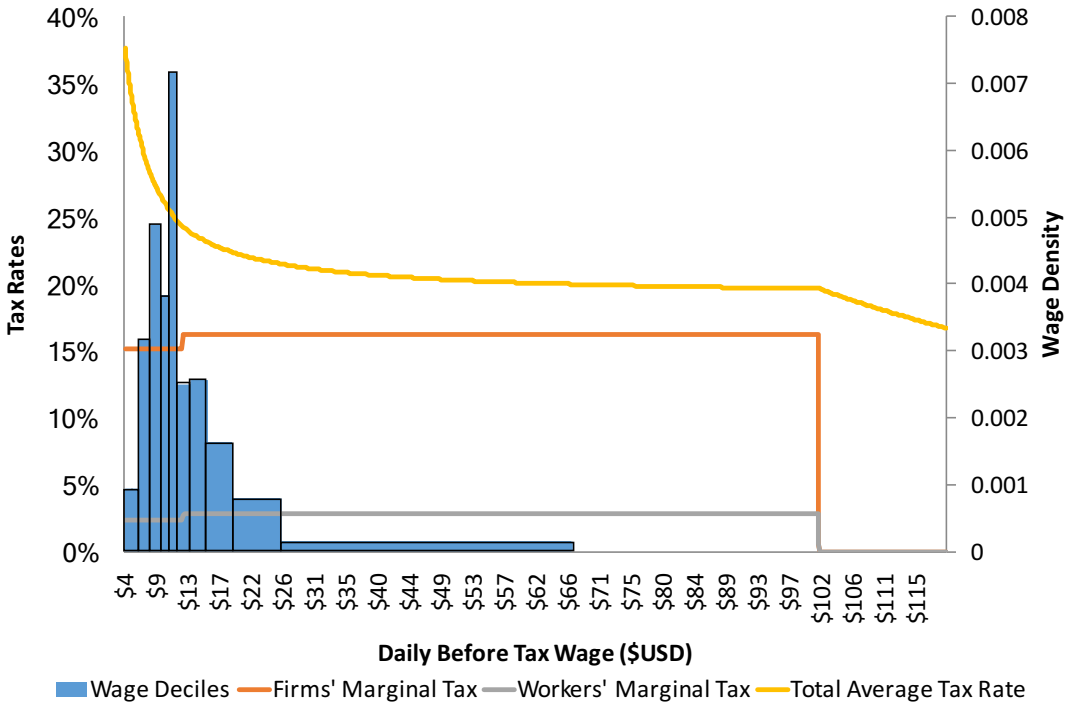
Table 2.1: Contributions to Government Mandated Benefits (per worker/day)

	Employer Contribution	Worker Contribution	Total w/o Government	Government Contribution	Total
Fixed Fee	20.4% × MW	0%	20.4%× MW	13.9%× MW	34.3% × MW
Proportional to wage					
If wage< 3 MW	15.15%	2.375%	17.525%	0.475%	18%
Added % on wage>= 3 MW	1.10%	0.40%	1.50%	0%	1.50%
Upper bound	16.394%× 25MW	2.272% × 25MW	19.661%× 25MW		

Source: Own calculations based on payroll tax rates established in the Social Security Law[13]. MW refers to the daily minimum wage, equal to MXN$73.04 since January 2016.

Figure 2.1 shows the total and marginal tax rates that employers and formal workers must pay. The graph also displays an equal probability density plot of daily wages before taxes for workers at formal firms. Each bar on the graph shows a decile in the wage distribution. The median employee at a formal firm earns MXN$220 per day (USD$12) and pays a 2.375% tax if enrolled with IMSS. The total cost for the firm is MXN$268 per day, after paying the 22% tax.

Figure 2.1: Average and Marginal Tax Rate by Pre-Tax Daily Wage



Source: Own calculations based on payroll tax rates established in the Social Security Law[13]. Wage data comes from the National Employment and Occupation Survey (ENOE)[25] for all employees at formal firms in the 2nd quarter of 2016. See section 2.3 for a description of the data and sample.

2.2.2 Enforcement

IMSS and STPS visit establishments to check whether they are compliant with various labor market regulations. STPS has 3 type of inspections: ordinary, extraordinary, and follow-ups. Ordinary inspections are the main focus of this paper and are explained in section 3.3.1. Extraordinary inspections are performed after a complaint by a worker, an accident at an establishment, or a concern for public or worker safety. Follow-up inspections are scheduled after ordinary and extraordinary inspections to verify compliance with previously detected violations. Meanwhile, IMSS inspections focus on identifying informal employment and thus target establishments that are more likely to have informal workers.[1]

1. The exact parameters that IMSS uses to determine which establishments to inspect are confidential. However, according to IMSS officers in charge of inspections, when deciding which firms to inspect they take into account firm size, industry, history of previous violations and notifications made to IMSS by STPS.

STPS's self-proclaimed objective is to foster compliance, not through sanctions but by helping firms understand and comply with the law. After each visit, STPS inspectors file a report and give a copy to the establishment. The report details the results from the inspection, specifically, whether the establishment was found to be in violation of any regulation. Except for cases that are deemed to be dangerous or extreme (such as improper management of hazardous waste or use of child labor), violations are pointed out, and firms are given a time-frame to resolve any problems. Firms are also given the chance to request an extension. STPS then schedules a follow-up visit to verify that the corrective measures agreed upon were implemented. STPS fines the establishment only if any of the originally detected violations are still occurring.[2]

STPS inspectors make note of how many workers are employed at the establishment and whether the establishment was able to provide proof of payroll tax payments to IMSS.[3] Even though informal employment is one of the items on STPS's inspection checklist, sanctioning firms for this violation falls outside of its jurisdiction. Therefore, when informal workers are detected during a STPS visit, the inspector includes it in the report and sends a notice to IMSS.

STPS notifications are one of the inputs used by IMSS to determine which establishments to inspect. Therefore, an inspection by STPS increases the probability of an inspection by IMSS. However, not all notifications result in a follow-up visit by IMSS. If IMSS does perform an inspection and finds evidence of informal employment, the employer is fined for each unregistered worker and must pay back-due payroll taxes. However, employers that register (or terminate) informal workers in the time between a STPS inspection and an IMSS follow-up can reduce the likelihood of being fined. Employers can also be charged with fraud against IMSS, which is punishable with up to nine years in jail.

2. The Federal Labor Law[12] and the Federal Labor Inspector's Manual[43] detail the way in which establishments are chosen for inspection, the rights and responsibilities of inspected establishments, as well as all the specifics regarding the inspection and sanction processes.

3. See Appendix 5.5 for a copy of the reports filled out by STPS's inspectors.

Informal employment violates several mandates in the Social Security Law. Beside the obligation to register all employees, the law also requires that employers provide information to IMSS about their workers' wages and timely payment of payroll taxes. Table 2.2 show the range of fines, in daily minimum wages, that an employer is subject to if caught having unregistered workers.

Table 2.2: IMSS Fines Related to Informal Employment (2016)

Violation	Fine (Daily MW)
Not registering workers	20 - 350 (per worker)
Not notifying changes in wages	20 - 150
Late payment of social security fees	20 - 75
Providing false information	20 - 250

Source: Social Security Law 2015[13]

IMSS is lenient towards employers with informal workers that decide to register them **before** an IMSS inspection. If an employer admits having informal workers before prompted by IMSS enforcement actions, fines are partially, and sometimes entirely, waived. Moreover, employers who come forward with IMSS about their informal employment can request extensions and installment payment plans for their back-due payroll taxes. Therefore, since receiving an inspection by STPS increases the probability of an inspection by IMSS, employers have incentives to formalize (or terminate) their workers promptly after receiving a visit by STPS to either take advantage of IMSS's leniency or potentially avoid detection altogether.

2.3 Data Description

In order to account for informality within formal firms in Mexico, this paper uses new data from the the National Institute on Statistics and Geography (INEGI)'s National Employment and Occupation Survey (ENOE)[25] that has been, to my knowledge, unexploited. First, when analyzing labor market flows and movements across formal and informal jobs,

this is the first paper to distinguish between transitions that occur within the same firm and across different firms. Second, rather than inferring firms formality status using information provided by workers regarding firms' characteristics, I directly identify formal firms by matching ENOE to a list of registered establishments with the Mexican Ministry of Labor. This section describes ENOE and how I use it to identify formal, and informal, workers and firms. Section 2.3.2 describes the list of registered establishments, known as the National Directory of Firms[44]. Appendix 5.2 provides further detail on the definition of informality used herein and its implementation in ENOE's data.

2.3.1 The National Employment and Occupation Survey (ENOE)

ENOE is a rotating panel that gathers information regarding households' composition and dwelling characteristics, as well as extensive data on each household member such as age, education, gender, labor market participation, and job characteristics. The National Institute of Statistics and Geography (INEGI) started data collection through ENOE in the first quarter of 2005 and the latest available information is for the last quarter of 2016. Due to its panel dimension, ENOE allows for direct calculation of labor market flows.

The dwelling or household is the sampling unit in ENOE. The survey keeps track of different families within a dwelling. Families are classified as individuals who share income and consumption. Each quarterly sample includes 120,260 households and 420,000 individuals on average. Data is gathered daily and the samples are chosen so that the information gathered every month is representative of the national labor market. Households that are selected into the sample are interviewed for five consecutive quarters and then replaced, maintaining sample representativeness.[4]

Using the information that employed individuals provide regarding the establishment they work at and the benefits associated with the job, ENOE also allows distinguishing between

4. If all the members of a household move to a different location, they cannot be followed and are replaced. However, the attrition rate is only 3% for the first quarter in the sample. I observe 85% of households for a full year and 77% of all households stay in the sample for the full 5 quarters.

formal and informal jobs.[5] I drop observations for individuals who are under 15 years of age and for household members that aren't currently living in the household's residence. I focus on remunerated workers hired as employees[6] since these are the workers that fall under IMSS mandated registration regime. I also drop individuals employed in agriculture or as domestic employees. I further restrict the sample to workers who are employees at firms included in the DNE since these are the establishments that have the option of registering workers with IMSS and are potentially subject to STPS inspections. This leads to an average sample size of 38,610 workers at formal firms per quarter.

A worker's formality status is determined by his registration with IMSS: a worker who is registered is a formal worker. Since administrative data only tracks individuals' labor market status while they are employed in a formal job, I instead use self-reported access to IMSS's benefits through a job (rather than through another family member) to identify formal and informal workers in ENOE's sample. In order to account for misclassification across ENOE's waves, I consider consecutive back and forth transitions across formal and informal jobs within the same establishments to be false transitions. Any worker that goes from formal to informal back to formal within a 9 month period (that is, within 3 consecutive quarters) while staying employed at the same establishment is considered to be formal throughout the whole 9 month period. Analogously, an informal-formal-informal transition path at the same establishment is considered to be a continuously informal case.[7,8] To assuage any additional

5. The definition of informality in this paper follows the latest resolution adopted during the 17th International Conference of Labor Statisticians which sets international standards for measuring informality[28]. See Appendix 5.2 for details on this definition and its implementation in the data.

6. Focusing on employees means excluding individuals hired through non-subordinated contractual relationships.

7. This correction has a negligible effect on the stocks of informal and formal jobs within formal firms. However, it reduces the rate of transitions from formal to informal jobs and vice-versa by 2.5 p.p. and 2.0 p.p., respectively.

8. If establishments register their workers after an inspection to avoid being detected in a follow-up visit by IMSS but then un-register them after the verification takes place, observed informal-formal-informal transitions would not be misclassifications but rather real transitions. However, employers have incentives to avoid this "hiding" practice. Registering and unregistering workers within short periods of time can raise flags with authorities making establishments targets of directed inspection visits.

concerns in this regard, I compare the probability of consecutive informal-formal-informal transitions and find no significant difference between inspected and non-inspected workers.

2.3.2 The Ministry of Labor's National Firm Directory (DNE)

The DNE[44] includes information on establishments' name, unique tax identifier, unique IMSS registration identifier, address, number of employees, 6-digit NAICS code, among other relevant establishment-level characteristics. In June 2016, there were 394,651 firms in the DNE. Since firms do not have a legal obligation to register, the DNE is not an exhaustive list of all establishments operating in Mexico.

The main channel through which firms get included in the DNE is through participation in any of STPS's programs. These programs offer firms training that helps them understand and comply with regulation, participate in government contracts, and even provide various free courses and training for the firm's workers. Firms can also be added to the DNE after a complaint is filed against them.[9]

2.4 Informal Workers at Formal Firms: Characteristics and Labor Market Flows

Accounting for informality within the formal sector allows distinguishing between 5 different employment states, based on the type of job (formal vs. informal), the position within the firm (employee vs. self-employed or employer) and the type of firm in which the job is performed (formal vs. informal).[10] Figure 2.2 below decomposes the Mexican labor market

9. In recent years, STPS has made additional efforts to exchange information with other government authorities and private sector institutions that have data on establishments operating in Mexico. STPS is seeking to increase communication with, for example, IMSS, the Ministry of Economy (SE), the Ministry of Finance and Public Credit (SHCP), the National Chamber of Commerce , the Industrial Chamber Confederation (CONCAMIN), and the Mexican Business Sector Information System (SIEM).

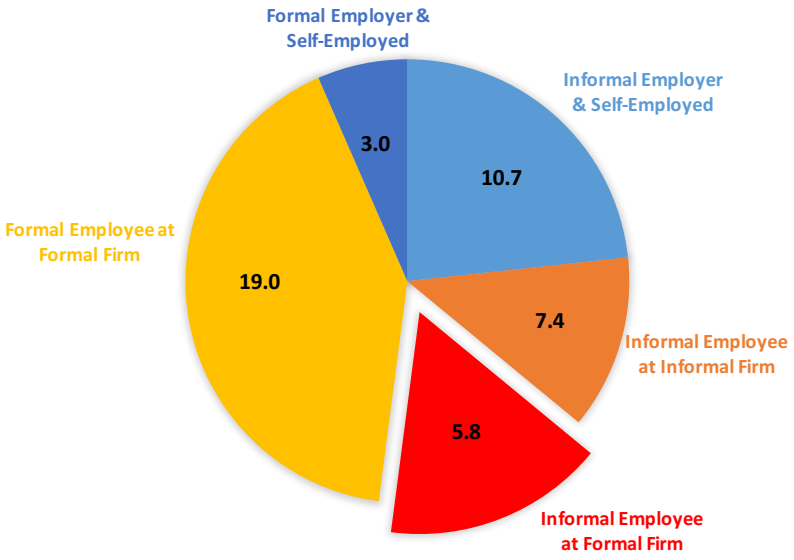
10. This classification of workers is known in the informality literature as a Hussmanns Matrix and is based on the 17th International Conference of Labour Statisticians' Resolution concerning statistics on the informal sector and informal employment[28].

on the 2nd quarter of 2016 into these 5 types of employment.

During the 2nd quarter of 2016, there were 45.9 million employed individuals in Mexico. 26.4 were employees at a formal firm but 28% of them did not receive the benefits mandated by law, that is, they were informal employees at formal establishments. This type of informal employment represented 31% of all the informal sector in Mexico.

Figure 2.2: Employed Population by Job and Firm Type

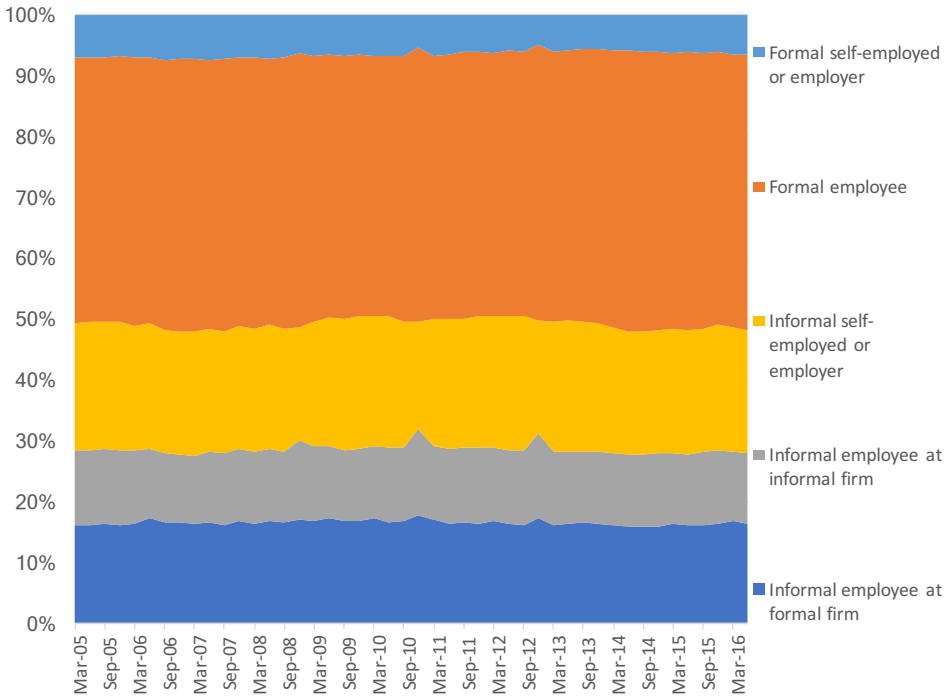
II qtr. 2016 (millions)



Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44]

Figure 2.3 shows the shares of workers by each type of job category being considered for every quarter from 2005 to 2016. This figure shows that the second quarter of 2016 is not an outlier in terms of labor market composition. On average, during the past decade, half of all workers were informally employed. A third of these workers was employed by a registered, or formal, firm.

Figure 2.3: Employed Population by Job and Firm Type (2005-2016)



Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44] 2005-2016

Table 2.3 presents descriptive statistics for workers based on their firms' formality status, their own registration with the Social Security Institute and their position at the firm (employees vs. self-employed). Employees, in particular those in informal jobs, are younger and have much shorter tenures than their counterparts with formal jobs. Despite working a similar number of hours per week, informal employees at formal establishments have lower hourly wages than their formal coworkers. In terms of earnings, informal employees at formal establishments are more similar to employees at informal establishments than to their coworkers at a formal firm, despite being more educated. Women and individuals who did not complete schooling beyond the mandatory 9^{th} grade are more likely to be informally self-employed. Informal employment, whether at formal establishments or not, is less stable than formal employment as evidenced by the lower tenures.

Table 2.3: Characteristics of Workers by Firms' and Jobs' Formality Status 2005-2016

	Informal Employees at Formal Establishments	Formal Employees at Formal Establishments	Informal Employees at Informal Establishments	Informal Self-Employed	Formal Self-Employed
Median After-Tax Wage (2014 Pesos p/Hr.)	$18.2	$26.0	$17.4	$20.8	$31.0
Median No. Hours (Weekly)	46	47	47	36	50
Median Tenure (Months)	24	60	24	61	96
% aged 15-24	33	15	33	6	3
% Female	39	39	18	47	31
% Completed 9^{th} grade	71	85	50	50	77
No. Obs:	761,297	2,238,853	483,598	908,157	334,245

Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44]

Table 2.4 documents quarterly transition rates from formal and informal jobs within and across formal establishments. On average, only half of all informal employees at a formal firm remain informally employed at the same establishment the following quarter. Out of these workers, 1 out of every 4 transition to a formal status. On an average quarter, 18% of all informal workers at a formal establishment are non-employed the following quarter. Formal employees have much higher quarterly probabilities of remaining employed (95%). Moreover, they're very likely to stay at the same establishment (83%).

Table 2.4: Predicted Quarterly Transition Probabilities

Labor Market Status Next Quarter		Initial Labor Market Status			
		Informal at Formal Establishment	Formal at Formal Establishment	Unemployed	OLF
Same Formal Firm	Informal	38.5%	1.1%	-	-
	Formal	14.2%	81.8%		
New Formal Firm	Informal	5.0%	2.3%	11.9%	3.4%
	Formal	5.2%	2.7%	17.2 %	3.5%
New Informal Firm		13.0%	1.9%	10.2%	3.1%
Self-Employed	Informal	5.8%	1.3%	8.1%	4.4%
	Formal	2.9%	0.8%	1.6%	0.1%
Unemployed		3.1%	1.5%	19.3%	1.8%
OLF		15.4%	3.6%	31.7%	83.2%
Total		100%	100%	100%	100%

Notes: Self-employment also includes employers. Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44]

It is important to point out that quarterly transition probabilities do not behave like a first-order Markov process.[11] Table 5.3 in Appendix 5.1 shows the yearly transition probabilities across formal and informal jobs, within and across formal establishments. The annual probability of transitioning to a formal job from an informal one without changing establishments is only 3.1 p.p. higher than the quarterly transition probability.

Figure 2.4 shows that for men with informal jobs at formal firms the likelihood of within-firm formalization increases with tenure during the first 6 months of employment and decreases after the first year. Specially for establishments with 6 to 10 employees, the probability of informal to formal transitions decreases sharply after 2 years of tenure, as shown in Figure 5.1 in Appendix 5.1.

11. See Shibata (2015)[45], for a discussion and model of history-dependent transition probabilities.

Figure 2.4: Within-Firm Transitions to a Formal Job by Tenure

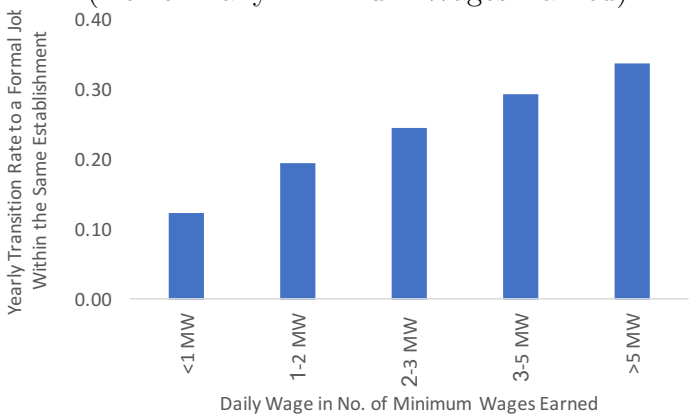
Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44]

ENOE's household-level data allows characterizing spouses'[12] based on their joint labor market status. Table 5.4 in Appendix 5.1 shows the conditional distribution of spouses' labor market participation and formality status. The likelihood that a head of household's spouse is a formal employee is higher if the head of household is also formally employed. Spouses are more likely to be out of the labor force if the head of household is an employee at an informal firm.

Figure 2.5 shows yearly transition probabilities by number of minimum wages earned by the worker, conditional on being informally employed at a formal establishment and controlling for relevant worker and firm level characteristics. The within-firm probability of transitioning to a formal job is negatively correlated with the number of minimum wages earned by the worker. This is consistent with the regressive nature of the social security contributions shown in figure 2.1. The cost of registering a worker as a share of the total labor cost is decreasing in the workers' wage. Moreover, avoiding severance payments and other firing costs is more attractive for workers with lower expected tenure, and higher expected turn-over which are over-represented within the lower wage groups.

12. From here on forth, I use the term spouses or partners interchangeably to refer to a couple that includes the head of household and her partner regardless of marital status.

Figure 2.5: Annual Within-Firm Transitions to a Formal Job by Wage Level (No. of Daily Minimum Wages Earned)



Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44]

2.5 Unemployment Dynamics with Heterogeneous Informal Employment

In Mexico, average job finding and job separation rates differ not only across formal and informal firms but also within them, depending on the type of job that is offered. This section analyzes how the different employment options (formal and informal jobs, self-employed work versus jobs as an employee) within formal or informal firms contribute to unemployment dynamics in Mexico. I show that in order to understand unemployment dynamics in countries with a large share of informality, it is important to distinguish between employees and self-employed individuals, as well as whether they participate in the formal or informal sectors.

I find that informal self-employment's high job finding rates during downturns serves as a safety valve that mitigates aggregate unemployment volatility. However, informal jobs at formal establishments experience large increases in separation rates during bust periods. This type of informal employment, therefore, counteracts the mitigating effects of self-employment in the informal sector. Once the recovery begins, job finding rates for informal employment at formal and informal establishments rebound faster than those of formal jobs.

2.5.1 Job Finding, Job Separation Rates, and Job-to-Job Transitions

Shimer (2012)[46] shows how to use readily available aggregate data to measure the probability that an employed worker becomes unemployed and job finding probabilities, that is, the 'ins' and 'outs' of unemployment. He shows that for the US transitions out of unemployment towards a job are responsible for three-quarters of the unemployment rate volatility. Elsby, Michaels, and Solon (2009)[17] and Fujita and Ramey (2009)[18] argue instead that job separations are responsible for about half of the unemployment fluctuation.

In this section, I instead use individual-level microdata to identify worker's transitions into and out of unemployment in Mexico. I consider 5 different types of employment and calculate each of their job finding and job separation rates: informal jobs at formal firms, formal jobs at formal firms, informal jobs at informal firms, formal self-employment and informal self-employment.

Table 2.5 shows the predicted quarterly inflow rates to unemployment. Among employees at formal establishments, formal jobs' separation rates are half of those experienced by their informal coworkers at similar formal establishments, as would be expected given severance payments and other labor regulation that protect registered workers. Informal employees at informal establishments have the highest transition rates towards unemployment. However, even within this group, the average quarterly probability of transitioning into unemployment is only 4%. The lack of unemployment insurance and the absence of severance payments for informal workers help explain the low separation rates towards unemployment in Mexico. In this environment, low inflows towards unemployment do not imply high job stability but rather high job-to-job transitions. As shown in table 2.4, informal workers are unlikely to remain employed at the same establishment for long.

Table 2.5: Predicted Quarterly Transition Probabilities into Unemployment (2005-2016)

	Transition Rate	Share of Unemployed
Informal Employee at Formal Firm	3.3%	25%
Formal Employee at Formal Firm	1.5%	28%
Informal Employee at Informal Firm	4.0%	17%
Informal Self-Employed and Employers	1.9%	15%
Formal Self-Employed and Employers	1.3%	3%
OLF	1.7%	12%

Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE).

Movements out of unemployment portray a striking difference between self-employed and employed individuals, as shown in Table 2.6. Movements towards informal jobs at informal establishments are the major cause of exits out of unemployment with a hazard rate of 21.3% followed by transitions towards formal employment with a rate of 13.5%. Meanwhile, average flows out of unemployment and into self-employment are much lower, perhaps reflecting self-selection and scarce entrepreneurial ability. Job finding probabilities are therefore much higher for employees than for self-employed individuals, on average, and within each job position individuals are more likely to find a job in the informal market.

Table 2.6: Predicted Quarterly Transition Probabilities out of Unemployment (2005-2016)

	Transition Rate	Share of Employed
Informal Employee at Formal Firm	12.8%	16%
Formal Employee at Formal Firm	10.6%	44%
Informal Employee at Informal Firm	16.4%	12%
Informal Self-Employed and Employers	8.2%	21%
Formal Self-Employed and Employers	1.6%	7%

Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE)[25] and the National Directory of Firms (DNE)[44].

Employment or self-employment in either the formal or the informal sectors could indi-

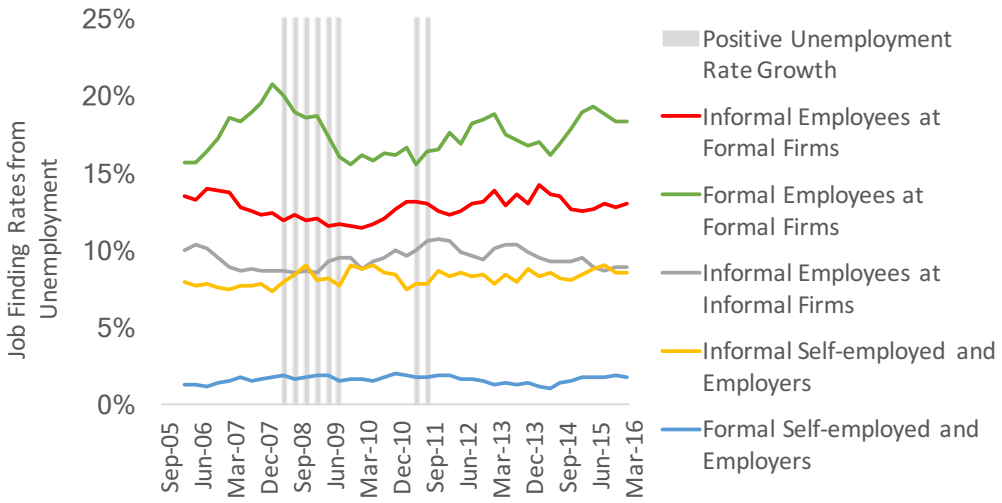
rectly affect shifts in unemployment by offering an alternative source of employment when the market is hit by a shock. These indirect effects should also be taken into account when evaluating labor market dynamics and their effects on unemployment cyclicality. In this sense, even though average job separation rates towards unemployment are low, employment termination towards other job opportunities in different sectors and positions are not.

I find that even though there are low rates of entry into unemployment, there's a high number of individuals moving across the informal/formal economies. The 'outs' of formal employment are frequent; even if the probability of exiting towards unemployment is less than 2%, the hazard of transitioning to the informal sector on an average quarter is 8.5% for employees and 20.95% for self-employed individuals.

Next, I study how transition rates evolved through time and how flows from and into each labor market state behave across the business cycle. In Mexico, during the period of analysis, there were 2 periods when the unemployment rate rose for at least two consecutive quarters. During the 5 quarters between June 2008 and September 2009, the average quarterly growth rate for the unemployment rate was 12.6%. Furthermore, within this time frame, GDP experienced its only contraction in annual growth between 2005 and 2015 with rates of -7.1%, -9.4% and -5.29% for the first three quarters of 2009 relative to the same period in 2008. During the second period of consecutive increases in the unemployment rate, in June and September 2011, the unemployment rate rose 1.1% and 6.2%, respectively.

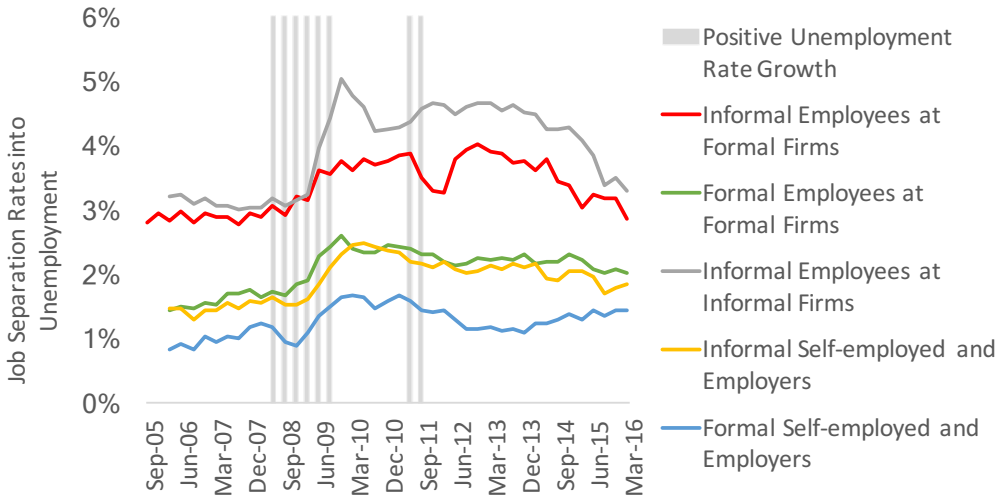
Figures 2.6 and 2.7 below show, respectively, the job finding rates from unemployment and job separation rates into unemployment from the 5 employment categories considered.

Figure 2.6: The 'Outs' of Unemployment



Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE)

Figure 2.7: The 'Ins' to Unemployment



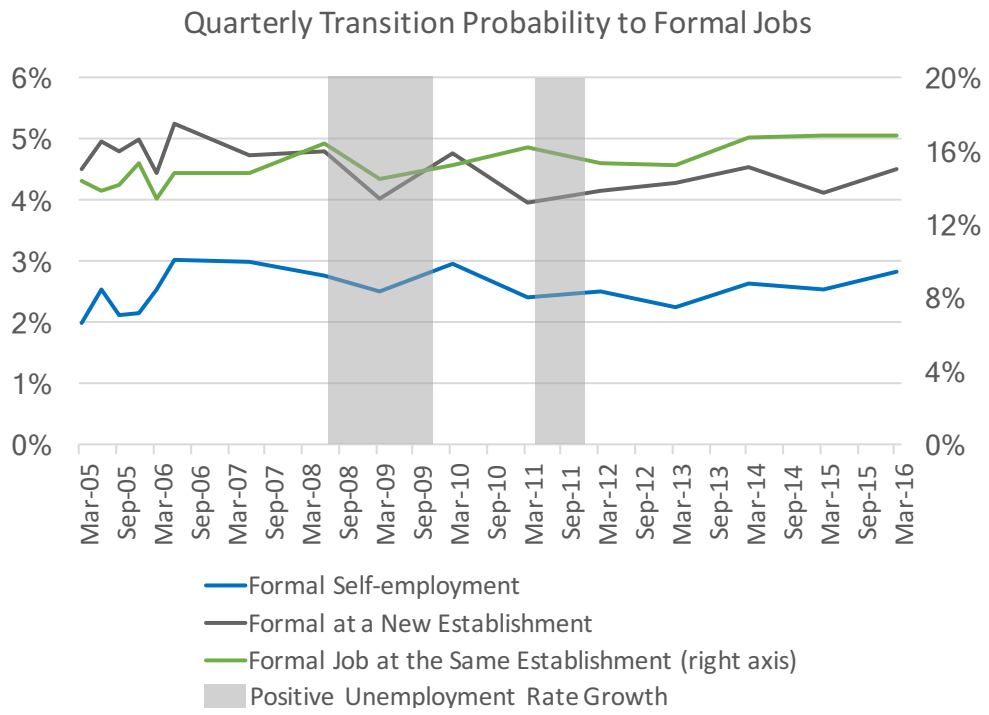
Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE)

From June 2008 to September 2009, the national unemployment rate in Mexico went from 3.5% to 6.2%. As can be seen in figure 2.7, in the same time frame, the inflows to unemployment increased for all types of jobs, specially for those in the informal sector. Individuals that were most affected by job separations towards unemployment were employees

at informal establishments. Their job separation rate towards unemployment increased from 3.1% in June 2008 to 5.0% in September 2009. Formal employees faced the smallest increase in job loss probability during the economic downturn of 2009, increasing 41% from 1.8% to 2.6%.

Even during the peak of the 2008-2009 crisis, quarterly job separation rates towards unemployment ranged between 1.6% for formal self-employed individuals to 5.0% for informal firms' employees. However, these numbers mask increases in job separations that occur towards other types of jobs, instead of directly towards unemployment. As can be seen in figure 2.8 below, between June 2008 and September 2009, quarterly transition rates from informal jobs at formal firms towards other informal employment increased from 24% to 25.6%. The increase was due to higher job finding rates for informal jobs at formal firms. Meanwhile, the likelihood of starting at a formal job, either at the same establishment or at a different one, decreased from 24% to 20%.

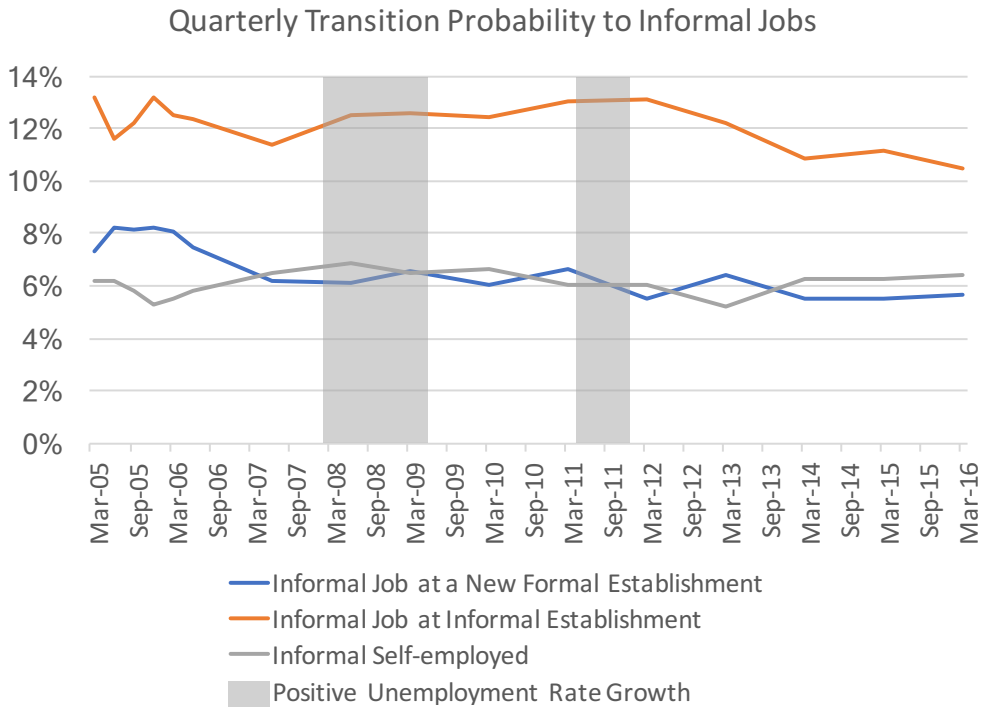
Figure 2.8: Predicted Quarterly Transition Probabilities Out of Informal Jobs at Formal Firms



(Figure 2.8 continues in the following page)

(Figure 2.8 continued from previous page)

Notes: The graph shows the probability that an average worker with an informal job at a formal establishment in a given quarter transitions to a formal job the following quarter. Each line plots transition probabilities to a different type of formal job including within-firm transitions (formal job at the same establishment), cross-firm transitions (formal job at a new establishment), and transitions towards formal self-employment. The gray bars indicate periods of consecutive quarterly unemployment rate growth. Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE).



Notes: The graph shows the probability that an average worker with an informal job at a formal establishment in a given quarter transitions to a different informal job the following quarter. Each line plots transition probabilities to a different type of informal job including transitions to an informal job at a different but still formal establishment, transitions to an informal establishment, and transitions towards informal self-employment. The gray bars indicate periods of consecutive quarterly unemployment rate growth. Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE).

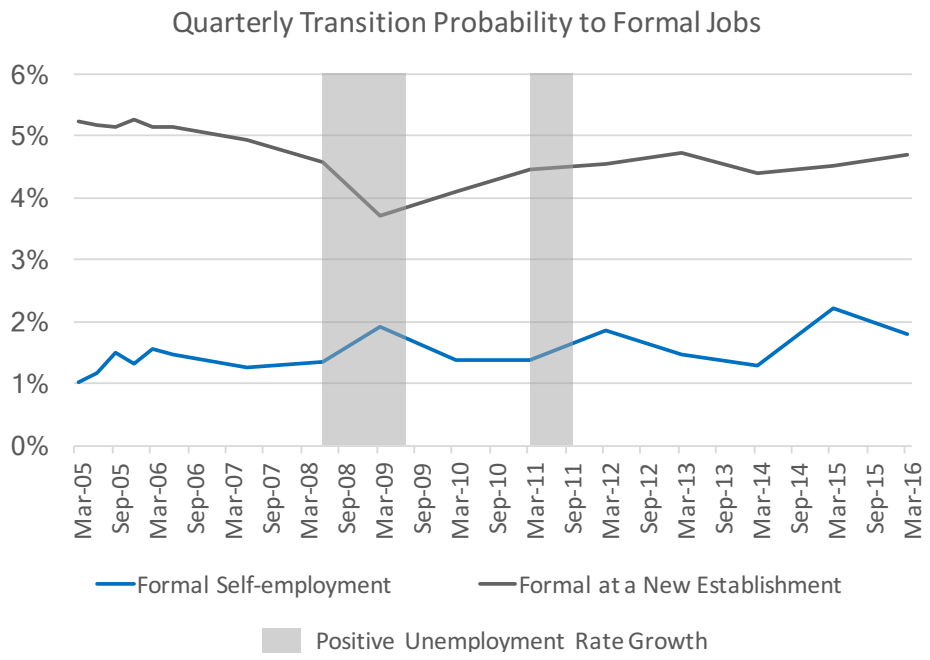
During downturns workers at formal establishments are more likely to switch to informal employment to weather the consequences of job loss (see Figure 2.9). As job opportunities in formal establishments recover, outflows from informal jobs, particularly informal self-employment, increase. Formal-to-informal job transitions are counter-cyclical.

During the 2008-2009 downturn job finding probabilities decreased, although changes were of considerably smaller magnitude than the increases in job separations. The only

exception to the decrease in the probability of exiting unemployment was in transitions from unemployment to informal self-employment. While all other unemployment exit probabilities experienced decreases ranging from 5% for formal employees to 22% for formal self-employment, the hazard rate of transitioning out of unemployment and into informal self-employment increased from 6.48% to 7.3%.

Moreover, as shown in figure 2.9 the likelihood of separating from a formal job at a formal firm and becoming informally self-employed increased from 5 to 7% between June 2008 and June 2009. In this sense, informal self-employment, most likely in the form of subsistence entrepreneurship as defined by Schoar (2010), is likely to play a role as buffer for unemployment volatility during economic downturns by offering an employment alternative in times when formal work opportunities are scarce and job separations are high.

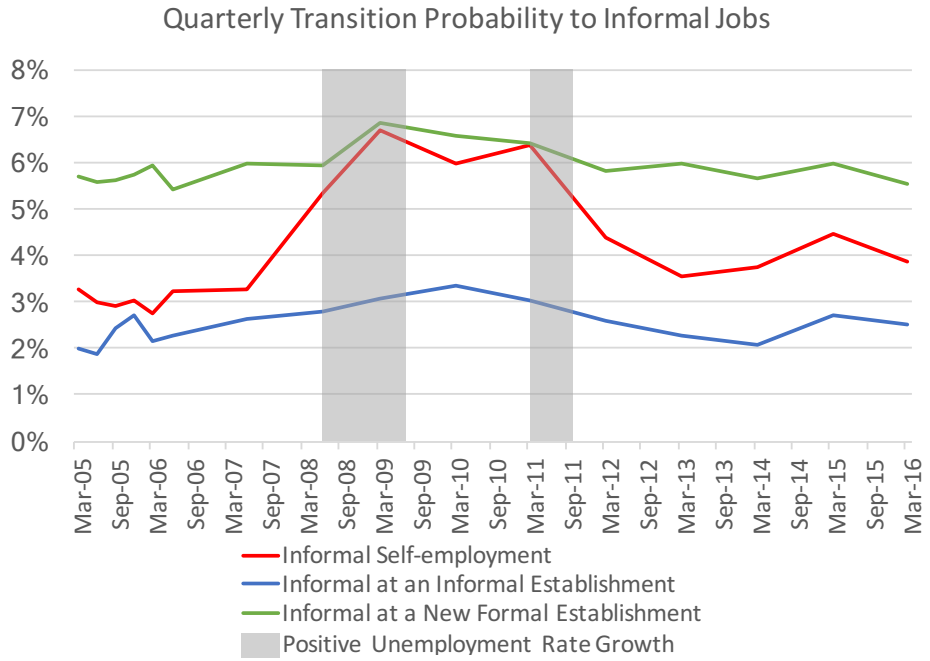
Figure 2.9: Predicted Quarterly Transition Probabilities Out of Formal Jobs at Formal Firms



Notes: The graph shows the probability that an average worker with a formal job at a formal establishment in a given quarter transitions to a new formal job the following quarter. Each line plots transition probabilities to a different type of formal job including transitions to a formal job at a new establishment and transitions towards formal self-employment. The gray bars indicate periods of consecutive quarterly unemployment rate growth. Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE).

(Figure 2.9 continues in the following page)

(Figure 2.9 continued from previous page)



Notes: The graph shows the probability that an average worker with formal job at a formal establishment in a given quarter transitions to an informal job the following quarter. Each line plots transition probabilities to a different type of informal job including transitions to an informal job at a different but still formal establishment, transitions to an informal establishment, and transitions towards informal self-employment. The gray bars indicate periods of consecutive quarterly unemployment rate growth. Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE).

2.5.2 Decomposing Changes in the Unemployment Rate

In order to assess the importance of each labor market state over aggregate unemployment volatility, I decompose the 2008-2009 rise in unemployment rates into inflows and outflows from each employment type. This analysis allows evaluating which labor market states can act as a buffer to unemployment increases and which instead exacerbate jumps in the unemployment rate during downturns.

Following Elsby, Michaels, and Solon (2009) [17], the unemployment rate can be divided into the sum of unemployment rates per labor market state.

$$u_t = u_t^{INFatF} + u_t^{FatF} + u_t^{INFatINF} + u_t^{FSE} + u_t^{INFSE} + u_t^{OLF} \tag{2.1}$$

u_t is the aggregate unemployment rate in period t. u_t^{INFatF} and u^{FatF} refer to unemployed individuals who were previously employees at formal establishments and held, respectively, informal or formal jobs, as a share of the labor force in period t. u_t^{FSE} and u_t^{INFSE} refer, respectively, to unemployed individuals who were previously formal and informal self-employed individuals or employers. $u_t^{INFatINF}$ refers to unemployed workers who used to be employees at informal establishments and u_t^{OLF} refers to the share of the labor force that is currently unemployed but used to be out of the labor force.

In the steady state, it holds that:

$$\begin{gathered} f_x u_x = s_x \text{share}_x \\ \forall x \in [INFatF,\ FatF,\ INFatINF,\ INFSE,\ FSE,\ OLF] \end{gathered} \tag{2.2}$$

where f_x is the probability that an unemployed individual transitions from unemployment to labor market state x, and s_x is the separation rate to unemployment from labor market state x. u_x is the unemployment rate for labor category x, that is, the share of unemployed workers who were previously in labor market state x and $share_x$ denotes the share of the labor force currently in labor market state x.

Log differentiation of equation 2.2 yields:

$$\begin{gathered} dlog\,(u_x) = dlog\,(s_x) - dlog\,(f_x) + dlog\,(\text{share}_x) \\ \forall x \in [INFatF,\ FatF,\ INFatINF,\ INFSE,\ FSE,\ OLF] \end{gathered} \tag{2.3}$$

Variation in the shares of each category in the labor force ($dlog\,(share_x)$) is small as seen in figure 2.3. Therefore, I ignore the last term in equation 2.3 when decomposing the

changes in the aggregate log unemployment rate.

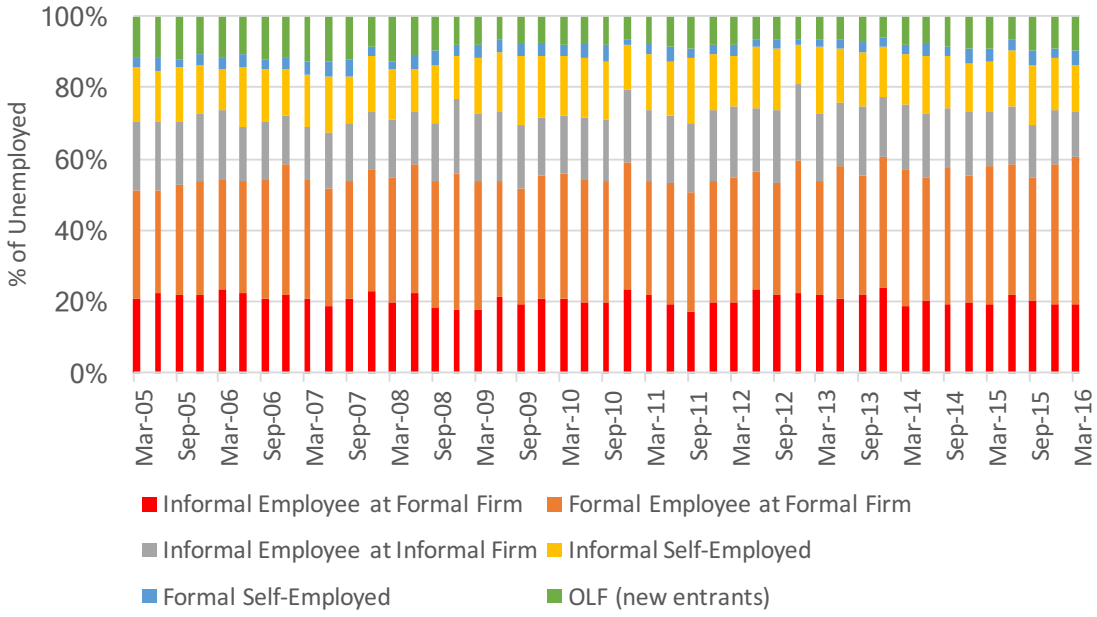
Using equation 2.1 and 2.3, I decompose the variation in the aggregate unemployment rate into the percent contribution by each job type as described in equation 2.4 below:

$$dlog\,(u) = \omega_{INFatF} dlog\,(u_{INFatF}) + \omega_{FatF} dlog\,(u_{FatF}) + \omega_{INFatINF} dlog\,(u_{INFatINF}) + \omega_{INFSE} dlog\,(u_{INFSE}) + \omega_{FSE} dlog\,(u_{FSE}) + \omega_{OLF} dlog\,(u_{OLF}) \tag{2.4}$$

Equation 2.4 states that the change in the log unemployment rate is equal to the share-weighted sum of the log changes due to each labor market state.

ENOE allows direct estimation of the share of unemployed workers without any previous labor market experience, that is, ω_{OLF}. Data is also available to identify the number of individuals within the unemployed pool that were either employees or self-employed during their previous employment spell. However, information that allows separating unemployed individuals with past labor market experience according to whether they were previously employed at a formal or informal firm is not available in ENOE for every quarter. In order to estimate the contribution of transitions from and into informality, I use the share of currently employed individuals in each category and assume that the share of unemployed individuals who used to be employed at a formal is proportional to the share of individuals who are self-employed in the formal sector during that period times their average quarterly separation rate. The resulting distribution of the unemployment pool according to their previous labor market status is shown in figure 2.10.

Figure 2.10: Composition of the Unemployment Pool by Previous Labor Market Experience

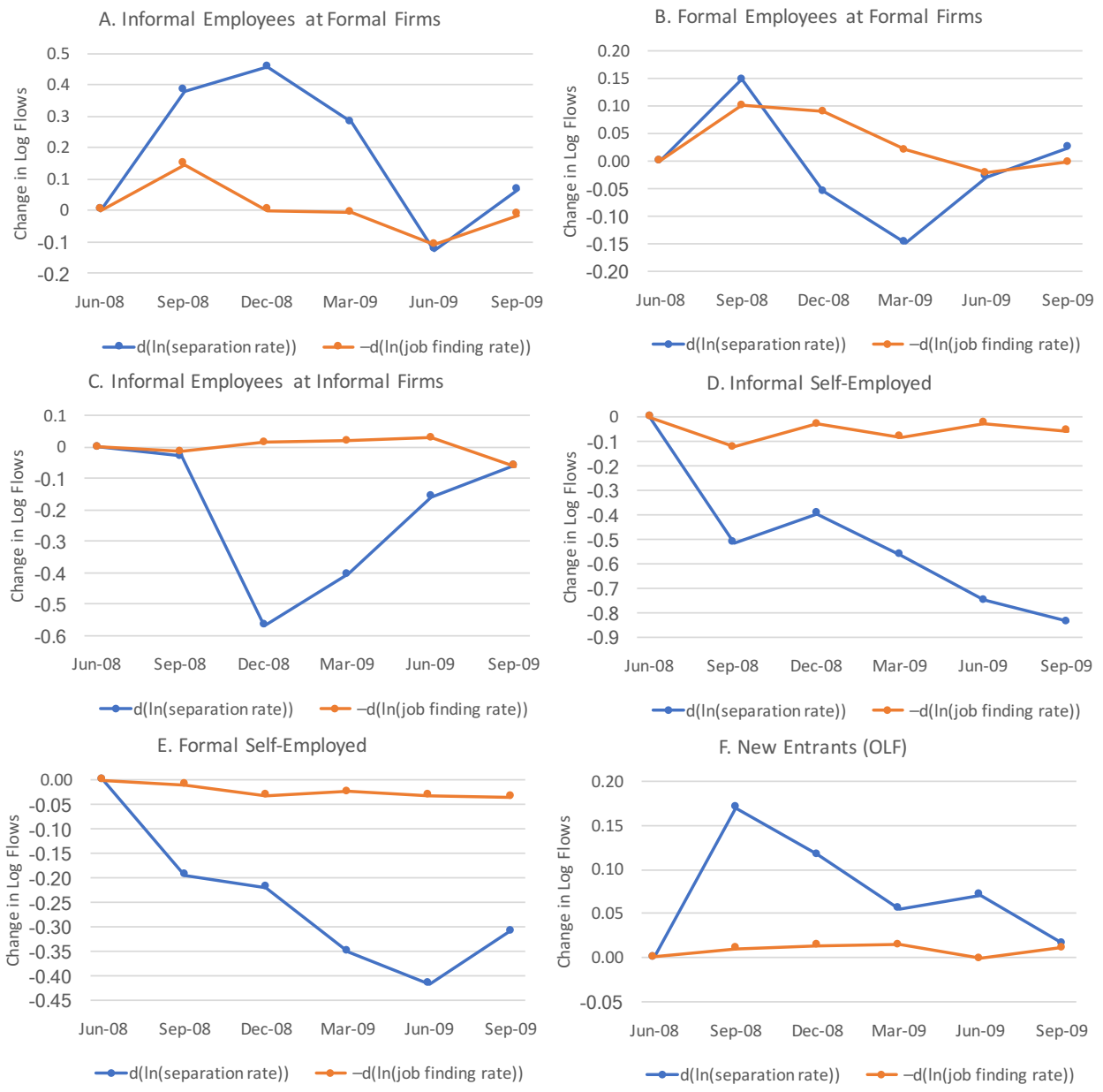


Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE)

Figure 2.11 plots the difference in inflow and outflow rates into unemployment for each labor market state relative to their values in June 2008. As had already been hinted by the analysis of the evolution of hazards rates during the period when unemployment increased, the decomposition of the change in log unemployment into inflows and outflows by each labor market segment shows that the main factor underlying the increase in the unemployment rate was a rise in the inflows to unemployment. The decomposition also makes it clear that, although separation rates increased for all types of employment, workers in an employee status were the main contributors to the rise in unemployment rates.

Figure 2.11: Change in Inflow and Outflow Rates to Unemployment

(June 2008- September 2009)



Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE)

Despite the fact that between June 2008 and September 2009 job separations for formal employees decreased the least of all employment categories, movements towards unemployment by formal and informal employees are the main drivers behind unemployment volatility, given their much larger weights within the unemployment pool. The effect of 'ins' to unem-

ployment from self-employment are instead relatively stable and negligible in magnitude.

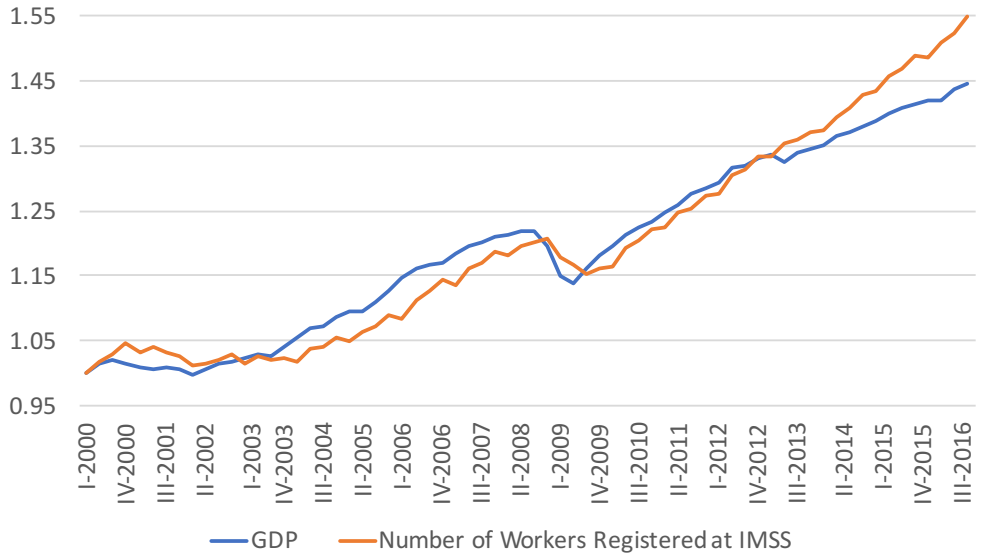
As unemployment rises, the effect of outflows seems to fade out until it has almost a negligible contribution in September 2009 when unemployment rates peaked. While in the beginning of the downturn decreases in the job finding probability for informal employees drop and contribute significantly to the rise in unemployment, they recover quickly and have close to no contribution to the overall unemployment volatility in the remaining quarters. Decreases in job finding probabilities for formal employees have a more lasting effect although, again, fade out by the time unemployment has reached its peak. Relative to the magnitude of the contribution by inflows the effect of outflows over aggregate unemployment variation is small and fade as the downturn progresses, therefore, Darby's conclusion that "the 'ins' win" appears to be generalized to the Mexican case.

2.6 The Correlation Between GDP growth and Informality

Up until 2013, formal employment and GDP showed a consistent, positive correlation as shown in figure 2.12. Starting on 2013, the number of workers registered with IMSS (that is, formal workers) started growing faster than GDP. The government attributed this growth in formal employment to the implementation of labor reforms aimed at making the formal sector more attractive.

Figure 2.12: GDP and Number of Workers Registered with IMSS

(Indexed to Jan. 2012)

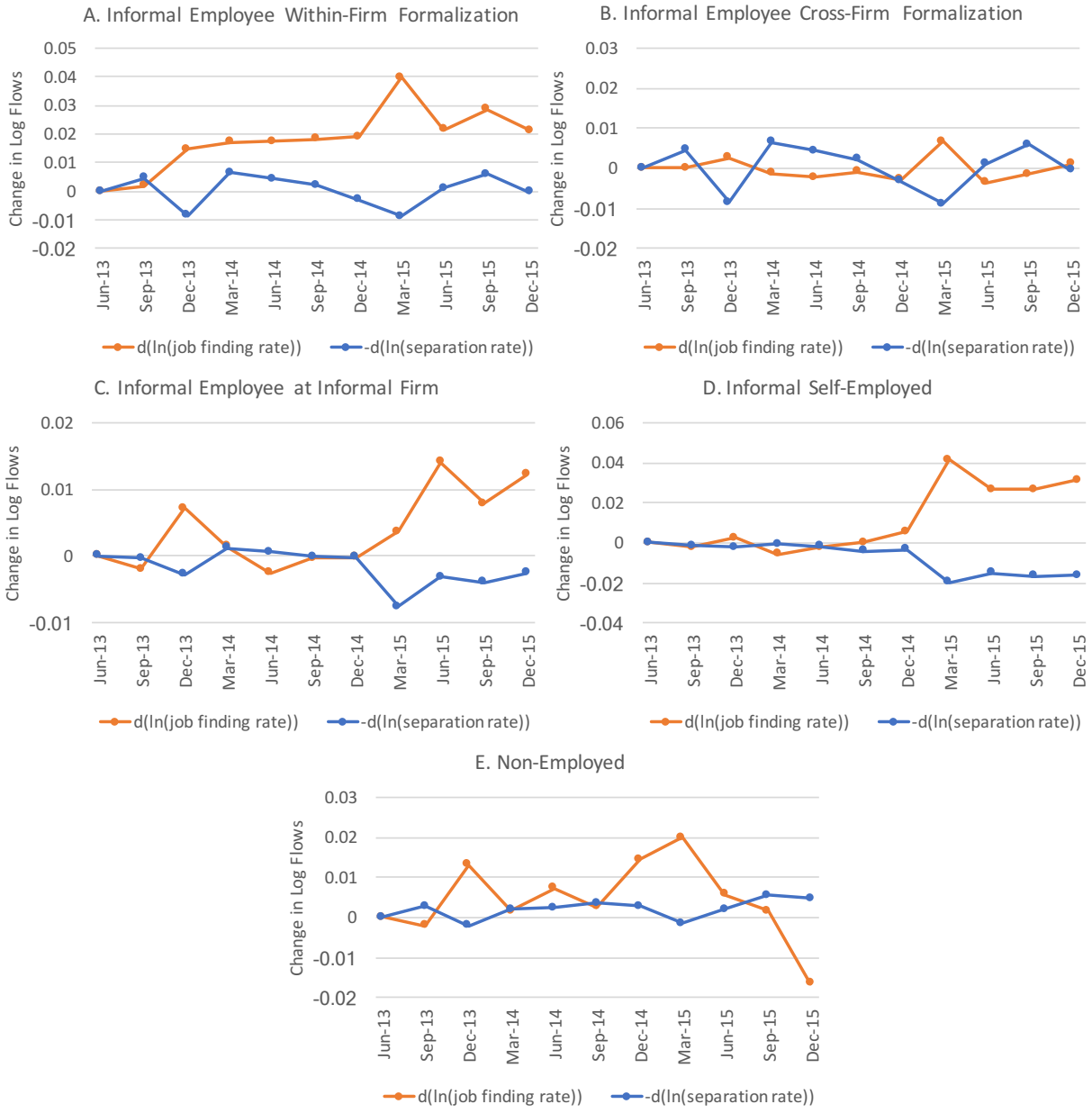


Source: Own calculations based on INEGI's Bank of Economic Information (BIE) and aggregate administrative data published by IMSS (Cubos Dinamicos)

Figure 2.13 follows a similar methodology as the one presented in section 2.5.2 to decompose the change in formal employees starting in 2013. I show that over half of this growth in formal employment can be attributed to an increase in the formalization rate for workers that were already employed at formal firms. The increase in formal employment, therefore, is not due to job creation but rather to changes in the types of jobs offered to individuals who are already employed at formal establishments. Moreover, I show that this effect was particularly strong among workers with wages above the median. This also explains the increase in the average wage for workers registered at IMSS.

Figure 2.13: Change in Inflow and Outflow Rates to Unemployment

(June 2008- September 2009)



Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE)

2.7 Conclusion

Between 2005 and 2012, the average quarterly unemployment rate in Mexico was 4.47% with a 3.1% low during the 4th quarter of 2005 and peaking at 6.2% in the 3rd quarter of 2009. To

shed some light into the determinants of this variation, I decompose unemployment growth into changes in the inflows and outflows by labor market entrants, formal and informal employees and self-employed individuals. By considering employed and self-employed workers in both the formal and informal sectors as distinct states of the labor market it is possible to identify relevant characteristics of the Mexican labor market dynamics which wouldn't be distinguishable if instead the employed/unemployed/out of the labor force categorization, traditionally used in flow analysis for the US labor market, was used.

By analyzing inflow and outflow rates across formal self-employment, informal self-employment, formal employees, informal employees, unemployment and non-participation, the direct and indirect determinants of unemployment variation can be analyzed. Decomposing changes in the unemployment rate into inflows and outflows from each category indicates that most of the direct variation in unemployment is due to increases in the inflows from employees in both the formal and informal sector. While the outflows from this category are more sensitive than outflows from the rest of the labor market states considered, the magnitudes of outflows' variability is much less than that of inflows, making the latter more relevant in explaining changes in the unemployment rate.

The decomposition of changes in unemployment rates points towards the relevance of the self-employed vs. employee divide when analyzing labor market dynamics in Mexico. Inflows and outflows across self-employment and unemployment appear to be less cyclical than those experienced by employees. Although job separation probabilities are more reactive during downturns these have a very small contribution to overall unemployment volatility.

This analysis also evidences the importance of distinguishing between formal and informal workers when evaluating labor markets in developing economies. Although dynamics into and out from unemployment appear to behave similarly once job position (i.e. employee vs. self-employed) is taken into account, by studying how the contribution of each sector evolves through time I find that informal employment contributes less to volatility as job finding probabilities begin increasing shortly after unemployment starts rising. Moreover,

as unemployment rate continues in an upward trend, transitions from formal to informal employment increase. In this sense, informality offers an alternative to job search in the formal market when job separation rates increase and labor market conditions are tight.

CHAPTER 3

LABOR MARKET REGULATION AND FIRMS' DECISIONS

3.1 Introduction

Lack of compliance with tax and labor regulations is a common affliction across countries. In developing economies, it gives rise to large and persistent informal labor markets. In this paper, using a new employer-employee-household matched panel dataset that includes both formal and informal workers, I analyze informal employment within formal firms, a dimension of the informal sector that has not received much attention in the prior literature.

Informality within the formal sector is important for several reasons. First, through informal jobs, firms can bypass minimum wage laws and avoid contributing to financing government mandated benefits. If the ability to shirk these regulations is negatively correlated with firm productivity, this allows less productive firms to compete with more productive ones, while maintaining the benefits of participating in the formal economy, such as access to credit and foreign markets. At the aggregate level, this can lead to resource misallocation and productivity losses.[1] Second, informal jobs reduce hiring and firing costs for firms, providing them with an additional adjustment margin and more flexible labor markets during downturns. Third, from a household perspective, informal employment can offer tax-arbitrage opportunities. Access to the benefits of a formal job for one household member can affect other family members' labor market participation and the type of jobs that they are willing to accept.

In this chapter, I present new facts regarding the characteristics, consequences, and dynamic behavior of informal employment at formal firms. Using inspections at randomly selected formal establishments in Mexico by the Ministry of Labor (STPS), I analyze the effect of labor regulation enforcement on informal and formal employment, turn-over, and wages. I exploit STPS inspections to identify exogenous transitions out of informal employ-

1. See, for example, Hsieh and Klenow (2009)[23], Hsieh and Olken (2014)[24], and Ulyssea (2014)[47].

ment and study the effect of access to the shared benefits of a formal job on household labor supply.

First, I find that 25% of all employees at formal firms are informal workers who do not receive government mandated benefits. These informal workers represent 31% of all informal employment (56% excluding self-employment) in Mexico. Previous literature has estimated labor market flows across the formal and informal sectors for Argentina, Brazil and Mexico[2]. I contribute to this prior work, first, by directly identifying formal firms using registration with STPS and, second, by distinguishing changes in formality status that occur with and without the worker changing jobs. Taking advantage of my new data, I estimate a 16.5% baseline quarterly transition rate from informal to formal, salaried jobs, with 86% of them occurring within the same establishment. The baseline quarterly transition rate from formal to informal jobs is 8.2%, and 13% of these transitions occur within the same establishment. The likelihood of transitioning to a formal job increases during the first 6 months of employment; then after a year, it decreases with tenure.

Next, using confidential data on inspections by STPS at randomly selected establishments, I analyze the effects of labor regulation enforcement on formalization rates, turn-over, and wages. I find that inspections increase the average probability of quarterly transitions from informal to formal jobs within the same establishment from 14% to 20% within the first 3 months after the inspection. Moreover, conditional on staying employed at the same establishment, average after-tax wages for informal workers at inspected establishments do not decrease. Therefore, informal workers who become formalized after an inspection do not appear to bear the cost of becoming registered. Instead, the average after-tax wage for formal workers is 1.1% lower after an inspection than for similar workers at non-inspected firms. These results are consistent with workers who were already formal before an inspection absorbing part of the increase in the establishment's labor costs.

2. See, for example, Bosch and Maloney (2008)[9], (2010)[10], Hoek (2007)[22], Gallardo del Angel (2013)[19].

Overall, the quarterly probability of remaining informally employed at the same establishment decreases after an inspection from 39% to 28%. However, not all of these transitions are towards formality. Informal workers at inspected establishments are also more likely to separate from their current job. Quarterly transition rates to unemployment for informal workers increase to 4% within 3 months of the inspection, 1.1 p.p. higher than the separation rate for similar workers at non-inspected firms (2.9%). I find that unmarried women with children, who arguably assign more value to health care, day-care centers and maternity leave benefits, are more likely to become formal after an inspection. Young men (under 25 years old) with less than a high-school degree or older women (45 years old or more) are more likely to become unemployed.

3.2 Literature Review

3.2.1 Informality and Labor Regulation Enforcement

Perry et al. (2007)[35] describe informality as the result of two phenomena: exclusion and exit. The "exclusion" literature views informal jobs and firms as an inferior type of employment. Under this view, informality exists due to barriers (taxes, burdensome regulation, search costs, etc.) that prevent all workers from accessing a formal job with higher pay and benefits, creating a segmented market. Workers would prefer to be formal but market frictions prevent wages from adjusting to reflect this preference (de Soto (1989)[14]; Rauch (1991)[39]). The "exit" perspective instead argues that individuals and firms choose their optimal level of regulatory compliance. Some individuals do not find enough net benefit from compliance and therefore choose informality instead (See, for example Levy (2008)[30]).[3]

Several authors argue that empirical evidence favors the "exit" view of informality. Bosch and Maloney (2010)[10], Levy (2008)[30] and Anton et al. (2012)[5] argue that the high

3. La Porta and Shleifer (2014)[29] present a detailed of both views while arguing in favor of "dual" or segmented models of informality.

transition rates across formal and informal employment in Mexico are inconsistent with individuals being excluded from the formal sector. Pratap and Quintin (2006)[37] do not find any evidence of a wage premium in the formal sector after controlling for individual and firm characteristics and conclude that the labor market is not segmented. However, this evidence does not account for the heterogeneity within the informal sector, in particular, it does not distinguish between self-employed individuals, employees at formal firms or employees at informal firms.

Since workers can only have a formal job if their employer is registered with tax authorities, previous theoretical literature analyzing informality has focused on what drives employers' decision to pay profit taxes. The assumption is that a formal firm follows all regulations, including the requirement to register employees. Hence, which workers have the benefits of a formal job depends on where they work. Few papers analyze the factors that influence whether a specific worker is hired as a formal employee or not at a formal firm.

Pratap and Quintin (2006)[37] and Amaral and Quintin (2006)[3] argue that the informal sector arises from firms' trade-off between paying taxes and access to funding. Satchi and Temple's (2009)[40], Zenou's (2008)[48] and Alcaraz et al. (2015)[2] models argue that search frictions are one of the main differences across both sectors. There is a barrier to entry in the formal sector while in the informal sector the job finding rate is equal to one. Albrecht et al. (2009)[1] and Meghir et al. (2015)[31] consider economies where both the formal and the informal sector are subject to matching frictions. However, Albrecht et al. (2009)[1] assume that workers are homogenous in their productivity in the formal sector and the arrival rate of offers for these jobs is exogenous. Meghir et al. (2015)[31] assume arrival rate of offers is exogenous in both sectors. While these papers are useful to model the effects of labor market policies on informality at the firm level or for self-employed individuals, they are not well suited for analyzing informality within formal firms.

Ulyssea (2014)[47] is one of few papers, to my knowledge, to explicitly study the existence of informal workers within formal firms, a phenomenon he refers to as the "intensive margin"

of informality. Heterogeneous firms can choose whether to register their business and, if registered, they can choose whether to register their workers or not. The model assumes firms face an increasing and convex expected cost to hire informal workers without which firms would hire all workers informally. The number of informal workers is determined exclusively by this cost function. Therefore, even though Ulyssea's paper explicitly models the existence of informal workers at formal firms, it has little to say about which workers receive a formal or an informal job within a firm.

This paper contributes to the literature in two valuable ways. First, it studies the effects of informal employment at formal firms on workers, firms, and households in Mexico. In doing so, I provide insights into the factors that influence which workers receive a formal vs. an informal job, the dynamics of this type of work arrangement, and how households respond when they receive the benefits of a formal job through another family member. Second, I use new data on random inspections by the Ministry of Labor (STPS) to analyze the effects of labor regulation enforcement and transitions out of informal employment. Moreover, unlike prior papers that had to rely on firm size or industry to proxy for formality status, this data allows me to identify formal establishments by directly observing whether they are registered with STPS.

3.2.2 Wage Compensation Theory

Wage compensation theory predicts that workers sort themselves into jobs that offer their preferred mix of wages and benefits. If the benefits received as a result of being registered with IMSS have a non-negative value for workers, then this theoretical framework implies that the after tax wage for registered workers should be lower than that of informal workers who are not covered by the mandated benefits, after controlling for other variables influencing pay. Currie and Madrian (1999)[11] note that the literature analyzing the existence of a trade-off between wages and employer provided health insurance has typically found estimates that either contradict wage compensation theory or are not statistically significant. They

attribute this lack of consistency between theory and data to bias generated by unobserved variables that influence both labor market outcomes and the likelihood of having health insurance.

Olson (2002)[34] uses male head of household's firm size and union status as an instrument for wives' access to health insurance with their own employers. He estimates wives with own employer health insurance take a 20% cut to their wages relative to what they would have earned if they chose to give up this benefit. Royalty (2006)[7] exploits variation across employees required contributions for different health plans offered at the same firm to estimate marginal willingness to pay for different services. She finds that while workers have low valuation for lower health premiums, they instead value insurance generosity (such as covered services) highly. Gallen (2014)[20] focuses in Tennessee's Medicaid program and uses the variation in prices and participation requirements across income groups and a forced dis-enrollment policy to estimate an average cash value of $0.26 cents per dollar spent on Medicaid.

Currie and Madrian (1999)[11] highlight the endogeneity concern that arises when trying to estimate the trade-off between benefits on wages. Workers sort themselves into firms and jobs based on the wage/benefits bundle that best suits their preferences. Moreover, access to a formal job and wages are positively correlated with worker's productivity. Therefore, a credible source of exogenous variation is needed to estimate the willingness to pay for benefits. STPS's random visits produce plausibly exogenous transitions out of informal employment. I use this as my identification strategy to measure the effects of benefits on labor supply and wages.

3.3 Data and Descriptive Statistics

3.3.1 The Ministry of Labor's (STPS's) Inspection Visits

It is STPS's responsibility to schedule and perform inspection visits at work centers to verify that they abide with labor regulations.[4] For ordinary inspections, STPS chooses establishments randomly from a list known as the National Firms' Directory (DNE)[5]

After STPS visits an establishment, the inspector files a report which details the type of inspection conducted[6], the establishment's name and address, the inspector's name, the date(s) on which the inspection was carried out, and the detailed results from the visit.[7]

My data includes all firms in the DNE, their addresses, industry and the date in which they were added to this list. For each establishment, I can also see the dates on which an inspection occurred, a broad description of the inspections' results, and whether there were any sanctions and fines imposed due to the violation. When a fine is imposed, I can also see the amount of the fine.

Table 3.1 shows the distribution of inspections by results. These statistics refer only to violations that are part of STPS's jurisdiction and hence do not include any detection or notifications sent to IMSS regarding informal employment. 43% of inspections are closed without further action by STPS. In 48% of all inspections, establishments are able to provide proof of compliance with irregularities detected after the inspection. Only 10% of all inspections result in a sanction by STPS. Between 2005 and 2016, the average fine was MXN$32,194 (USD$1,740) with a maximum fine of MXN$82,569,000 (USD$4,463,189)[8] and a minimum of MXN$20.57 (USD$1.11).

4. Reglamento Interior de la Secretaria de Trabajo y Prevision Social, Article 18-VI[42]

5. Reglamento General para la Inspeccion y Aplicacion de Sanciones por Violaciones a la Legislacion Laboral.[41]

6. Inspection visits can be ordinary, extraordinary, initial, follow-ups or part of a specific program to verify a particular type of violation (e.g. child labor prevention).

7. See Appendix 5.5 for a template of an inspections report (in Spanish).

8. This fine was imposed due to health and hygiene violations in 2013.

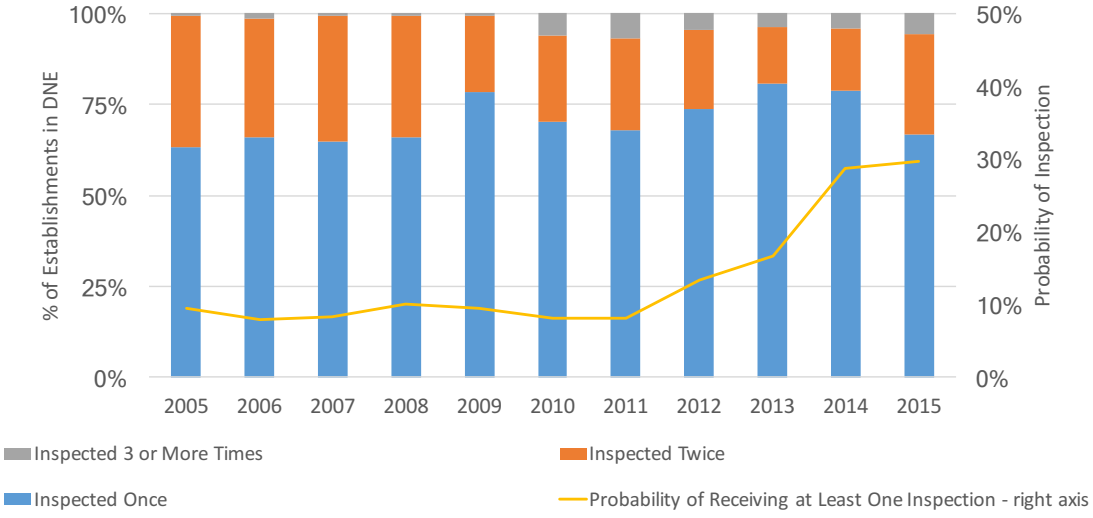
Table 3.1: Distribution of STPS's Inspections by Result (2005-2016)

Result			No. of Inspections	% of All Inspections
Violation Detected	Closed without report of violations		266,517	43%
	Provided proof of compliance		296,367	48%
	Request for time extension granted		184	0%
	Sanction process started	Sanction imposed	23,154	4%
		Sanction no yet imposed	34,620	6%

Notes: Excludes violations of labor regulations beyond STPS's direct jurisdiction, including, informal employment.
Source: Own calculations using the National Firm Directory (STPS) and Inspections logs 2005-2016. Information request no. 0001400017316 National Institute for Transparency, Access to Information and Personal Data Protection (INAI)[32].

The probability of being inspected in a given year shows an increasing trend starting in 2012. Between 2005 to 2011, establishments' annual inspection probability was 9%. In 2013 the likelihood of being inspected in a given year increased to 17% and by 2015 this probability was 29%. This is due to an increase in the number of inspections performed per year rather than to an increase in the number of establishments subject to random selection for inspection. As a result, Figure 3.1 shows that the probability of receiving more than two inspections in a given year has also increased.

Figure 3.1: Yearly Inspection Probability and Distribution of Establishments by Number of Inspections Received in a Year (Conditional on being Inspected)



Source: Own calculations using the National Firm Directory (STPS) and Inspections logs 2005-2016. Information request no. 0001400017316 National Institute for Transparency, Access to Information and Personal Data Protection (INAI)[32].

A few caveats regarding STPS inspections and their effects on informal employment are worth highlighting. First, since establishments receive notice of the inspection, they can potentially hide any evidence of informal employment. Therefore, STPS inspectors may not detect all (or even any) informal employees at an establishment. Moreover, an establishment's ability to avoid detection could be correlated with its share of informal workers. Second, even if informal employment is detected, I do not have access to data on notifications sent to IMSS by STPS. I also do not observe whether IMSS performs a follow-up inspection, nor do I know the average length of time between STPS inspection and IMSS follow-ups. In spite of these limitations, STPS inspections can promote compliance with regulation even without detecting violations by making firms aware of the presence of authorities.

Detection rates and firms' ability to avoid detection matter for the effect of inspections on informal employment. The probability that an informal employee at an inspected establishment remains informally employed at the same establishment decreases after an inspection. However, it is not equal to zero. Furthermore, some workers may be formalized while others

might instead separate from their current job. The likelihood of each of these outcomes is plausibly correlated with the share of detected informal workers. Even though this information is included in the reports, I unfortunately do not currently have access to it. Instead, I use inspections as an instrument for any transition out of informal employment.

3.4 Effects of Enforcement on Formalization, Turn-Over and Wages

In this section, I first show that the probability of being inspected, conditional on being employed in an establishment included in the DNE, is not correlated with workers' or establishments' characteristics. Then, I use STPS inspections to analyze how firms respond to enforcement. I focus on the effects of inspections on the rate of formalization, wages for informal and formal workers, and turn-over rates. Afterwards, I use inspections to identify exogenous transitions out of informal employment and analyze the effects of access to a formal job on household labor supply.

Let $IF_{i,j,t}$ be a dummy variable equal to 1 if individual i was informally employed in establishment j in quarter t and became formally employed at the same establishment in period $t+1$ and zero if he remained informally employed. Let $IU_{i,j,t}$ be equal to 1 if i was informally employed at j in period t and became unemployed in period $t+1$, and 0 if he remained informally employed at j. Finally, let $Z_{i,t}$ indicate whether individual i was employed at an establishment that received an inspection within the past 3 quarters $[t-3, t]$ and zero otherwise. Finally, let $X_{i,j,t}$ be a vector of worker and establishment characteristics.

Columns (1), (2) and (3) in Table 3.2 present the estimates from the following linear

probability models:

$$\begin{aligned} E\left(IF_{i,j,t}|X_{i,j,t},t\right) =& \phi\left(\alpha_0 + \alpha_1 X_{i,j,t} + t + \epsilon_{i,j,t}\right) \\ E\left(IU_{i,j,t}|X_{i,j,t},t\right) =& \phi\left(\beta_0 + \beta_1 X_{i,j,t} + t + \eta_{i,j,t}\right) \\ E\left(Z_{i,t}|X_{i,j,t},t\right) =& \phi\left(\gamma_0 + \gamma_1 X_{i,j,t} + t + \zeta_{i,j,t}\right) \end{aligned} \tag{3.1}$$

Column (1) uses a linear probability model to test whether worker and firm characteristics are predictive of within-establishment quarterly transitions from informal to formal status[9]. As expected, demographic and skill-related characteristics are highly predictive of whether an informal worker will transition to a formal job at his current place of employment. Workers with higher education are more likely to transition to a formal job. Establishment size is also significantly and positively correlated with this transition probability.

9. I refer to within-establishment or within-job transitions in formality status as the cases in which a worker experiences a change in access to government mandated benefits without transitioning to a job at a different establishment.

Table 3.2: Testing for Random Probability of Inspections

	(1) Transitions to Formal Job $IF_{i,j,t}$		(2) Job Separations $Sep_{i,j,t}$		(3) Inspection $Z_{i,j,t}$	
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Age	0.002	(0.002)	-.005**	(0.002)	-0.001**	(0.001)
Gender	0.068*	(0.041)	-0.229***	(0.057)	0.005	(0.013)
Tenure	0.008**	(0.003)	-0.014***	(0.002)	0.001	(0.001)
Education						
Less than High School	0.261*	(0.149)	0.287	(0.241)	0.068	(0.066)
Completed High School	0.522***	(0.154)	0.559**	(0.247)	0.043	(0.067)
Some College	0.619***	(0.167)	0.650**	(0.264)	0.075	(0.069)
College +	0.642***	(0.156)	0.554**	(0.250)	0.074	(0.068)
Children in daycare	0.050***	(0.015)	-0.784***	(0.270)	0.000	(0.005)
No. of household members	0.018	(0.017)	-0.008	(0.014)	0.003	(0.006)
Establishment size						
6-10	0.372***	(0.0154)	0.259***	(0.087)	-0.046	(0.025)
11-15	0.516***	(0.073)	0.554***	(0.113)	0.014	(0.029
16-50	0.727***	(0.055)	0.801***	(0.084)	0.002	(0.021)
51+	0.892***	(0.052)	1.354***	(0.075)	-0.003	(0.019)
LR		1,194.36		649.23		30.44
p-value		0.000		0.000		0.595
No. of Observations: 406,003						

Notes: This table displays the test of whether inspections by STPS are in fact randomly distributed across workers and establishments. The baseline estimation sample is individuals who are informally employed at an establishment that is included in the DNE between 2005 to 2015. The dependent variables in columns 1, 2 and 3 are, respectively, $IF_{i,j,t}$ a dummy equal to 1 if individual i was informally employed at establishment j in quarter t and transitioned to being formally employed at the same establishment in $t+1$ and 0 if he remained informally employed at the same establishment; $IU_{i,j,t}$ a dummy equal to 1 if individual i was informally employed at establishment j in quarter t and became unemployed between quarters t and $t+1$

(Continues in the following page)

(Notes to Table 3.2 continued from previous page) and 0 if he remain informally employed at the same establishment; and $Z_{i,t}$ a dummy equal to 1 if individual i was informally employed at an establishment inspected within period $t-3$ and t, and 0 if the establishment is included in the DNE but was not subject to an inspection within this timeframe. Workers and establishments' characteristics are measured before transition or inspection. Tenure is measured in months employed at the current establishment. Children in day-care is the number of children within the ages of 0 to 4 in the household. Gender is equal to 1 for men and 0 for women.

Column (2) shows that tenure, age and education are negatively correlated with the probability of separating from an informal job into unemployment. Column (3) assesses whether the probability of being subject to an ordinary inspection is correlated with firm or worker variables. Jointly, workers and establishments' characteristics explain less than 0.1 percent of the variation in inspection probability across establishments within the DNE (joint p-value of 0.595). Therefore, I conclude that STPS Inspection and Sanction System generates a distribution of inspections that is consistent with random selection across establishments included in the DNE.[10]

Being subject to an inspection by STPS gives employers incentives to correct their informality situation before IMSS verifies their compliance and levies a fine. Therefore, inspections should lead to changes in the probability that employers register their currently informal workers with IMSS or in the probability that the match is terminated. Since registering workers implies contributing to funding the benefits associated with a formal job, it is also possible that inspections affect wages of newly registered employees and even of already formalized co-workers. In the next sections, I separately analyze the effect of enforcement on informal and formal workers' turnover rates and wages.

For each worker employed at an establishment that received an inspection between 2005 and 2015, I can calculate the number of quarters since the inspection took place. I use an event-time comparison between treatment and control groups to analyze the effect and persistence of inspections on labor market flows. For each time period t and each number of quarters $q \in [-3, 3]$, the treatment group is composed of all the individuals who in period t

10. The similarities between the distribution of establishments in the DNE and inspected establishments by industry and size presented in Appendix A is also consistent with a random assignment of inspections.

are employed at an establishment that received an inspection in period $t-q$[11]. Meanwhile, for each time period t and each number of quarters $q \in [-3, 3]$, the control group includes all the individuals who in period t are employed at establishments that have not received an inspection in the past 3 quarters and will not be subject to one within the next 9 months.

3.4.1 Effects on Informal Employees

I consider 6 different transitions out of informal employment at a formal establishment: to a formal job at the same establishment, to an informal job at a different formal establishment, to a formal job at a different formal establishment[12], to a job at an informal establishment[13], to unemployment and leaving the labor force. This section analyzes whether the probability of each of these transitions changes after an inspection for workers that are informally employed at the time of inspection.

Let $TI_{i,j,t}$ be a multinomial categorical variable indicating the different transitions out of informal jobs at a formal establishment. For every worker i that is informally employed at formal establishment j in period t, $TI_{i,j,t}$ is equal to:

a) 0 if individual i remains informally employed at establishment j ($INF_{j^F,t} \rightarrow INF_{j^F,t+1}$);

b) 1 if individual i transitions from being informally employed at establishment j in quarter t into unemployment in quarter $t+1$ ($INF_{j^F,t} \rightarrow U_{t+1}$);

c) 2 if he becomes formally employed at the same establishment j ($INF_{j^F,t} \rightarrow F_{j^F,t+1}$);

d) 3 if he becomes formally employed at a formal establishment k different from j ($INF_{j^F,t} \rightarrow F_{k^F,t+1}$);[24]

11. $t-q<0$ refers to an establishment that will receive an inspection in the future, q quarters after period t.

12. This category includes formal self-employment and formal employers.

13. This category includes informal employees at informal establishments, informal self-employment and informal employers.

e) 4 if he transitions to an informal job at a formal establishment k different from j ($INF_{j^F,t} \rightarrow INF_{k^F,t+1}$);

f) 5 if he transitions to an informal job at an informal establishment l ($INF_{j^F,t} \rightarrow INF_{l^{INF},t+1}$);[25]

g) 6 if he leaves the labor force ($INF_{j^F,t} \rightarrow OLF_{t+1}$)

Let $s_{i,t,q}$ be an indicator variable equal to 1 if in period t individual i was employed at an establishment that received an inspection on period $t-q$, $q \in [-3,3]$ and 0 otherwise. Let $Inspected_i$ be an indicator variable equal to 1 if individual i was employed at an establishment that received an inspection within the 3 previous quarters or will receive one within the next 3 quarters, and 0 otherwise.

I model the probability of transitions out of informal employment using a multinomial logit model as specified in equation 3.2 below. The set of coefficients β_q^x capture the time-varying effects of inspections over transition probabilities out of an informal job. $X_{i,j,t}$ is a vector of relevant worker and establishment characteristics including age, gender, tenure, education, occupation, industry, establishment size, number of family members, and number of children in day-care age. $Result_{j,t}$ is a set of dummy variables indicating whether STPS detected a potential violation of labor regulations and the type of violation, and whether the detection resulted in a sanction and fine. t is a set of quarter-year fixed effects.

$$Pr\left(TI_{i,j,t} = x | i,t,j\right) = \phi\left(\sum_{q=-3}^{3}\left(\beta_q^x s_{i,t,q} \times Inspected_i + \gamma_q^x s_{i,t,q}\right) + X'_{i,j,t}\eta^x + Result'_{j,t}\alpha + t + \epsilon_{i,j,t}\right) \quad (3.2)$$

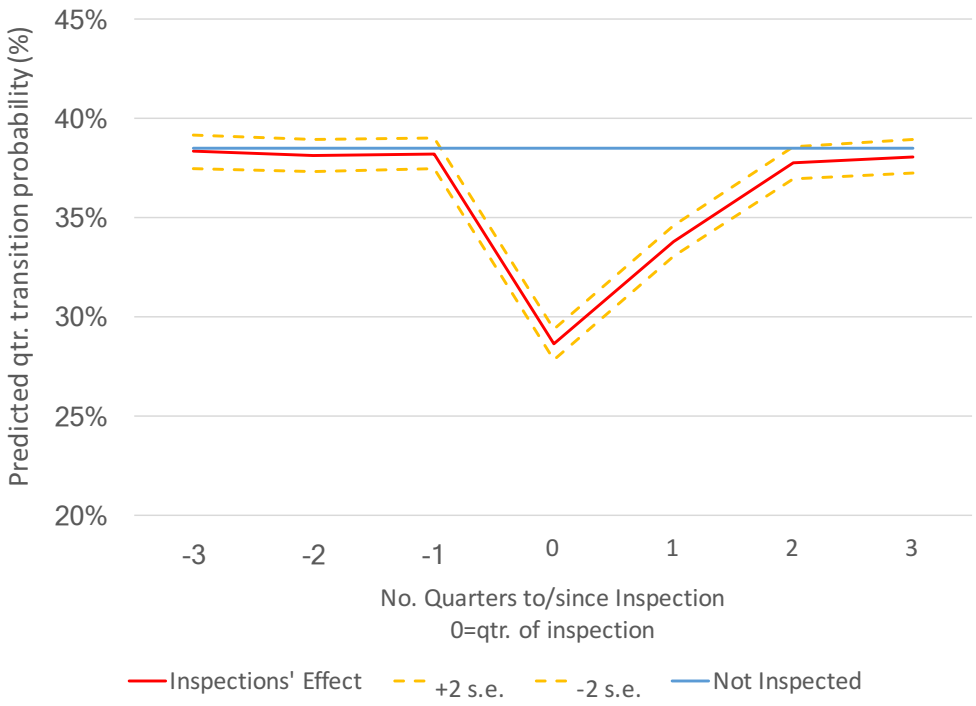
$\forall x \in \{0,6\}$

Panels A to G in Figure 3.2 below show the the effects of inspections on transition probabilities before and after the inspection occurs, estimated using equation 3.2. Each panel

plots the average transition probabilities out of informal employment into different labor market states for the treated (informal workers employed at establishments that received an inspection) by number of quarters until/since the inspection takes/took place. The blue line shows the baseline average transition probability for the control (informal workers at establishments included in the DNE that did not receive an inspection within a [-3,3] quarters window).

Figure 3.2: Informal Workers' Transition Probabilities by No. of Quarters to/since Inspection

Panel A: Probability of Staying in an Informal Job at the Same Establishment



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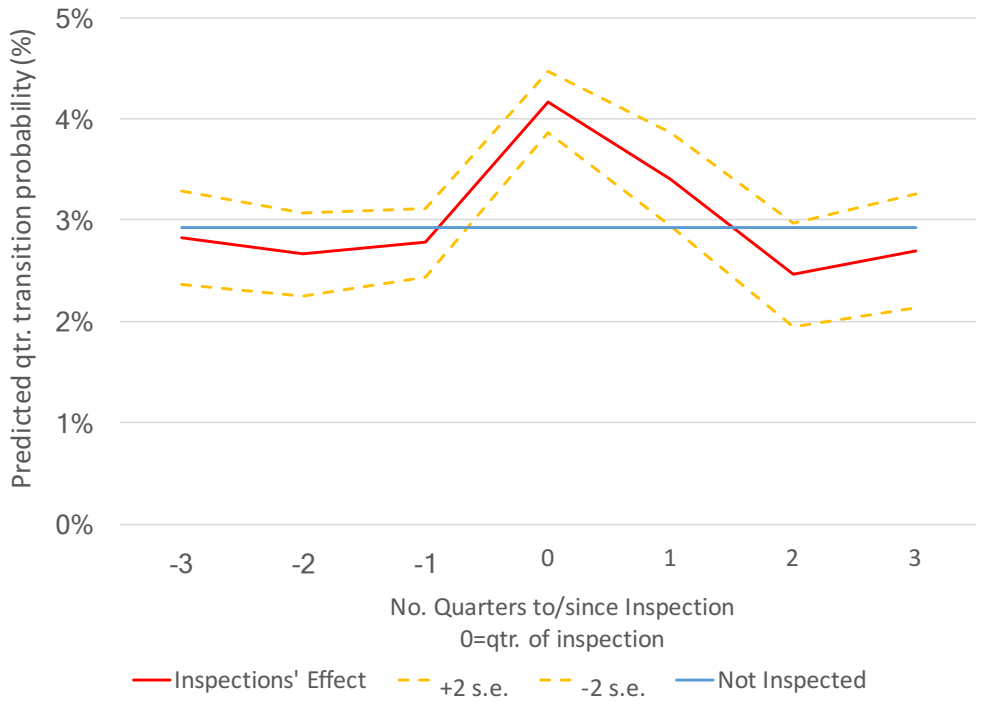
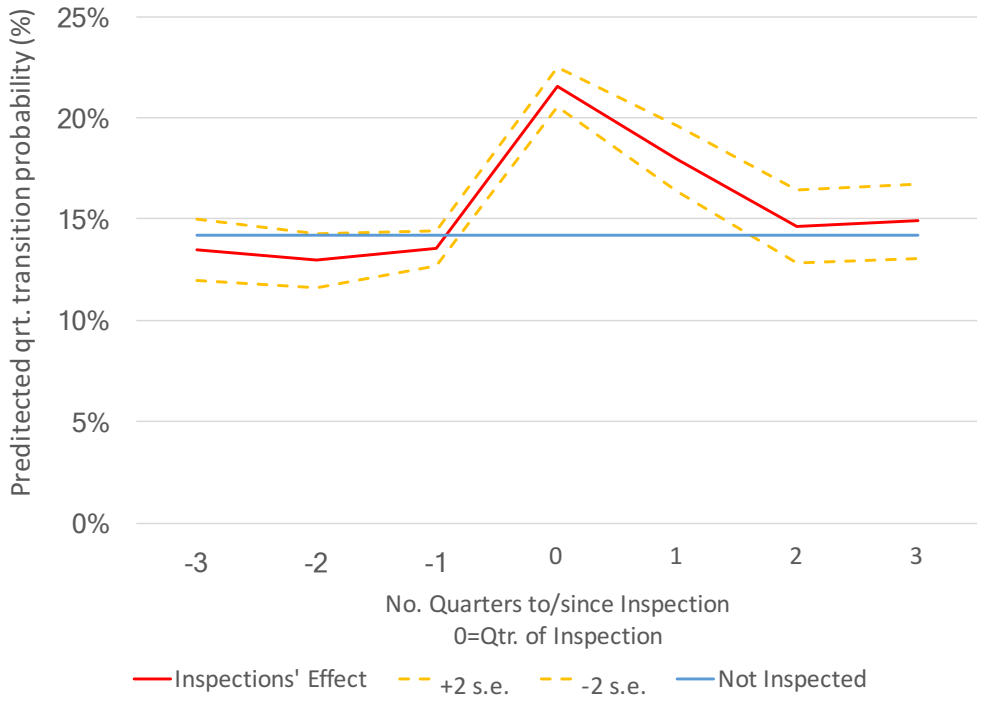
Panel B: Transition Rate from Informal Job at Formal Establishment to Unemployment



Panel C: Transition Rate from Informal to Formal Job Within the Same Formal Establishment



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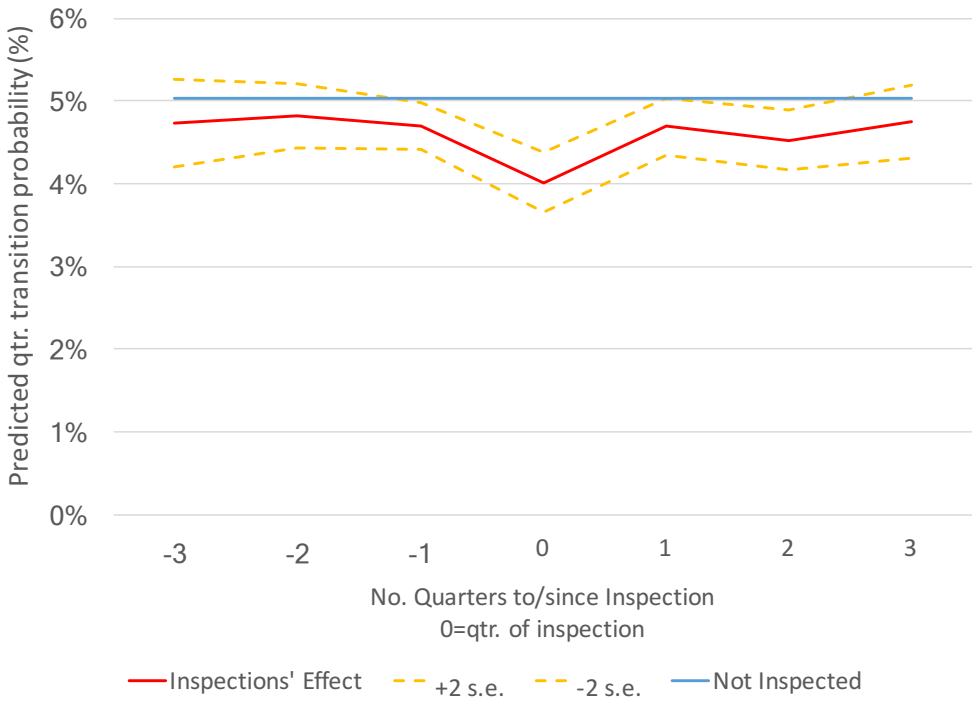
Panel D: Transition Rate from Informal to Formal Job*

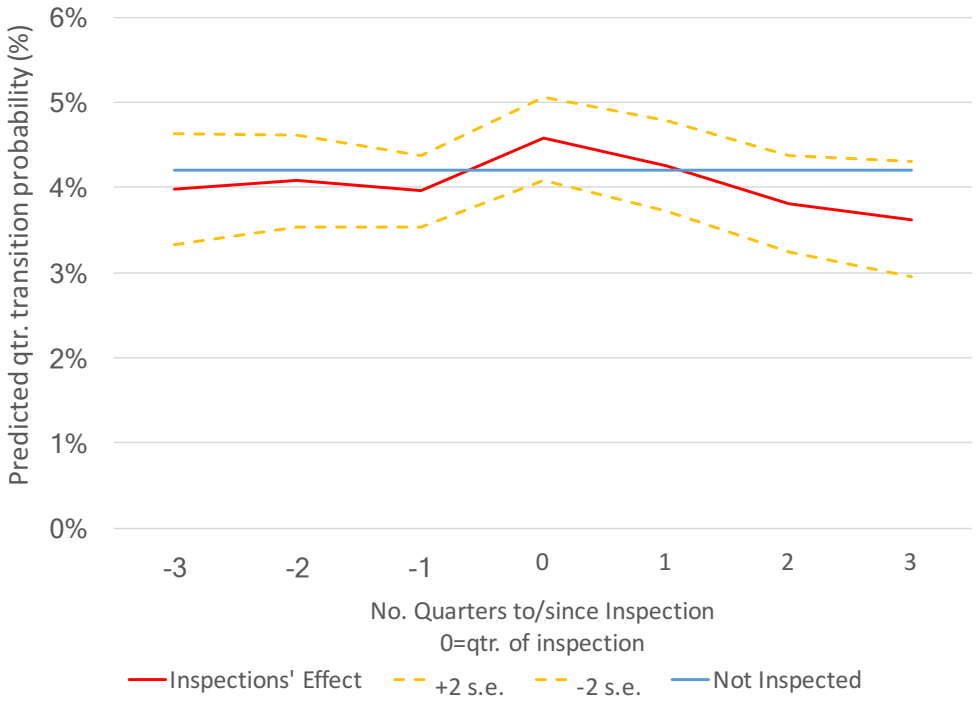
at a Different Formal Establishment



*Includes transitions into formal self-employment and becoming a formal employer.

Panel E: Transition Rate from Informal Job at Formal Establishment to Informal Job

at New Formal Establishment



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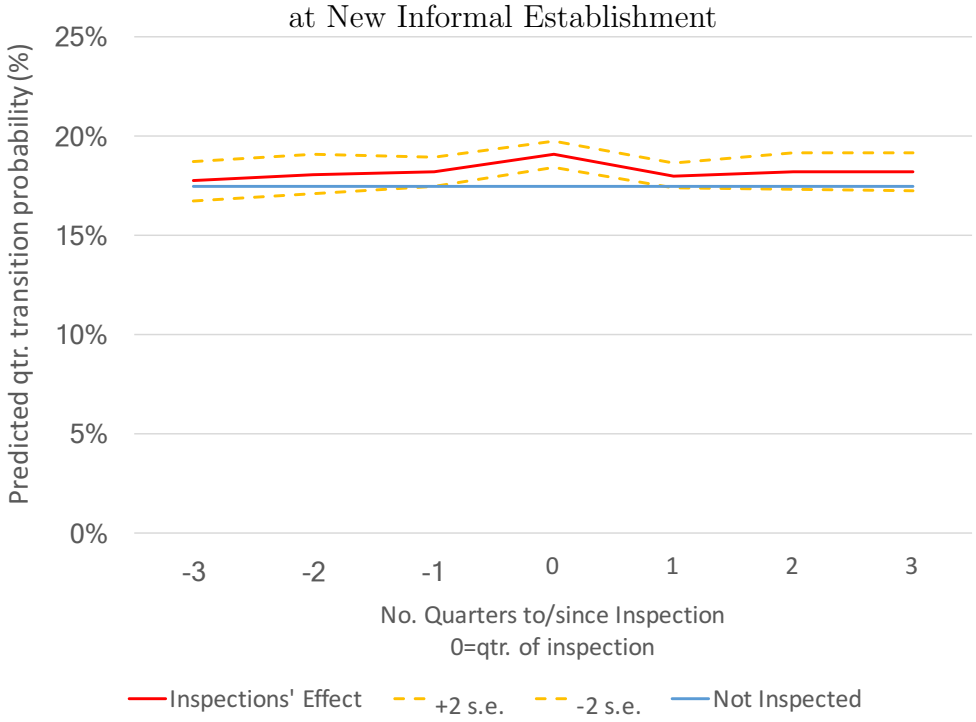
Panel F: Transition Rate from Informal Job at Formal Establishment to Informal Job*

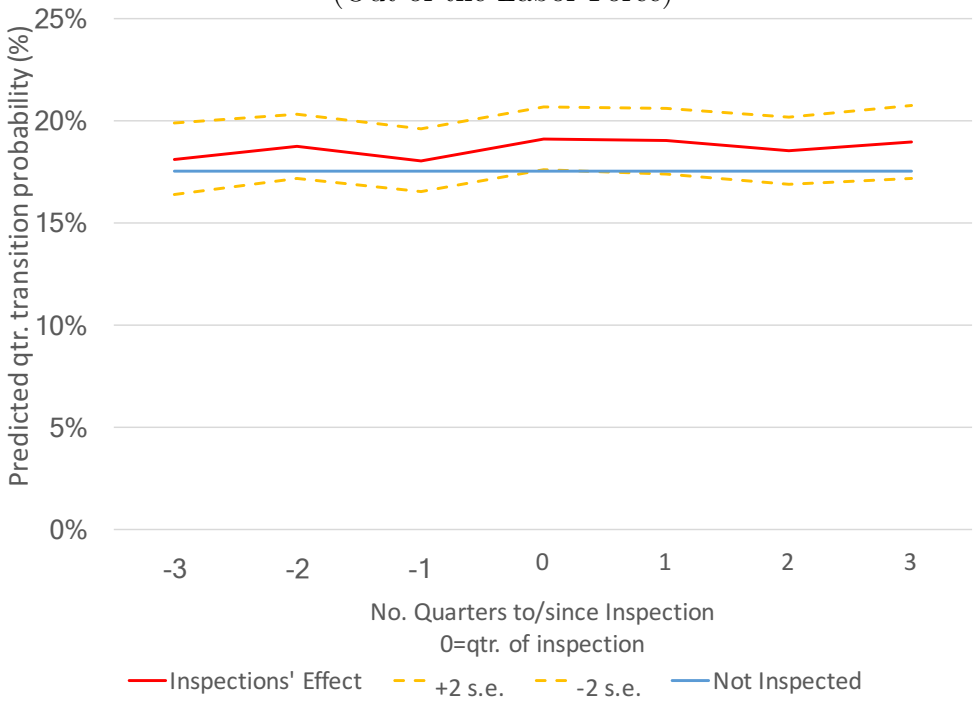
at New Informal Establishment



*Includes transitions into informal self-employment and becoming an informal employer.

Panel G: Transition Rate from Informal Job at Formal Establishment to Non-Participation

(Out of the Labor Force)



(Notes for figure 3.2 appear in the following page)

Notes to Figure 3.2 Panels A to G *(Continued from previous page)*: These figures display the effect of inspections on transitions out of informal employment on the treated (inspected) and control groups (not inspected) by number of quarters until and since an inspection occurs. $q = 0$ indicates the quarter of inspection. The sample includes informal workers employed at establishments included in the DNE between 2005-2015. For each value of q, the treatment group includes all informal workers employed at an establishment inspected q quarters ago. The control group includes informal workers at establishments in the DNE that were not inspected within a [-3,3] quarter window. Dotted lines show $\pm$ 2 standard errors for the inspection effect coefficients. The effect on the treated is calculated as the sum of $\beta_q + \gamma_q$ and the transition rate dependent mean. The effect on the control group is calculated as the predicted rate of transition out of informal employment towards each of the labor market states considered with establishment and worker's characteristics fixed at their mean values.

These results show that:

1. Informal employees at inspected and non-inspected establishment exhibit similar average quarterly transitions rates out of informality before an inspection occurs (consistent with random selection of establishments for inspection).

2. The quarterly probability of remaining informally employed at the same establishment decreases from 38% to 27% after an inspection (Panel A).

3. This is due mainly to an increase in the within-establishment formalization rate from 14% to 21% on the quarter of inspection (Panel B) and an increase in the probability of quarterly flow rates into unemployment from 2.9% to 4.0% (Panel C).

4. Although the likelihood of formalization at the same establishment increases, the quarterly probability of starting a formal job at a different establishment decreases from 5% to 4% for informal workers at the time of inspection (Panel D).

5. Quarterly transitions to another informal job at a different formal establishment also increase, although the change is not statistically significant (Panel E).

6. After an inspection, the probability of job-to-job transitions to an informal establishment from one quarter to the next increase from 17% to 19% (panel F).

7. Informal workers at inspected establishments do not exhibit a different likelihood of

exiting the labor force relative to informal workers at non-inspected establishments (panel G).

Figure 3.2 shows that inspections lead to different outcomes for different workers. While in some cases inspections result in transitions to a formal job within the same establishment, they also increase the likelihood of separation towards informal employment at a new establishment or to unemployment.

Since registering workers with IMSS implies paying taxes to fund the benefits received, inspections can either increase the cost of labor for the employer, change the after-tax wage of the workers at inspected establishments, or both. In order to check whether inspections affect wages for informal workers, I compare average wages before and after an inspection occurs for informal workers who remain employed at the same establishment. Formality status for worker i is defined by his self-reported access to social benefits through his job before the inspection occurs ($q = -1$). The post-treatment group includes informal workers that transitioned to a formal job at the same place of work as well as those that remained informally employed.

Let q be the number of quarters until/after an inspection, $q \in \{-4, 4\}$, and $stay_{i,j,q}$ be a dummy equal to 1 if individual i stays employed in the same establishment j, q quarters before/after the inspection occurs. Let $w_{i,q}$ be the hourly wage earned by worker i, q quarters before/after an inspection. For each worker i, I define the average wage per hour earned while employed at establishment j before and after inspection, $\overline{w_{i,j,p}}$ and $p \in \{Pre, Post\}$, as follows:

$$\overline{w_{i,j,p}} = \begin{cases} \dfrac{\sum\limits_{q<0} w_{i,q} \times stay_{i,q}}{\sum\limits_{q<0} stay_{i,j,q}} & p = Pre \\ \\ \dfrac{\sum\limits_{q\geq 0} w_{i,q} \times stay_{i,q}}{\sum\limits_{q\geq 0} stay_{i,j,q}} & p = Post \end{cases} \tag{3.3}$$

Table 3.3 below compares the average after-tax wage for informal workers at inspected establishments against their counterparts at non-inspected establishments, conditional on staying at the same place of work, before and after an inspection,[31] as described in equation 3.4 below.

$$\ln\left(\overline{w_{i,j,p}}\right) = \zeta_1 Post_{i,p} + \zeta_2 Post_{i,p} \times Inspected_i + \zeta_3 X_{j,p} + i + \epsilon_{i,j,p} \tag{3.4}$$

Table 3.3: Informal Workers at the Time of Inspection Ln Daily Wage
(Conditional on Employment at the Same Establishment)

Variable	**Coefficient**	**(Std. Err.)**	**Dependent Mean Wage**
Post	-0.016	(0.021)	MXN$ 162
PostXInspected	0.025	(0.019)	
No. of Individuals	55,164		

Notes: This table shows the ζ_1, and ζ_2 coefficients defined in equation 3.4. The baseline sample are all informal workers employed at establishments in the DNE who remained employed at the same establishment at least one quarter after the inspection. The control group includes all informal workers employed in an establishment included in DNE that was not chosen for a random inspection and who remain employed at the same establishment. The treatment group are workers who were informally employed a quarter before an STPS inspection and remain employed at the same establishment for at least one quarter after the inspection. Formality status is defined as the self-reported access to government mandated social benefits one quarter before the inspection takes place. The mean dependent wage is calculated with all other control variables at their mean values. Standard errors are clustered at the establishment level.

Table 3.3 indicates, perhaps surprisingly, that the average after-tax wage for informal workers does not change significantly after an inspection relative to workers who were not inspected. Although inspections increase the probability of transitioning to a formal job, which represents a 24% increase in labor costs for a formal worker earning the average wage, informal workers do not have lower wages after an inspection. Instead, table 3.3 shows that being employed at an inspected establishment after an inspection is associated with a wage 2.5% above that of non-inspected informal workers, conditional on employment at the same

31. These analyses limit the sample to those workers who remain employed at the same establishment before and after the inspection.

establishment, although the coefficient is not statistically significant. This could be explained by a composition effect. If after an inspection employers keep only higher skilled, informal workers and terminate matches for lower skilled workers, the average wage conditional on staying employed would be higher at inspected establishments, consistent with the results presented in table 3.3.

3.4.2 Effects on Formal Employees

Despite increasing the likelihood of within-establishment informal to formal job transitions, Table 3.3 above presented some evidence consistent with informal workers not experiencing a negative shock to wages after an inspection. This could indicate that some of the costs of registering workers after an inspection are paid by other employees at the same firm. Table 3.4 below compares average wages before and after and inspection for formal workers who remain employed at the same establishment after the inspection occurs as detailed in equation 3.5. Formality status for worker i is defined by his self-reported access to social benefits before the inspection occurs ($q = -1$). Therefore, the post-treatment group does not include informal workers that transitioned to a formal job at the same place of work on or after the quarter of inspection.

$$\ln\left(\overline{w_{i,j,p}}\right) = \zeta_1 Post_{i,p} + \zeta_2 Post_{i,p} \times Inspected_i + \zeta_3 X_{j,p} + i + \epsilon_{i,j,p} \tag{3.5}$$

where $\overline{w_{i,j,p}}$ is defined as in equation 3.3 above.

Table 3.4: Formal Workers at the Time of Inspection Ln Daily Wage
(Conditional on Employment at the Same Establishment)

Variable	**Coefficient**	**(Std. Err.)**	**Dependent Mean Wage**
postdummy	0.019	(0.009)	MXN$239
postXtreated	-0.013	(0.006)	
No. of Individuals	315,548		

Table 3.4 shows that, after an inspection, formal workers have lower wages relative to similar workers at non-inspected establishments. After an inspection the average wage for formal workers at inspected firms who remain at the same establishment is 1.3 p.p. lower than that of their counterparts at non-inspected firms. It is important to mention that since the sample is restricted to workers who remain employed at the same establishment, the results could be driven by composition effects.

In Appendix 5.4, I analyze the effect of inspections on already formalized workers. Formal workers are more likely to remain employed at the same establishment and maintain their formality status than informal workers. Inspections have a small negative effect on the probability of staying formally employed at the same establishment, mostly driven by transitions to a different formal job. Figure 5.2 presents evidence of higher job-to-job transitions for formal workers after an inspection. If workers that leave after an inspection are those with higher wages, this could explain the negative coefficient in the wage equation for formal workers who remain employed at the same establishment after an inspection.

CHAPTER 4
HOUSEHOLD LABOR SUPPLY AND THE BENEFITS OF A FORMAL JOB

4.1 Introduction

Recently, a growing literature analyzes the effects of employer or government provided benefits to household labor supply decisions. This is a relevant distinction because the benefits received can often be extended beyond the individual, making them a public good at the household level. Using a joint labor supply decision model, Dey and Flinn (2008)[15] show that ignoring the possibility of extending coverage to other household members can lead to biased estimates of the marginal willingness to pay for health insurance. Similarly, focusing on the Old-Age and Survivors Insurance program of the U.S. Social Security system, Nishiyama (2010)[33] demonstrates that models that do not take into account the existence of spouses or dependents underestimate the program's effects on labor supply.

Blundell et al. (2015)[8] characterize the individual and household level impacts of disability insurance (DI) receipt in Norway. Using random assignment of judges across DI appeal cases, they find evidence that while being denied DI leads to large significant decreases in income for unmarried applicants, married households alter their labor supply to entirely offset the loss of DI benefits. This literature highlights the importance of looking at both spouses' response to changes in formality status in order to develop the welfare implications, especially considering that the benefits from a formal job extend to the worker's partner and dependents. In this paper, I contribute to this literature by analyzing the effects of spousal labor supply and starting wages after a worker transitions out of an informal job.

A transition from an informal to formal job has two potential effects on workers' labor supply decisions. On the one hand, since registration to a formal job implies contributing to funding the benefits offered through IMSS, a formal job is accompanied by negative wage effect equal to the worker's share of the payroll taxes. On the other hand, formality also has

an income effect because of the benefits that workers receive from IMSS. The magnitude of the income effect depends on how much value households' place on these benefits. Therefore, labor market responses to changes in formality status can provide information regarding the value of a formal job.

The results presented in the previous section indicate that inspections increase the likelihood of informal workers transitioning to a formal job or becoming unemployed. Moreover, for those informal workers that remain employed at the same firm after an inspection, there is no significant change in wage indicating that the cost of registration is not borne directly by the worker, at least in the short-term. In this section, I analyze how these transitions out of informal employment by one household member affect other members' labor supply decisions.

Since some of the main benefits received from IMSS (health care and day care services) are fully shared with family members, the incentives to become a formal employee decrease once another household member receives coverage. Therefore, an individual whose spouse[1] transitions from an informal to a formal job after an inspection would be more likely to accept an informal job. If after an inspection the worker instead becomes unemployed, the spouse's likelihood of accepting an informal job might also increase. Given the lack of unemployment insurance in Mexico and the absence of severance payments in informal jobs, spouse's 1 transition from an informal job to unemployment after an inspection lowers spouse's 2 reservation wage. If informal jobs are more readily available, as the job finding rate indicates, then the likelihood of a transition into an informal job by spouse 2 could increase after an inspection.

I focus on households where the head of household is married or has a partner that he or she co-habitates with, regardless of marital status. I refer to the partner who did not receive an inspection shock as spouse 2.

1. Again, throughout the paper I use the term "spouses" to refer to the head of household and his/her adult partner, regardless of marital status.

4.2 Inspections' Effects on Unemployed Spouses

Consider the joint labor supply decision of a household where one spouse is unemployed (spouse 2) and the other is informally employed (spouse 1). The probability that spouse 2 transitions from unemployment into a formal or an informal job depends on the worker's characteristics, frictions in the formal and informal jobs markets, and the value of the benefits that are offered through a formal job relative to the cost of contributions for these benefits. Additionally, since some of the benefits are shared between household members, the value of a formal job will vary depending on the employment and formality status of his partner (spouse 1). I use the exogenous variation in the probability that spouse 1 transitions out of an informal job generated by STPS inspections as an instrument to estimate the effects of access to formal jobs on households' labor supply.

Let $S^{k}_{n,h,t}$ be an indicator variable that characterizes the labor market status for spouse $n \in [1,2]$ in household h and time period t, $\forall\ k \in [INF, F, U]$.

$$S^{F}_{n,h,t} = \begin{cases} 1 & \text{if spouse } n \text{ is formally employed} \\ 0 & \text{otherwise} \end{cases}$$

$$S^{INF}_{n,h,t} = \begin{cases} 1 & \text{if spouse } n \text{ is informally employed} \\ 0 & \text{otherwise} \end{cases}$$

$$S^{U}_{n,h,t} = \begin{cases} 1 & \text{if spouse } n \text{ is unemployed} \\ 0 & \text{otherwise} \end{cases}$$

The correlation between spouse's 2 labor supply and spouse's 1 formality status is summarized in equation 4.1. The probability that spouse 2 is formally (or informally) employed in period $t+1$ conditional on being unemployed in period t depends on the probability that spouse 1 remains informally employed in period $t+1$ given that he is informally employed

in period t. The effect of spouse's 1 informal job on spouse's 2 labor supply is summarized by the set of coefficients α_1^k

$$\begin{aligned}
&\mathbf{E}\left(S_{2,h,t+1}^{k}|S_{2,h,t}^{U}=1\ \&\ S_{1,h,t}^{INF}=1\right)= \\
&\phi\left(\alpha_0^k+\alpha_1^k\mathbf{E}\left(S_{1,h,t+1}^{INF}|S_{1,h,t}^{INF}=1\right)+i_{2,h}+t+\eta_{2,h,t}\right) \qquad (4.1)\\
&\forall k\in[U,F,INF]
\end{aligned}$$

Assortative matching in the marriage market coupled with unobserved heterogeneity in the value households place on the benefits from a formal job lead to biased estimates of the α_1^k coefficients. Those individuals that transition from informal to formal jobs are likely to be those that value a formal job the most. Moreover, as shown in table 5.4, formal workers are more likely to have an formal spouse. Therefore, it is unlikely that $\eta_{2,h,t}$ and $\mathbf{E}\left(S_{1,h,t+1}^{INF}|S_{1,h,t}^{INF}=1\right)$ are uncorrelated. In order to surpass this endogeneity problem, I use STPS inspections to instrument for the probability that spouse 1 remains informally employed in period $t+1$ conditional on informal employment in t.

Let $Post_{1,t}$ be an indicator value equal to 1 for all time periods t after spouse's 1 establishment is inspected. Let $Inspected_1$ be a dummy variable equal to 1 if spouse 1 is employed at an inspected establishment and 0 if employed at an establishment included in the DNE that did not received an inspection. The β_2^F, β_2^{INF}, and β_2^U coefficients in equation 4.2 below can be interpreted as the average effect of a change in spouse's 1 transition probability out of informal employment on spouse's 2 probability of transitioning from unemployment to a formal job, an informal job, or remaining non-employed, respectively.

$$\begin{aligned}
&\mathbf{E}\left(S_{2,h,t+1}^{k}|S_{2,h,t}^{U}=1\ \&\ S_{1,h,t}^{INF}=1\right)= \\
&\phi\left(\beta_1^k Post_{1,t}+\beta_2^k Post_{1,t}\times Inspected_1+i_2+t+\eta_{2,h,t}\right) \qquad (4.2)\\
&\forall k\in[F,INF,U]
\end{aligned}$$

Columns (1), (2) and (3) in Table 4.1 show the effects of inspections on spouse's 2 probability of non-employment, starting an informal job, and starting a formal job conditional on being non-employed at the time spouse's 1 establishment is inspected.

Table 4.1: Inspection Effects on Transition Probabilities
for Non-Employed Spouses of Informal Inspected Workers

	New Labor Market Status		
	(1)	(2)	(3)
	Non-employment	New Informal Job	New Formal Job
Dependent Mean Transition Probability	68.9%	18.3%	12.7%
PostXInspection			
Odds Ratio	1.005*	1.085***	0.901*
s.e.	(0.003)	(0.022)	(0.057)
No. of Observations	69,765		

Notes: This table shows the effect of inspections on transition probabilities for spouse 2 (i.e. the spouse who was not directly affected by an inspection). The baseline sample is non-employed individuals with an informal spouse employed at an establishment in the DNE. The treatment group are individuals whose spouse was informally employed at an establishment at the time of inspection. All regressions include individual and time fixed effects. The dependent mean transition probability is calculated as the average probability of each transition out of non-employment with individual characteristics fixed at their mean values. The displayed odds ratios are the exponential of the β_2^k coefficients shown in equation 4.2.

The first row in Table 4.1 shows the average probability of staying non-employed, transitioning to informal employment and transitioning to formal employment for non-employed spouses of informal workers. The second row shows the estimated effects of spouse 1 receiving an inspection on each of these transition probabilities. Spouses of inspected individuals are more likely to start an informal job and less likely to start a formal one, conditional on non-employment, compared to spouses of non-inspected workers. After an inspection, the quarterly transition rate from non-employment to a formal job decreases by 9.9% (from 8.7% to 7.7%). Transitions into an informal job instead increase by 8.5%. The probability of remaining non-employed increases slightly by 0.5%. These results are consistent with flows

out of informal employment by spouse 1 affecting the type of jobs that spouse 2 accepts, but not significantly changing the overall probability of working.

Section 3.4.1 showed that inspections cause two different types of transitions out of informal employment: flows into formal jobs within the same firm and flows into unemployment. Each of these transitions is likely to have different effects on other household members' labor supply. In order to analyze the effect that within-establishment informal to formal transitions have on household labor supply, I use a three-stage instrumental variables approach. This methodology uses inspections as an exogenous shock to the probability that an informal worker with an non-employed spouse transitions from informal to formal employment within the same establishment. It then uses the predicted transition probability, $\mathbf{E}\Big(\widehat{S^F_{1,h,t+1}|S^{INF}_{1,h,t}} = 1\Big)$, to estimate the effect of access to a formal job's shared benefits on other household member's flows out of non-employment, $\mathbf{E}\left(S^k_{2,h,t+1}|S^U_{2,h,t} = 1 \;\&\; S^{INF}_{1,h,t} = 1\right)$.

In the first stage, I estimate a logit of the determinants of spouse's 1 probability of transitioning from informal to formal employment, $\mathbf{E}\left(S^F_{1,h,j,t+1}|S^{INF}_{1,h,j,t} = 1\right)$.

$$\begin{aligned}&\mathbf{E}\left(S^F_{1,h,j,t+1}|S^{INF}_{1,h,j,t} = 1\right) = \\ &\phi\left(\gamma_0 + \gamma_2 Post_{1,t} + \gamma_3 Post_{1,t} \times Inspected_1 + X'_{j,t}\gamma_3 + i_{1,h} + t + \eta_{1,h,t}\right)\end{aligned} \tag{4.3}$$

where $S^F_{1,h,j,t}$ is an indicator variable equal to 1 if spouse 1 in household h has a formal job at establishment j in period $t+1$ and 0 otherwise.

In the second stage, I regress spouse 1 informal to formal transition probability on the fitted probability from the first-stage $\mathbf{E}\left(\widehat{S^F_{1,h,j,t+1}|S^{INF}_{1,h,j,t}} = 1\right)$ and a set of spouse's 2 characteristics $\left(X_{2,t}\right)$ and individual fixed-effects (i_2).

$$\mathbf{E}\left(S^{F}_{1,h,j,t+1}|S^{INF}_{1,h,j,t}=1\right)=$$
$$\Phi\left(\delta^{k}_{0}+\delta^{k}_{2}\mathbf{E}\widehat{\left(S^{F}_{1,h,j,t+1}|S^{INF}_{1,h,j,t}=1\right)}+i_{2,h}+t+\eta_{2,h,t}\right) \tag{4.4}$$
$$\forall k\in[U,F,INF]$$

In the third stage, I regress spouse's 2 labor market transition probability on a set of time varying characteristics, individual fixed-effects, and the fitted values of the second stage $\mathbf{E}\left(\widehat{\widehat{S^{F}_{1,h,j,t+1}|S^{INF}_{1,h,j,t}=1}}\right)$. The estimated effect of transitions from informal to formal jobs by spouse 1 on spouse's 2 decisions, γ^{k}_{2} provides an estimate of secondary earners' elasticity of labor supply with respect to the shared benefits from a formal job. As discussed in Angrist and Krueger (2001)[4] and Greene (2012)[21], standard 2SLS leads to biased estimates with non-linear probability models. This approach takes the binary and non-linear nature of the first-stage regression into account. Moreover, the standard IV standard errors are still asymptotically valid.

$$\mathbf{E}\left(S^{k}_{2,h,j,t+1}|S^{U}_{2,h,j,t+1}\&S^{INF}_{1,h,j,t}=1\right)=$$
$$\Phi\left(\gamma^{k}_{0}+\gamma^{k}_{2}\mathbf{E}\widehat{\widehat{\left(S^{F}_{1,h,j,t+1}|S^{INF}_{1,h,j,t}=1\right)}}+i_{2,h}+t+\eta_{2,h,t}\right) \tag{4.5}$$
$$\forall k\in[U,F,INF]$$

Table 4.2 presents the results. Based on these results, I conclude that the probability of remaining non-employed increases by 6.6% (from 68.9% to 73.5%) for secondary earners. This result is driven by declines in the transition rates into formal jobs which decrease by 5.9% (from 12.7% to 11.9%).[2]

2. For individual household members, Azuara and Marinescu (2013)[6] find that increase in access to health care benefits through Seguro Popular did not increase the propensity to participate in the informal market. My results indicate that, for secondary earners, the likelihood of being informal does not significantly increase. However, the probability of being formally employed is negatively affected.

Table 4.2: Unemployed Spouses' Labor Supply Response to the Shared Benefits of a Formal Job

Panel A: First Stage

Dependent Variable: Spouse's 1 Pr(Transitions Out of an Informal Job)

PostXInspected	Odds Ratio	s.e.	Dependent Mean
	1.489***	0.137	14%

Panel B: Second Stage

Dependent Variable: Spouse's 1 Fitted Probability of Transitions from Informal to Formal within the Same Establishment

PostXInspected	Odds Ratio	s.e.
	1.412***	0.145

Panel C: Third Stage

Dependent Variable: Spouse's 2 Labor Market Transition Probabilities (Conditional on Non-Employment)

	New Labor Market Status		
	(1)	(2)	(3)
	Not Employed	New Informal Job	New Formal Job
Dependent Mean Transition Probability	68.9%	18.3%	12.7%
Pr (Spouse $\widehat{\text{becomes formal}}$)			
Odds Ratio	1.066**	1.011	0.941***
s.e.	(0.031)	(0.021)	(0.019)
No. of Observations	69,765		

Notes: This table shows the effect transitions from informal to formal employment by spouse 1 on transition probabilities for spouse 2 (i.e. the spouse who was not directly affected by an inspection). The baseline sample is non-employed individuals with an informal spouse employed at an establishment in the DNE. The treatment group are individuals whose spouse was informally employed at an establishment at the time of inspection. The dependent mean transition probability is calculated as the average probability of each transition out of non-employment with individual characteristics, for both spouses, fixed at their mean values. The displayed odds ratios are the exponential of the γ_2^k estimated as shown in equation 4.5.

4.3 Inspections' Effects on Employed Spouses

The previous section showed the effect of transitions out of informal employment in households where one spouse is not employed. This section analyzes household labor supply decisions when both spouses are employed at the time of inspection for each of the following cases:

(1) Both spouses are informal at the time of inspection

$$\begin{aligned}&\mathbf{E}\left(S^k_{2,h,t+1}|S^{INF}_{2,h,t}=1\ \&\ S^{INF}_{1,h,t}=1\right)=\\&\phi\left(\gamma^k_1 Post_{1,t}+\gamma^k_2 Post_{1,t}\times Inspected_1+i_2+t+\eta_{2,h,t}\right)\end{aligned}\tag{4.6}$$

$$\forall k\in[F,INF,U]$$

(2) Inspected spouse is informal and non-inspected spouse is formal

$$\begin{aligned}&\mathbf{E}\left(S^k_{2,h,t+1}|S^{F}_{2,h,t}=1\ \&\ S^{INF}_{1,h,t}=1\right)=\\&\phi\left(\delta^k_1 Post_{1,t}+\delta^k_2 Post_{1,t}\times Inspected_1+i_2+t+\mu_{2,h,t}\right)\end{aligned}\tag{4.7}$$

$$\forall k\in[F,INF,U]$$

(3) Both spouses are formal

$$\begin{aligned}&\mathbf{E}\left(S^k_{2,h,t+1}|S^{F}_{2,h,t}=1\ \&\ S^{F}_{1,h,t}=1\right)=\\&\phi\left(\zeta^k_1 Post_{1,t}+\zeta^k_2 Post_{1,t}\times Inspected_1+i_2+t+\epsilon_{2,h,t}\right)\end{aligned}\tag{4.8}$$

$$\forall k\in[F,INF,U]$$

(4) Inspected spouse is formal and non-inspected spouse is informal

$$\begin{aligned}&\mathbf{E}\left(S^k_{2,h,t+1}|S^{INF}_{2,h,t}=1\ \&\ S^{F}_{1,h,t}=1\right)=\\&\phi\left(\rho^k_1 Post_{1,t}+\rho^k_2 Post_{1,t}\times Inspected_1+i_2+t+\xi_{2,h,t}\right)\end{aligned}\tag{4.9}$$

$$\forall k\in[F,INF,U]$$

Columns (1), (2) and (3) in Table 4.3 show the effects of inspections on spouse's 2 probability of non-employment, starting an informal job, and starting a formal job conditional on both spouses being employed at the time of inspection for each of the cases outlined above.

Table 4.3: Inspection Effects on Transition Probabilities for Employed Spouses of Inspected Informal Workers

Panel A: Both Spouses are Informal at the Time of Inspection

	Spouse's 2 (Not Inspected) New Labor Market Status			
	Unemployment or OLF	New Informal Job	New Formal Job	Same Job (Stayers)
Dependent Mean Transition Probability	36.8%	13.2%	8.6%	41.0%
PostXInspection				
Odds Ratio	0.990***	1.031	0.934**	
s.e.	(0.003)	(0.041)	(0.027)	
No. of Observations	25,764			

Panel B: Inspected Spouse is Informal and Spouse 2 is Formal at the Time of Inspection

	Spouse's 2 (Not Inspected) New Labor Market Status (from Formal Job)			
	Unemployment or OLF	New Informal Job	New Formal Job	Same Job (Stayers)
Dependent Mean Transition Probability	17.8%	2.3%	5.1%	74.7%
PostXInspection				
Odds Ratio	0.981	0.979	0.953**	
s.e.	(0.075)	(0.016)	(0.021)	
No. of Observations	18,255			

Notes: This table shows the effect of inspections on transition probabilities for spouse 2 (i.e. the spouse who was not directly affected by an inspection). The baseline sample is employed individuals with a spouse employed at an establishment in the DNE. The treatment group are individuals whose spouse was employed at an establishment at the time of inspection. The dependent mean transition probability is calculated as the average probability of each transition with individual characteristics, for both spouses, fixed at their

(Continues in the following page)

(Notes for Table 4.3 continued from previous page) mean values. The displayed odds ratios are the exponential of γ_2^k and δ_2^k, $k \in [U, INF, F]$ estimated as shown in equations 4.6 and 4.7 above.

Panels A and B in Table 4.3 show the average treatment effect of spouse 1 transitions out of an informal job, instrumented using STPS inspections, on spouse's 2 labor market status conditional on both spouses' formality status at the time of inspection. Panel A shows that if both spouses are informal, inspections on spouse's 1 establishment make transitions into a formal job by spouse 2 less likely. The probability that spouse 2 transitions into non-employment also declines.

Panel B shows the effect if spouse 2 is formal. In this case, transitions out of informal employment by spouse 1 have no significant effect on separations to unemployment by spouse 2. However, job-to-job transitions within the formal sector decrease. Spouse 2 is more likely to keep his current job in the formal sector. This result may appear to contradict the idea that spouses should avoid paying for benefits on both of their jobs. However, it is important to note that:

a) Transitions out of informality by spouse 1 need not be towards formal employment; they can also lead to unemployment;

b) Not all the benefits from formality are perfectly shared across household members (e.g. retirement funds and housing loans), therefore, additional members with formal jobs can have added value for the household;

c) Separation rates to unemployment are much lower in formal jobs (22.6% vs. 10%). If households value this stability they might choose to have two spouses with formal jobs regardless of paying for the shared benefits twice.

These results indicate that spouse's 2 response to spouse's 1 transitions out of informal employment depend on her own formality status. If spouse 2 is informal, job-to-job transitions to a formal job become less likely. If instead she has a formal job, job-to-job transitions within the formal sector also decrease. If spouse 1 is informal, inspections on

spouse's 1 establishment increase the probability that spouse 2 stays in the same job.

Panels A and B in Table 4.4 show the effect of inspections on spouse's 2 transitions probability conditional on the inspected spouse being formal. In these cases, inspections do not have a significant effect on household turnover rates. This is consistent with the findings from section 5.4: inspections do not have a significant effect on formal workers' turnover rates and hence their spouses are similarly unaffected.

Table 4.4: Inspection Effects on Transition Probabilities for Employed Spouses of Inspected Formal Workers

Panel A: Both Spouses are Formal at the Time of Inspection

	Spouse's 2 New Labor Market Status			
	Unemployment or OLF	New Informal Job	New Formal Job	Same Job (Stayers)
Dependent Mean Transition Probability	15.9%	1.5%	4.7%	77.8%
PostXInspection				
Odds Ratio	0.959	0.851	0.983	
s.e.	(0.049)	(0.142)	(0.060)	
No. of Observations	108,533			

Panel B:Inspected Spouse is Formal and Spouse 2 is Informal at the Time of Inspection

	Spouse's 2 (Not Inspected) New Labor Market Status (from Informal Job)			
	Unemployment or OLF	New Informal Job	New Formal Job	Same Job (Stayers)
Dependent Mean Transition Probability	34.5%	11.8%	11.2%	42.3%
PostXInspection				
Odds Ratio	0.951**	1.050	0.962	
s.e.	(0.021)	(0.096)	(0.108)	
No. of Observations	43,898			

(Notes for Table 4.4 appear in the following page)

Notes for Table 4.4 *(Continued from previous page)*: This table shows the effect of inspections on transition probabilities for spouse 2 (i.e. the spouse who was not directly affected by an inspection). The baseline sample is employed individuals with a spouse employed at an establishment in the DNE. The treatment group are individuals whose spouse was employed at an establishment at the time of inspection. All regressions include individual and time fixed effects. The dependent mean transition probability is calculated as the average probability of each transition with individual characteristics fixed at their mean values. The displayed odds ratios are the exponential of ζ_2^k, and ρ_2^k, $k \in [U, INF, F]$ estimated as shown in equations 4.8 and 4.9 above.

Next, I analyze whether starting wages for spouses of inspected workers differ from those of non-inspected workers. If household members take into account the joint access to benefits offered in a formal job, transitions out of informal employment by spouse 1 will affect spouse's 2 reservation wage. This change in reservation wage provides information regarding how much households value a formal job.

As before, let $S^F_{1,h,j,t+1}$ be an indicator equal to 1 if spouse 1 in household h is employed in formal job in establishment j in period $t+1$. Let $Inspected_1$ indicate whether the establishment where spouse 1 is employed received an inspection. Let $w^s_{2,h,k,t+1}$ be spouse's 2 starting wage in establishment k in period $t+1$. I use the following specification to analyze the effect that transitions out of an informal job by spouse 1 have on spouse's 2 starting wages, conditional on starting a new job:

$$\begin{aligned}&\mathbf{E}\left(S^F_{1,h,j,t+1}|S^{INF}_{1,h,j,t}=1\right)= \\ &\phi\left(\alpha_0+\alpha_1 Post1,t+\alpha_1 Post_{1,t}\times Inspected_1+X'_{j,t}\alpha_2+i_1+t+\epsilon_{1,h,t}\right)\end{aligned} \tag{4.10}$$

$$ln\left(w^s_{2,h,k,t+1}\right)=\beta_0+\beta_1\mathbf{E}\left(\widehat{S^F_{1,h,j,t+1}|S^{INF}_{1,h,j,t}}=1\right)+X'_{k,t}\beta_3+i_2+t+\eta_{2,h,t}$$

Table 4.5: Inspection Effects on Spousal Starting Wages
(Conditional on Spouse 1 Having an Informal Job and Spouse 2 Starting a New Job)

First Stage: Spouse's 1 Pr(Transitions Out of an Informal Job)			
Variable	Odds Ratio	s.e.	Dependent Mean
PostXInspected	1.489***	0.137	14.3%

Second Stage: Spouse's 1 Fitted Probability of Transitioning out of an Informal Job			
Variable	Odds Ratio	s.e.	Dependent Mean
PostXInspected	1.412***	0.145	

Third Stage: Spouse's 2 Ln(Starting Daily Wage) Conditional on having an informal partner and starting a new job)			
Variable	Coeff.	s.e.	Dependent Mean Daily Wage
$Pr\,(\text{Spouse }\widehat{\text{becomes}}\text{ formal})$	0.034**	(0.012)	MXN$106
No. of Observations	12,487		

Notes: This table shows the effect of inspections on spouse 2's (i.e. the spouse who was not directly affected by an inspection) starting wages conditional on the inspected spouse being informal and on spouse 2 starting a new job within 3 quarters after the inspection, estimated using equation 4.10 above. The baseline sample is individuals who started a new job and have an informally employed partner. The treatment group are individuals who started a new job and whose spouse was employed at an inspected establishment (with the inspection occurring within 3 quarters previous to spouse 2 starting the new job). All regressions include time fixed effects and control for relevant characteristics of both spouses such as previous labor market experience, industry and occupation, firm size, household location, education, and gender.

Table 4.5 indicates that even though spouse 2 is less likely to transition to a formal job after an inspection on his partner's establishment[3], his starting wage is 3.4% higher.

4.4 Conclusions

In principle, all Mexican workers enjoy health, retirement and saving funds, and other social benefits in return for tax contributions paid by workers and their employers. In practice, enforcement is lax and many workers have informal jobs: they neither pay taxes to support

3. See Table 4.3 Panel B and Table 4.4 Panel A

programs that target registered workers nor receive the corresponding government mandated benefits. Moreover, informality is not exclusively a firm-level phenomenon. Formal firms also hire many informal employees. In fact, informal workers account for 25% of all employees at formal firms.

I presented new facts regarding the characteristics and dynamic behavior of informal employment at formal firms. In the case of workers at formal firms registered with the Ministry of Labor in Mexico, informality does not provide a more flexible or lighter work schedule. Moreover, for most workers, informality is not a stepping stone for a formal job either. Although during the first year of employment the average quarterly probability of transitioning from informal to formal status without changing jobs increases from 12% to 16%, afterwards, this probability stabilizes and even decreases with tenure. Informal workers are likely to remain informally employed a year later, either at the same establishment or with a different employer. Only 18% of all workers that are informally employed become formal employees and this transition is most likely to occur within the same establishment.

Using inspections at randomly selected formal establishments by the Ministry of Labor (STPS), I showed this type of enforcement mechanism leads to heterogenous outcomes that benefit some workers and households, while hurting others. Informal workers are more likely to transition to a formal job at the same establishment on the quarter of inspection, but the probability that they separate from their current job also increases. Larger firms and employers in the Utilities, Energy and Government-related sectors are more likely to respond to enforcement by formalizing their workers. Workers who already had a formal job before the inspection are among the negatively affected group. Formal workers at inspected establishments face a negative effect on after-tax wages, indicating that they absorb part of the firm's compliance costs. Meanwhile, after-tax wages for informal workers that remain employed at the same establishment do not decrease after an inspection. This is consistent with an increase in the bargaining power of inspected informal workers who remain employed at the same establishment.

At the household level, when one member receives a formal job, spouses change labor supply decisions in a manner consistent with a positive income effect that increases reservation wages, specially for formal jobs. Non-employed spouses of informal workers who transition to formality because of an inspection are more likely to remain non-employed. Conditional on a new job, they are less likely to be formal but receive higher starting wages than spouses of informal non-inspected workers. The magnitude of the effects varies depending on household composition and, interestingly, on the gender of the inspected spouse. Despite the fact that formal female workers receive more benefits than their male counterparts (in the form of maternity leave, free day care centers, baby formula, among other child-bearing related goods), women's labor market participation decreases by more than men's when their respective spouses receive the benefits of a formal job after an inspection. These findings can be used in a revealed preference approach to measure the value that Mexican families assign to having a formal job. The results are indicative of a high valuation of these benefits at the household level.

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CHAPTER 5

APPENDICES

5.1 Appendix A: Dataset Matching and Description

The National Employment and Occupation Survey (ENOE) includes comprehensive data for 120,260 households every quarter starting in 2005. Among other questions regarding labor market participation, it asks every household member who is employed or involved in any income generating activity the name of the firm, business or institution of employment. ENOE also includes a battery of questions regarding the type of activities performed and goods or services provided by the firm. The Mexican National Institute of Statistics and Geography (INEGI) then uses the answers provided to these questions to classify the firm into one of 178 NAICS industry codes.

Constructing the employer-employee-household dataset requires matching the firm's name (provided by the worker in the household survey) and industry code (determined by INEGI based on responses from ENOE) with the firm's name and industry code included in the Ministry of Labor's (STPS) National Firm Directory (DNE). Due to spelling mistakes and incomplete name reporting by the workers surveyed in ENOE, the name provided by the worker is not always an exact match to the official name registered by the firm with STPS.

To match ENOE with STPS list of firms I use the inexact character variables matching algorithm proposed by Rai (2012).[38] This algorithm calculates the number of letters that match in the two variables of interest from right-to-left and left-to-right, then it divides the sum of these by the total number of letters in the two strings. This ratio gives a measure of the proportion of common letters between the two strings. According to Rai's (2012)[38] results, "when the proportion of common letters is more than 0.80 the two names, almost certainly, belong to the same company". I use a more conservative threshold of 0.85 to determine a positive match. Using a fuzzy match algorithm such as a generalization of the Levenshtein edit distance produces more false-positives than this method.

ENOE's questionnaire includes the households' exact address but due to confidentiality concerns I currently only have access to the "Basic Geostatistical Area" (AGEB)[1] where the household dwelling is located. Since workers are not asked about the location of the place of work, for multi-establishments firms, I match workers to the establishment located in the same AGEB where they live. In the cases where there is more than one establishment with the same name and industry code in the same AGEB, I randomly assign workers to each of the establishments. There are also cases where I find more than one match in establishment's name and industry code but none of the establishments are in the same AGEB as the worker's home address. I consider these matches only if the worker and the establishment are in the same municipality, even if not in the same AGEB. If this still leaves more than one match, I randomly assign workers to one of the establishments with the same firm name, industry code and municipality as the worker's home address.[2]

On average I match 38,610 workers per quarter (out of an average of 115,993 employees per quarter in the sample). Table 5.1 shows the results of the matched inspected and non-inspected workers by formality status.

Table 5.1: Matching by Workers' Inspection and Formality Status

Formal Firms Employees in ENOE's sample (Jan. 2005-Jun. 2016)			
	Matched to DNE		Not Matched to DNE
	Inspected	Not Inspected	
Informal	88,732	317,271	628,558
Formal	336,157	1,033,898	1,620,020

(Notes for Table 5.1 appear in the following page)

1. An AGEB is a subdivision for municipalities in Mexico. AGEB's contain between 1 to 50 blocks of a municipality.

2. The random assignment of workers to establishments when there is more than one match (either within the same AGEB or the same municipality) could lead to incorrectly assigning a worker to the control or treatment groups. This would only bias down my estimate of the effects of inspections at the firm and household levels. Going forward, I plan on mapping the distance between a worker's AGEB and the nearest establishment and assign matches based on distance rather than randomly.

Notes for Table 5.1 *(Continued from previous page)*: This table shows my results from matching ENOE's workers with the National Directory of Firms (DNE). The sample are the individuals included in ENOE's sample, between 15 and 80 years old, working as employees at firms that are either part of the DNE and/or that are classified as formal firms using INEGI's methodology.[3]

Table 5.2 compares the share of establishments by industry code in ENOE, the DNE and by inspection status. Consistent with random selection of establishments to inspect, conditional on being part of the DNE list, inspections are equally distributed across establishments in different industries.

Table 5.2: Establishments in ENOE and DNE by Industry

NAICS Sector	% of establishments in ENOE	% of establishments in DNE	% of inspections
Mining & oil	0.9%	2.7%	2.4%
Utilities	0.6%	5.1%	5.4%
Construction	4.0%	8.8%	9.1%
Manufacturing	18.3%	8.6%	8.0%
Wholesale trade	4.5%	6.1%	6.3%
Retail trade	18.1%	10.3%	9.9%
Transport & warehousing	4.2%	8.5%	9.1%
Finance & insurance	1.9%	9.2%	10.6%
Prof. & technical services	3.0%	1.0%	1.2%
Administrative services	4.1%	1.4%	1.9%
Educational services	10.4%	1.8%	2.4%
Health care & social assis.	5.3%	1.6%	1.5%
Entertainment & rec.	1.5%	1.4%	0.9%
Accomm. & food services	8.6%	9.9%	7.4%
Other services	6.2%	18.8%	19.2%
Public administration	8.5%	4.7%	4.9%
Total	100%	100%	100%

3. See *Como se hace la ENOE*[26] and *Encuesta Nacional de Ocupacion y Empleo. Reconstruccion de Variables*[27] for further information on the methodology used by INEGI to identify formal firms.

Notes for Table 5.2 *(Continued from previous page)*: This table shows the distribution of **establishments** by sector using 2-digit NAICS. The second column shows the distribution in ENOE. It is important to emphasize that this is not the distribution of workers, even though this is a household survey, but the unweighted distribution of establishments. The sample includes all establishments of employment for workers in ENOE, even when the worker did not specify an establishment name. The second column shows the distribution of establishments **that could be matched to ENOE** by industry. Since matching is based on establishment name, as indicated by the worker, this sample only includes establishments for which the worker provided a name. The last column shows the industry distribution of inspected establishments.

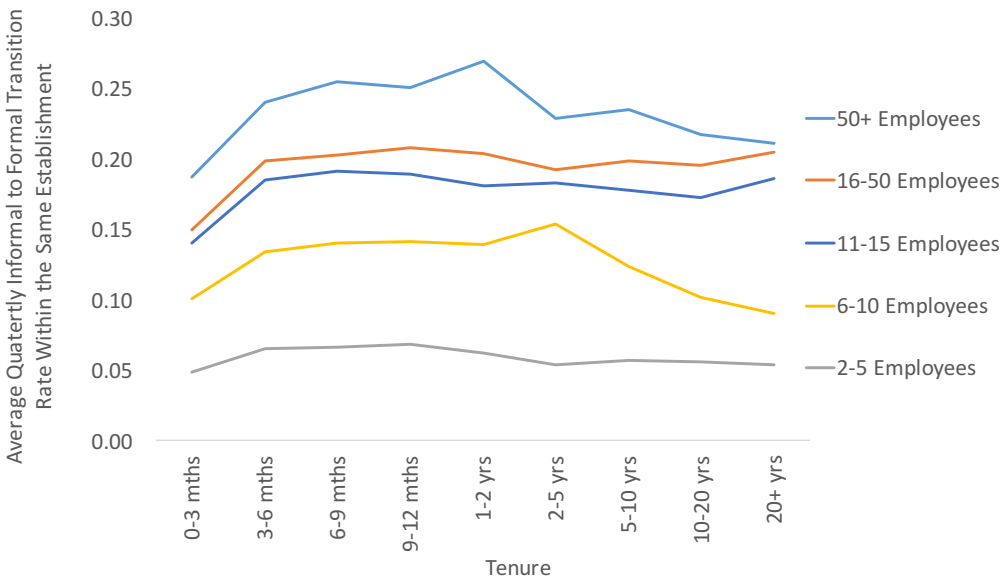
Table 5.3: Predicted 4-Qtr. Transition Probabilities

Labor Market Status Next Quarter		Initial Labor Market Status		
		Informal at Formal Establishment	Formal at Formal Establishment	Unemployed
Same Formal Firm	Informal	20.0%	2.1%	-
	Formal	17.3%	50.5%	
New Formal Firm	Informal	4.5%	2.4%	10.2%
	Formal	0.6%	10.2%	24.5%
New Informal Firm		9.2%	2.2%	8.1%
Self-Employed or Employer	Informal	10.0%	3.0%	9.8%
	Formal	4.5%	3.5%	2.7%
Unemployed		3.7%	2.6%	7.5%
OLF		31.6%	23.4%	37.2%
Total		100%	100%	100%

Source: Own calculations based on data from the National Employment and Occupation Survey (ENOE) and the National Directory of Firms (DNE)

Table 5.3 documents annual transition rates between formal and informal jobs within and across establishments. Although during the first year of employment the average quarterly probability of transitioning from informal to formal status without changing jobs increases, afterwards, this probability stabilizes and even decreases with tenure. Informal workers are likely to remain informally employed a year later, either at the same establishment or with a different employer.

Figure 5.1: Average Quarterly Transition Rate from Informal to Formal Job within the Same Establishment by Tenure and Establishment Size



Source: Own calculations using data from the 2005-2015 National Employment and Occupation Surveys (ENOE) and the National Directory of Firms (DNE). Workers' are classified as formal or informal based on their self-reported access to social security services. Tenure is self-reported. Excludes individuals employed in agriculture or as domestic employees.

Table 5.4: Head of Household and Spouses' Joint Labor Market Status

(% of Head of Households 2005-2015)

		Head of Household's Labor Market Status						
		Informal Employee at Formal Firm	Formal Employee at Formal Firm	Informal Employee at Informal Firm	Self-Employed	U	OLF	Total
Partner's Labor Market Status	Informal Employee at Formal Firm	8.7%	4.4%	3.8%	4.5%	5.6%	3.0%	4.6%
	Formal Employee at Formal Firm	14.6%	26.9%	7.6%	15.0%	18.9%	9.7%	18.5%
	Informal Employee at Informal Firm	1.9%	1.2%	3.9%	1.8%	2.4%	2.3%	1.8%
	Self-employed	13.0%	10.9%	12.8%	17.8%	13.2%	11.5%	12.9%
	U	1.9%	1.6%	1.7%	1.1%	4.3%	0.8%	1.4%
	OLF	59.8%	55.1%	70.3%	59.9%	55.5%	72.7%	60.8%
	Total	100%	100%	100%	100%	100%	100%	100%

Source: Own calculations using data from the 2005-2015 National Employment and Occupation Surveys (ENOE) and the National Directory of Firms (DNE). Workers' are classified as formal or informal based on their self-reported access to social security services. The table excludes individuals employed in agriculture or as domestic employees. Each cell shows the share of head of households by presence of a partner in the household, and self and partner's labor market status.

5.2 Appendix B: Defining and Measuring Informality

I follow the latest resolution adopted during the 17th International Conference of Labor Statisticians[28] which sets international standards for measuring informality. According to this Resolution, informality has two dimensions. The first dimension refers to the characteristics of the economic unit where an individual is employed: a business is categorized as informal when it produces goods and/or services for the market using household resources and lacks basic accounting registries or is not registered with the corresponding tax authorities. The second dimension refers to job characteristics. Informal jobs are those that lack the benefits and institutional protection required by the legal framework in the country, regardless of whether the firm or business where the individual is employed is formally registered with the corresponding authorities or not. Using this definition of informality, an employee can have either a formal or an informal job at a formal firm. At an informal firm, all jobs are informal.

Previous literature uses data on firms' size and industry to determine whether a firm is formal or not. This classification strategy relies on the assumption that larger firms are more likely to be detected by authorities and hence have a higher risk to informality. Similarly, it assumes that firms in certain industries have more incentives to register with authorities because they either require a larger scale to operate or are more likely to benefit from participating in production networks that require issuing tax deductible sale receipts which are only available to firms registered with the government.

There are several problems with this strategy. First, since data is gather at the household level it is unclear whether firm size is accurately represented. Second, Hsieh and Olken (2014)[24] find no evidence in the distribution of firms in Mexico to support size-based sorting into formality. Third, more than half of all employers registered at IMSS have between 2 to 5 employees. Using size to classify employers could therefore lead to misclassifying a large share of registered employers as informal firms. Fourth, since formal firms can hire workers off-the-books and tax authorities do not share information with IMSS, it is not clear whether

the relevant measure to determine risk of getting caught is related to aggregate labor force size, share of non-registered workers or a combination of both.

Exploiting new data from STPS and ENOE, I depart from previous literature to identify formal firms. If a firm is included in the DNE then it is a formal firm. It is important to point out that not all formal firms are included in the DNE. I can further identify formal firms using formality status of co-workers or firm and industry categories as previous literature has done. However, since only firms in the DNE are subject to STPS's random inspections, I restrict my analysis to this subset of formal firms.

5.3 Appendix C: Discussion on Misclassification Error

A possible source of concern with the use of self-reported individual level data to estimate job offer arrival and separation rates in the labor market is that individuals are incorrectly classified in sectors or job types to which they do not belong in one period but not in the next. These misclassification errors lead to an overestimation of labor market mobility. As pointed out by Poterba and Summers (1986)[36], while these errors may cancel in aggregate variables, the estimated flow rates between labor market states may instead be very sensitive to these spurious transitions.

In the case of estimating transitions across the formal and informal sector, this concern might be heightened by the fact that individuals may be more or less prone to lie about whether or not their employment status abides to regulation at different points in time. Therefore, misclassification errors need not be independent across time or throughout the business cycle. Moreover, it can be reasonably argued that worker's propensity to lie about their formal/informal status is dependent on the current authority's policy towards informality which can lead to biased estimates for analysis on fiscal policy enforcement.

Previous literature focusing on gross flows data to analyze labor market dynamics has long since recognized the possibility of these types of response errors and suggested approaches to estimate their incidence and correct for their consequences. Poterba and Summers (1985)[36]

use data from a quality check re-interview, in which a small subsample of the individuals originally surveyed are contacted about one week after their initial interview and asked again about their labor market status. Taking the second answer to be an individual's true labor market state, Poterba and Summers calculate the probability of an individual being incorrectly classified in the initial survey when in fact his status hadn't changed. Using this methodology, the authors find that spurious transitions are very large relative to actual observed month to month transition rates reported in the US Current Population Survey (CPS). These results point to the importance of correcting for possible misclassification errors in longitudinal surveys such as ENOE.

Besides offering an approach to estimate the magnitude of classification error in longitudinal surveys, Poterba and Summers also suggest using the estimated error probabilities to correct the observed transition flows in the raw data. Their suggested correction methodology requires making particular assumptions regarding the stochastic process that underlies the appearance of classification errors. In particular, they assume that the probability of misclassification errors is serially uncorrelated, that is, that at any given point in time, the probability an individual is misclassified is the same. Their results suggest that spurious reporting of labor force withdrawal is the most common form of reporting error, with exit rates from the labor force being only one-third the size suggested by the CPS raw data. Further, they argue that under the corrected flows transitions from employment to unemployment are twice as common as movements from employment to out of the labor force.

In the case of ENOE, a re-interview with a smaller batter of questions is conducted in 10% of the households in the original sample after every surveying period. Unfortunately, although the purpose of this second interview is to assess ENOE's database quality, the National Statistics and Geography Institute hasn't made public the corresponding dataset with these re-interviews responses nor any estimates of the magnitude of classification errors. Therefore, the data necessary to estimate error probabilities in the raw data using the Poterba and Summers approach is unavailable.

Given the lack of access to the re-interviews micro-data I propose an alternative, albeit perhaps conservative, method to assess whether misclassification error of individuals are leading to an upward bias in the transitions between the formal and informal sectors for both employees and self-employed individuals. In the case of self-employed individuals, I estimate the incidence of movements back and forth between the formal and informal sectors and consider instances when an individual changes sectors more than once within a three quarter range to be a misclassification error, with the true labor market state being determined by the sector in which the individual spent more time on according to the unadjusted data. For individuals who work as employees, I consider as a misclassification error those cases when a back-and-forth transition across sectors is observed but the corresponding employment duration is at odds with such a change. That is, if an employed individual reports being in the formal sector in a quarter but not in the next, while his reported duration in the current job is two quarters or more, then his duration and labor market sector responses are inconsistent.

It is important to note that given these assumptions, only a very specific type of misclassification error is accounted for. Only transitions between formal and informal labor market status with inconsistent employment duration within a same type of job position are considered. That is, the only misclassifications considered are those that cause false transitions, as defined above, from formality to informality, or vice-versa, within either the self-employed or employees (but not across these two job positions).

Table 5.5: Quarterly Potential Number of Misclassification Cases

Within-Firm Sequential Transition	Average	Minimum	Maximum
Employee Informal-Formal-Informal	145,562	120,941	164,419
Employee Formal-Informal-Formal	113,962	97,672	139,768
Self-Employed Informal-Formal-Informal	123,796	97,964	154,112
Self-Employed Formal-Informal-Formal	88,514	74,347	105,453

Table 5.6: Quarterly Potential Misclassification Probability

Within-Firm Sequential Transition	Average	Minimum	Maximum
Employee Informal-Formal-Informal	1.9%	1.4%	2.3%
Employee Formal-Informal-Formal	2.3%	2.0%	2.8%
Self-Employed Informal-Formal-Informal	2.2%	1.4%	2.6%
Self-Employed Formal-Informal-Formal	3.1%	2.4%	3.4%

Despite the narrowly defined misclassification categories, I find that in any given quarter a relevant number of both employed and self-employed individuals are incorrectly classified as having transitioned across the formal and informal sectors. While the probabilities of these errors vary across quarters, formal employees have a 2.3% probability of being classified as transitioning to informality and back to formal employment while the misclassification probability for an informal employee is 1.9%. Meanwhile, the probability that a formal self-employed individual is classified as changing towards the informal sector and back to formality is 3.1% while the probability that a case of informal self-employment is falsely classified as moving towards formality and back to informality is 2.2%. This falsely induced transitions lead to overstating market mobility across the formal and informal sectors.

Throughout this document, I consider sequential within firm and within position (i.e. self-employment or employees) transitions across sectors to be misclassifications. Table 5.6 points to the importance of developing a finer procedure to identify and measure bias generated when calculating labor market flows, not only across the formal and informal sectors, but also for other labor market states and across job positions.

5.4 Appendix D: Inspection Effects on Transitions out of Formal Employment

I consider 3 different transitions out of formal employment at a formal firm: to an informal job at a different establishment (including informal self-employment), to a formal job

at a different establishment (including formal self-employment), and to non-employment. This section analyzes whether the probability of each of these transitions changes after an inspection.

Let $TF_{i,j,t}$ be a multinomial categorical variable equal to:

- 1 if individual i transitions from being formally employed at establishment j in quarter t into non-employment in quarter $t+1$;
- 2 if he instead transitions into informal employment at a firm different from j; and
- 3 if he becomes formally employed at a firm different from j.

The baseline outcome, $TF_{i,j,t} = 0$, are those workers formally employed in establishment j in period t who remain formally employed at the same establishment in period $t+1$.

I model the probability of transitions out of formal employment using a multinomial logit model as specified in equation 5.1 below. The set of coefficients β_q^x capture the time-varying effects of inspections over transition probabilities out of an informal job. $X_{i,j,t}$ is a vector of relevant worker and establishment characteristics including age, gender, tenure, education, occupation, industry, establishment size, number of family members, and number of children in day-care age. $Result_{j,t}$ is a set of dummy variables indicating whether STPS detected a potential violation of labor regulations and the type of violation, and whether the detection resulted in a sanction and fine. t is a set of quarter-year fixed effects.

$$Pr\left(TF_{i,j,t} = x | i,t,j\right) = \phi\left(\sum_{q=-3}^{3}\left(\beta_q^x s_{i,t,q} \times Inspected_i + \gamma_q^x s_{i,t,q}\right) + X'_{i,j,t}\eta^F + Result'_{j,t}\alpha + t + \epsilon_{i,j,t}\right) \quad (5.1)$$

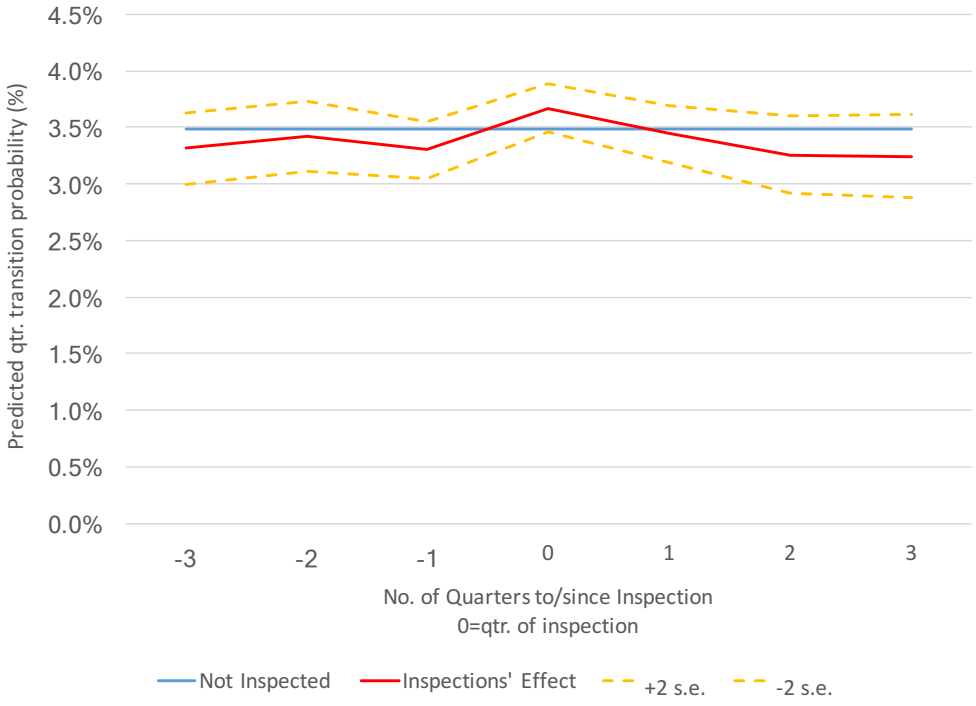
$\forall x \in \{0,3\}$

Panels A to D in Figure 5.2 below show the the effects of inspections on transition probabilities before and after the inspection occurs, estimated using equation 5.1. Each

panel plots the average transition probabilities out of formal employment into different labor market states for the treated (formal workers employed at establishments that received an inspection) and the mean average transition probability for non-inspected workers.

Figure 5.2: Formal Workers' Transition Probabilities by No. of Quarters to/since Inspection

Panel A: Transition Rate from Formal Job to Formal Job* at a Different Establishment

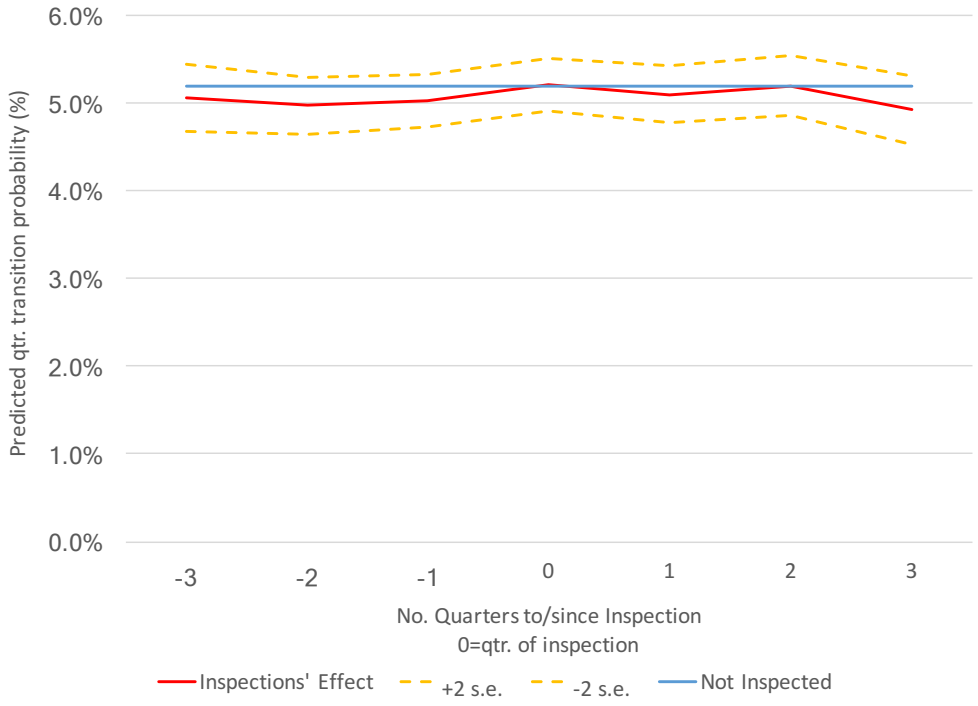


*Includes transitions into formal self-employment.

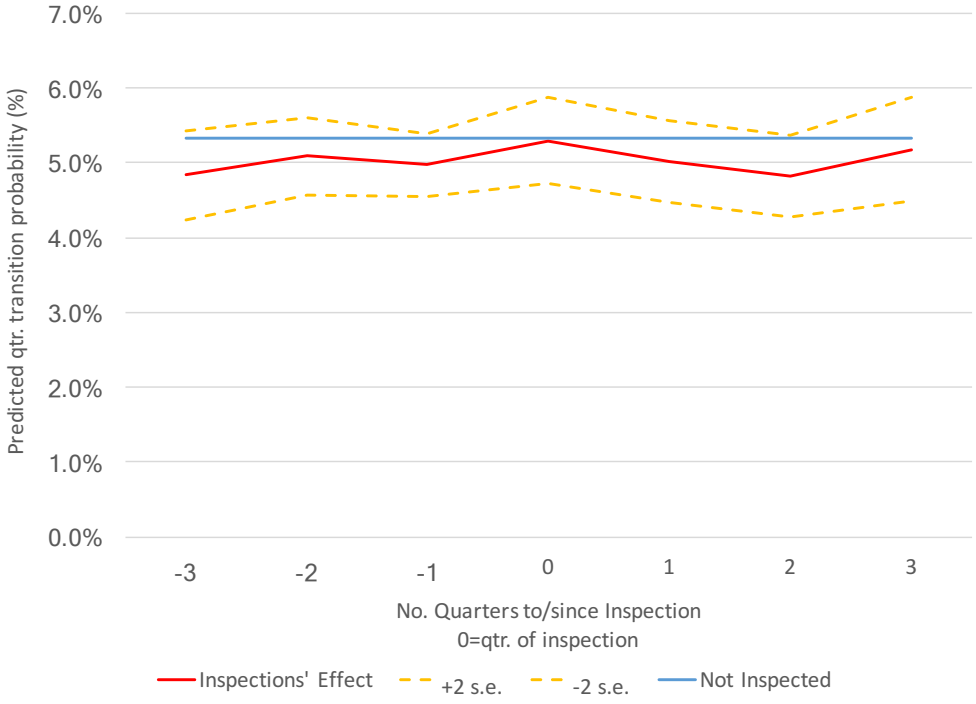
(Figure 5.2 continues in the following page)

(Figure 5.2 continued from previous page)

Panel B: Transition Rate from Formal Job to Non-employment



Panel C: Transition Rate from Formal to Informal Job* at a Different Establishment

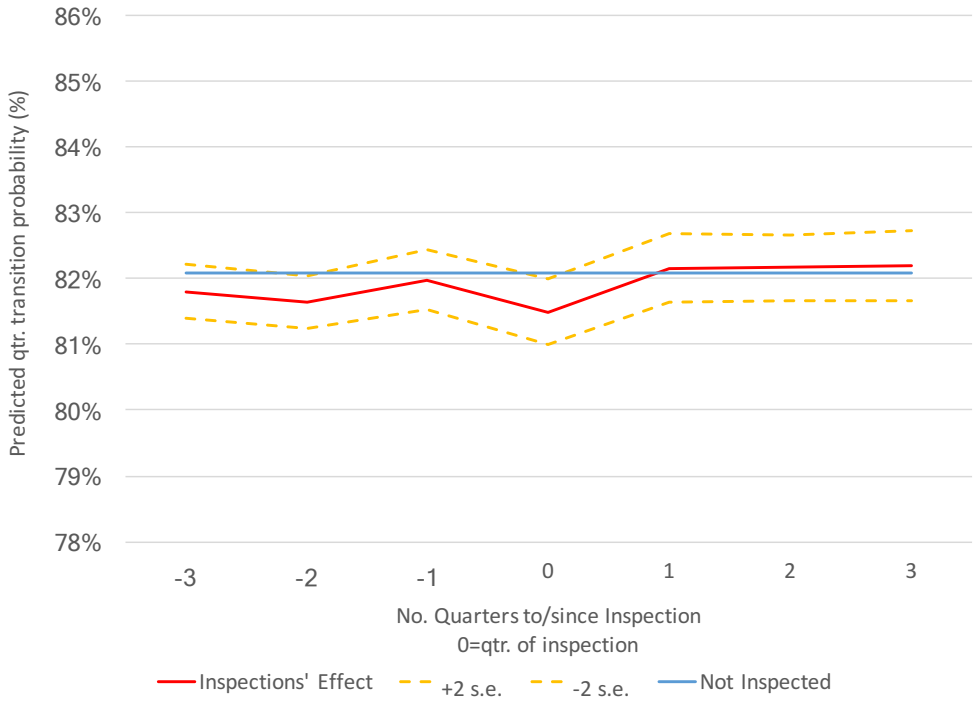


*Includes transitions into informal self-employment.

(Figure 5.2 continues in the following page)

(Figure 5.2 continued from previous page)

Panel D: Probability of Staying in a Formal Job at the Same Establishment



Notes to Figure 5.2 Panels A to D: These figures display the effect of inspections on transitions out of formal employment on the treated (inspected) and control groups (not inspected) by number of quarters until and since an inspection occurs. $q = 0$ indicates the quarter of inspection. The sample includes formal workers employed at establishments included in the DNE between 2005 to 2016. For each value of q, the treatment group includes all formal workers employed at an establishment inspected q quarters ago. The control group includes formal workers at establishment in the DNE that were not inspected within a [-3,3] quarters window. Dotted lines show $\pm$ 2 standard errors for the inspection effect coefficients. The transition rate dependent mean is calculated as the rate of transition out of formal employment towards each of the labor market states considered with establishment and worker's characteristics fixed at their mean values.

These results show that:

1. For workers who are already formal, the average quarterly probability of a formal to formal job transition to a different establishment increases from 3.5% to 3.7% on the quarter of inspection (Panel A).

2. Flows from formal jobs to non-employment increase during the quarter of inspection. However, the change is not statistically significant (Panel B).

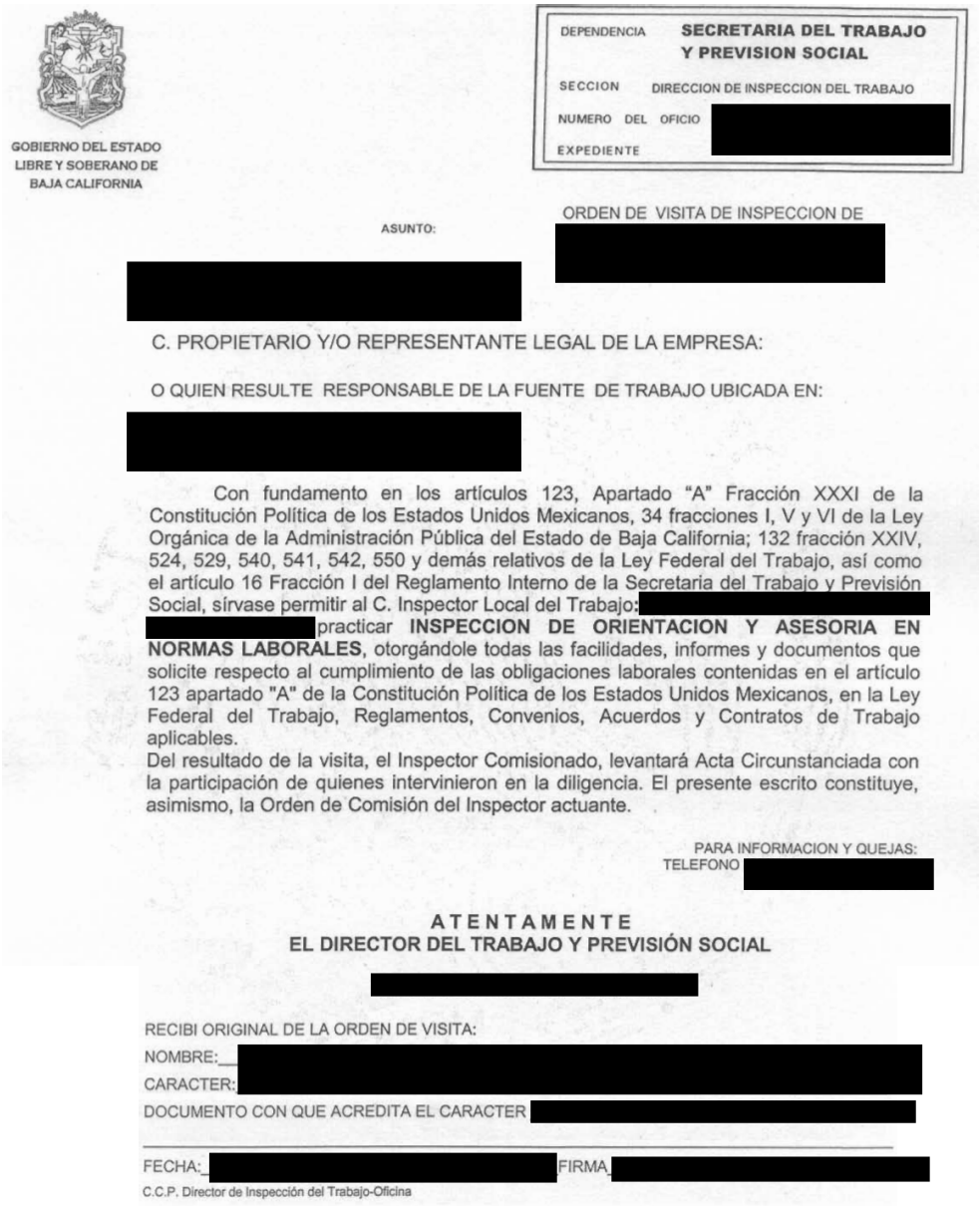
3. Formal employees at inspected establishments are no more likely to transition to an

informal job after an inspection (Panel C).

4. Formal workers are more likely to remain employed at the same establishment and maintain their formality status than informal workers. Inspections have a small negative effect on the probability of staying formally employed at the same establishment (Panel D). The decrease is caused by an increase in transitions to a formal job at a different establishment.

5.5 Appendix E: Inspection Documentation

Figure 5.3: Inspection Visit Notice



GOBIERNO DEL ESTADO
LIBRE Y SOBERANO DE
BAJA CALIFORNIA

DEPENDENCIA **SECRETARIA DEL TRABAJO Y PREVISION SOCIAL**
SECCION DIRECCION DE INSPECCION DEL TRABAJO
NUMERO DEL OFICIO [redacted]
EXPEDIENTE

ASUNTO: ORDEN DE VISITA DE INSPECCION DE [redacted]

[redacted]

C. PROPIETARIO Y/O REPRESENTANTE LEGAL DE LA EMPRESA:

O QUIEN RESULTE RESPONSABLE DE LA FUENTE DE TRABAJO UBICADA EN:

[redacted]

Con fundamento en los artículos 123, Apartado "A" Fracción XXXI de la Constitución Política de los Estados Unidos Mexicanos, 34 fracciones I, V y VI de la Ley Orgánica de la Administración Pública del Estado de Baja California; 132 fracción XXIV, 524, 529, 540, 541, 542, 550 y demás relativos de la Ley Federal del Trabajo, así como el artículo 16 Fracción I del Reglamento Interno de la Secretaría del Trabajo y Previsión Social, sírvase permitir al C. Inspector Local del Trabajo: [redacted] practicar **INSPECCION DE ORIENTACION Y ASESORIA EN NORMAS LABORALES**, otorgándole todas las facilidades, informes y documentos que solicite respecto al cumplimiento de las obligaciones laborales contenidas en el artículo 123 apartado "A" de la Constitución Política de los Estados Unidos Mexicanos, en la Ley Federal del Trabajo, Reglamentos, Convenios, Acuerdos y Contratos de Trabajo aplicables.
Del resultado de la visita, el Inspector Comisionado, levantará Acta Circunstanciada con la participación de quienes intervinieron en la diligencia. El presente escrito constituye, asimismo, la Orden de Comisión del Inspector actuante.

PARA INFORMACION Y QUEJAS:
TELEFONO [redacted]

ATENTAMENTE
EL DIRECTOR DEL TRABAJO Y PREVISIÓN SOCIAL

[redacted]

RECIBI ORIGINAL DE LA ORDEN DE VISITA:
NOMBRE: [redacted]
CARACTER: [redacted]
DOCUMENTO CON QUE ACREDITA EL CARACTER [redacted]

FECHA: [redacted] FIRMA [redacted]
C.C.P. Director de Inspección del Trabajo-Oficina

Figure 5.4: Notification of Rights, Obligations and List of Required Documentation

SECRETARIA DEL TRABAJO Y PREVISION SOCIAL

DIRECCION DE INSPECCION DEL TRABAJO

GUIA DE LOS PRINCIPALES DERECHOS Y OBLIGACIONES DEL INSPECCIONADO

DERECHOS:

A. Que el Inspector le entregue la Orden de Comisión con firma autógrafa.
B. Que el Inspector se identifique con credencial vigente con fotografía.
C. Usted podrá comprobar la veracidad de la inspección y la identidad del Inspector en el teléfono 558-10-00 ext. 1520.
D. Hacer uso de la palabra en el acta de inspección y que se asiente en la misma lo que desea aclarar.
E. Presentar por escrito las observaciones y pruebas relacionadas con la inspección dentro de los 5 días hábiles siguientes a la misma.
F. Firmar el acta de inspección y que el Inspector le entregue copia con firmas autógrafas.
G. Que el Inspector otorgue orientación y asesoría a los trabajadores y al patrón o a sus representantes.
H. Denunciar ante la Dirección de Inspección del Trabajo, cualquier irregularidad que cometa el Inspector, al teléfono (686) 558-10-00 ext. 1520

OBLIGACIONES:

A. Permitir el acceso del inspector al centro de trabajo y otorgar todo tipo de facilidades, apoyos y auxilio de carácter administrativo.
B. Permitir al inspector que efectúe interrogatorios a los trabajadores.
C. Proporcionar la información y documentación que le sea requerida por el inspector y a que obligan la Ley Federal del Trabajo, sus reglamentos, las normas oficiales mexicanas y demás disposiciones aplicables en la materia.
D. Permitir al inspector que realice un recorrido por las instalaciones de la empresa en compañía de los representantes de los trabajadores y del patrón o de éste mismo.

Direccion de Inspección del Trabajo Secretaría del Trabajo y Previsión Social del Estado de Baja Cfa.

EL INSPECTOR LOCAL DEL TRABAJO.

C. _____

RECIBI EL ORIGINAL DE LA GUIA:

NOMBRE: _____ CARACTER: _____

DOCUMENTO CON QUE ACREDITA EL CARACTER:: _____

FECHA _____ FIRMA: _____

STPS-INS-10

(Figure 5.4 continues in the following page)

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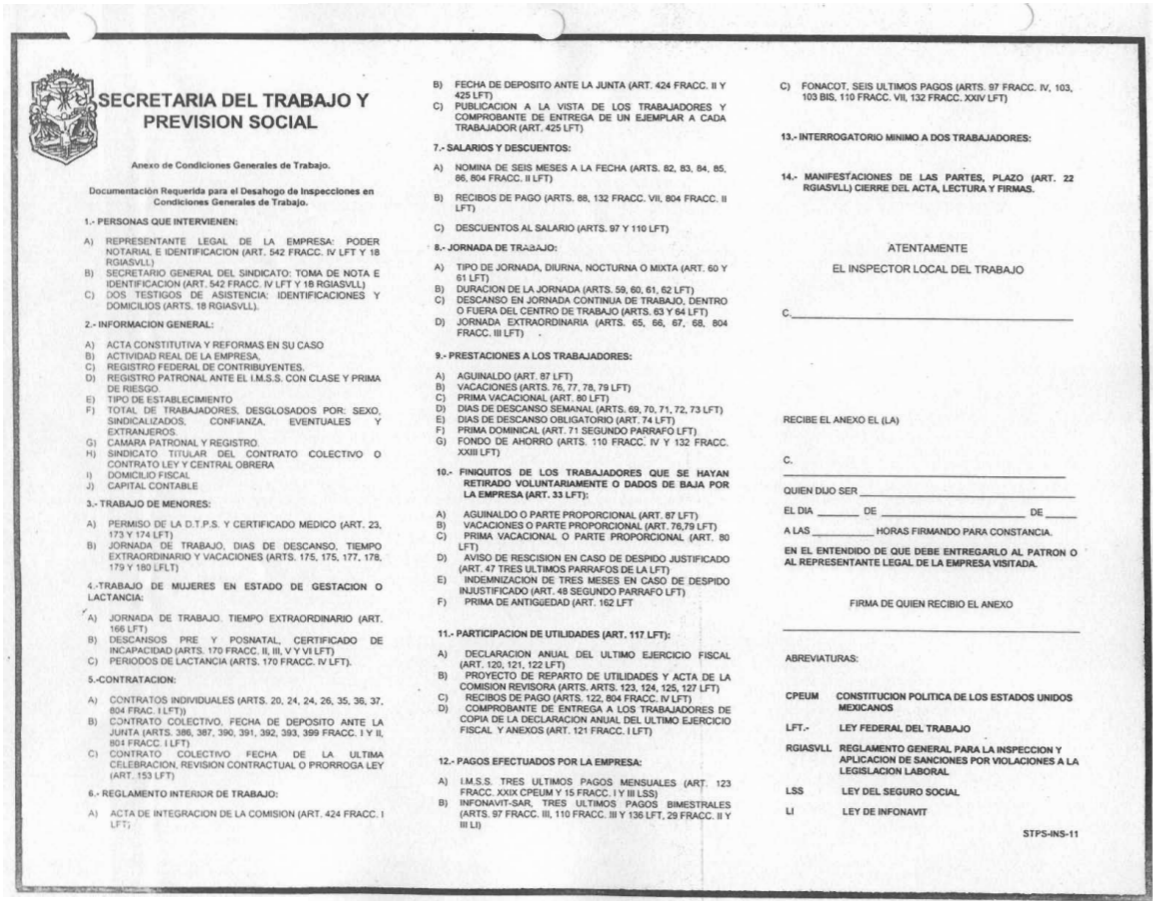


SECRETARIA DEL TRABAJO Y PREVISION SOCIAL

Anexo de Condiciones Generales de Trabajo.

Documentación Requerida para el Desahogo de Inspecciones en Condiciones Generales de Trabajo.

1.- PERSONAS QUE INTERVIENEN:

A) REPRESENTANTE LEGAL DE LA EMPRESA: PODER NOTARIAL E IDENTIFICACION (ART. 542 FRACC. IV LFT Y 18 RGIASVLL)
B) SECRETARIO GENERAL DEL SINDICATO: TOMA DE NOTA E IDENTIFICACION (ART. 542 FRACC. IV LFT Y 18 RGIASVLL)
C) DOS TESTIGOS DE ASISTENCIA: IDENTIFICACIONES Y DOMICILIOS (ARTS. 18 RGIASVLL).

2.- INFORMACION GENERAL:

A) ACTA CONSTITUTIVA Y REFORMAS EN SU CASO
B) ACTIVIDAD REAL DE LA EMPRESA.
C) REGISTRO FEDERAL DE CONTRIBUYENTES.
D) REGISTRO PATRONAL ANTE EL I.M.S.S. CON CLASE Y PRIMA DE RIESGO.
E) TIPO DE ESTABLECIMIENTO
F) TOTAL DE TRABAJADORES, DESGLOSADOS POR: SEXO, SINDICALIZADOS, CONFIANZA, EVENTUALES Y EXTRANJEROS.
G) CAMARA PATRONAL Y REGISTRO
H) SINDICATO TITULAR DEL CONTRATO COLECTIVO O CONTRATO LEY Y CENTRAL OBRERA
I) DOMICILIO FISCAL
J) CAPITAL CONTABLE

3.- TRABAJO DE MENORES:

A) PERMISO DE LA D.T.P.S. Y CERTIFICADO MEDICO (ART. 23, 173 Y 174 LFT)
B) JORNADA DE TRABAJO, DIAS DE DESCANSO, TIEMPO EXTRAORDINARIO Y VACACIONES (ARTS. 175, 175, 177, 178, 179 Y 180 LFLT)

4.-TRABAJO DE MUJERES EN ESTADO DE GESTACION O LACTANCIA:

A) JORNADA DE TRABAJO. TIEMPO EXTRAORDINARIO (ART. 166 LFT)
B) DESCANSOS PRE Y POSNATAL, CERTIFICADO DE INCAPACIDAD (ARTS. 170 FRACC. II, III, V Y VI LFT)
C) PERIODOS DE LACTANCIA (ARTS. 170 FRACC. IV LFT).

5.-CONTRATACION:

A) CONTRATOS INDIVIDUALES (ARTS. 20, 24, 24, 26, 35, 36, 37, 804 FRAC. I LFT))
B) CONTRATO COLECTIVO, FECHA DE DEPOSITO ANTE LA JUNTA (ARTS. 386, 387, 390, 391, 392, 393, 399 FRACC. I Y II, 804 FRACC. I LFT)
C) CONTRATO COLECTIVO FECHA DE LA ULTIMA CELEBRACION, REVISION CONTRACTUAL O PRORROGA LEY (ART. 153 LFT)

6.- REGLAMENTO INTERIOR DE TRABAJO:

A) ACTA DE INTEGRACION DE LA COMISION (ART. 424 FRACC. I LFT)
B) FECHA DE DEPOSITO ANTE LA JUNTA (ART. 424 FRACC. II Y 425 LFT)
C) PUBLICACION A LA VISTA DE LOS TRABAJADORES Y COMPROBANTE DE ENTREGA DE UN EJEMPLAR A CADA TRABAJADOR (ART. 425 LFT)

7.- SALARIOS Y DESCUENTOS:

A) NOMINA DE SEIS MESES A LA FECHA (ARTS. 82, 83, 84, 85, 86, 804 FRACC. II LFT)
B) RECIBOS DE PAGO (ARTS. 88, 132 FRACC. VII, 804 FRACC. II LFT)
C) DESCUENTOS AL SALARIO (ARTS. 97 Y 110 LFT)

8.- JORNADA DE TRABAJO:

A) TIPO DE JORNADA, DIURNA, NOCTURNA O MIXTA (ART. 60 Y 61 LFT)
B) DURACION DE LA JORNADA (ARTS. 59, 60, 61, 62 LFT)
C) DESCANSO EN JORNADA CONTINUA DE TRABAJO, DENTRO O FUERA DEL CENTRO DE TRABAJO (ARTS. 63 Y 64 LFT)
D) JORNADA EXTRAORDINARIA (ARTS. 65, 66, 67, 68, 804 FRACC. III LFT)

9.- PRESTACIONES A LOS TRABAJADORES:

A) AGUINALDO (ART. 87 LFT)
B) VACACIONES (ARTS. 76, 77, 78, 79 LFT)
C) PRIMA VACACIONAL (ART. 80 LFT)
D) DIAS DE DESCANSO SEMANAL (ARTS. 69, 70, 71, 72, 73 LFT)
E) DIAS DE DESCANSO OBLIGATORIO (ART. 74 LFT)
F) PRIMA DOMINICAL (ART. 71 SEGUNDO PARRAFO LFT)
G) FONDO DE AHORRO (ARTS. 110 FRACC. IV Y 132 FRACC. XXIII LFT)

10.- FINIQUITOS DE LOS TRABAJADORES QUE SE HAYAN RETIRADO VOLUNTARIAMENTE O DADOS DE BAJA POR LA EMPRESA (ART. 33 LFT):

A) AGUINALDO O PARTE PROPORCIONAL (ART. 87 LFT)
B) VACACIONES O PARTE PROPORCIONAL (ART. 76,79 LFT)
C) PRIMA VACACIONAL O PARTE PROPORCIONAL (ART. 80 LFT)
D) AVISO DE RESCISION EN CASO DE DESPIDO JUSTIFICADO (ART. 47 TRES ULTIMOS PARRAFOS DE LA LFT)
E) INDEMNIZACION DE TRES MESES EN CASO DE DESPIDO INJUSTIFICADO (ART. 48 SEGUNDO PARRAFO LFT)
F) PRIMA DE ANTIGUEDAD (ART. 162 LFT

11.- PARTICIPACION DE UTILIDADES (ART. 117 LFT):

A) DECLARACION ANUAL DEL ULTIMO EJERCICIO FISCAL (ART. 120, 121, 122 LFT)
B) PROYECTO DE REPARTO DE UTILIDADES Y ACTA DE LA COMISION REVISORA (ARTS. ARTS. 123, 124, 125, 127 LFT)
C) RECIBOS DE PAGO (ARTS. 122, 804 FRACC. IV LFT)
D) COMPROBANTE DE ENTREGA A LOS TRABAJADORES DE COPIA DE LA DECLARACION ANUAL DEL ULTIMO EJERCICIO FISCAL Y ANEXOS (ART. 121 FRACC. I LFT)

12.- PAGOS EFECTUADOS POR LA EMPRESA:

A) I.M.S.S. TRES ULTIMOS PAGOS MENSUALES (ART. 123 FRACC. XXIX CPEUM Y 15 FRACC. I Y III LSS)
B) INFONAVIT-SAR, TRES ULTIMOS PAGOS BIMESTRALES (ARTS. 97 FRACC. III, 110 FRACC. III Y 136 LFT, 29 FRACC. II Y III LI)
C) FONACOT, SEIS ULTIMOS PAGOS (ARTS. 97 FRACC. IV, 103, 103 BIS, 110 FRACC. VII, 132 FRACC. XXIV LFT)

13.- INTERROGATORIO MINIMO A DOS TRABAJADORES:

14.- MANIFESTACIONES DE LAS PARTES, PLAZO (ART. 22 RGIASVLL) CIERRE DEL ACTA, LECTURA Y FIRMAS.

ATENTAMENTE

EL INSPECTOR LOCAL DEL TRABAJO

C._____

RECIBE EL ANEXO EL (LA)

C.
_____

QUIEN DIJO SER _____

EL DIA _____ DE _____ DE _____

A LAS _____ HORAS FIRMANDO PARA CONSTANCIA.

EN EL ENTENDIDO DE QUE DEBE ENTREGARLO AL PATRON O AL REPRESENTANTE LEGAL DE LA EMPRESA VISITADA.

FIRMA DE QUIEN RECIBIO EL ANEXO

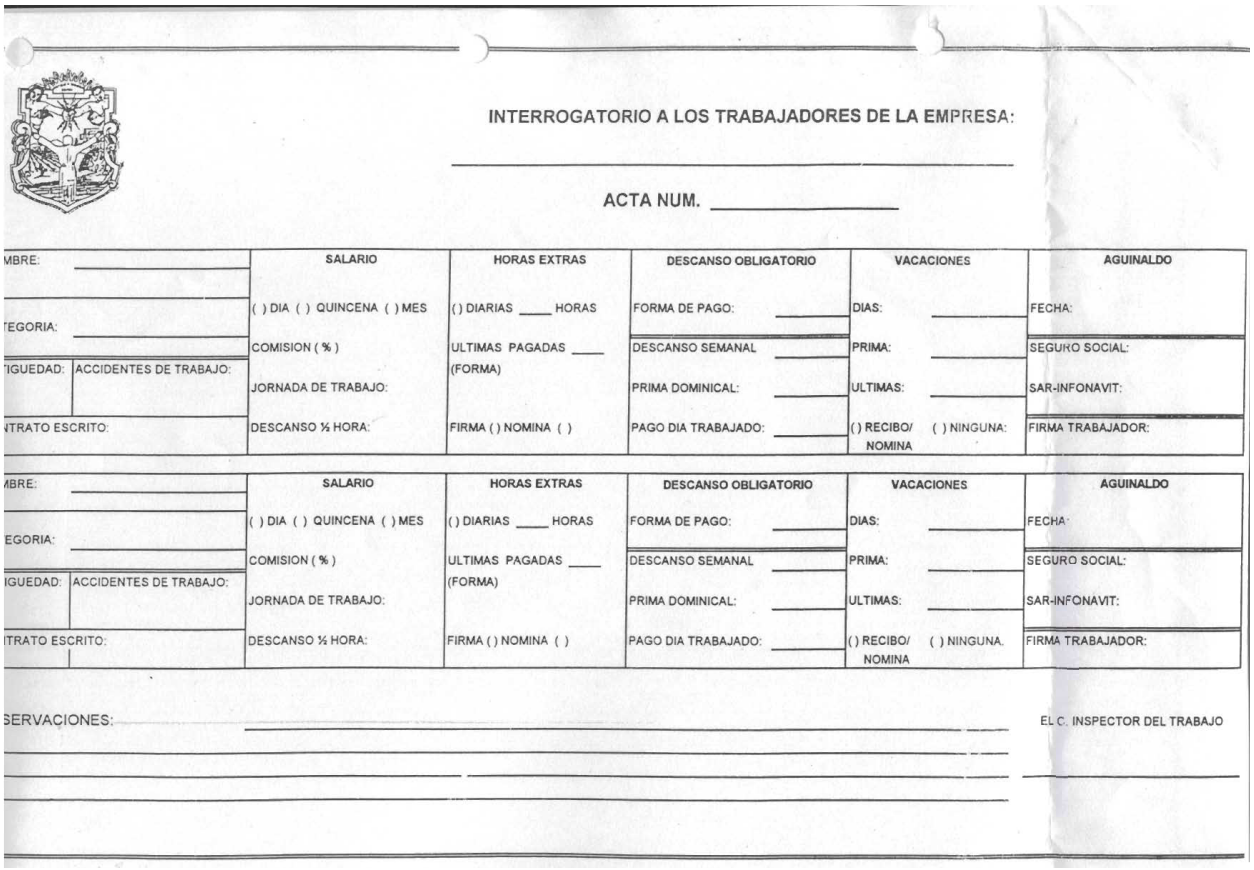
_____

ABREVIATURAS:

CPEUM	CONSTITUCION POLITICA DE LOS ESTADOS UNIDOS MEXICANOS
LFT.-	LEY FEDERAL DEL TRABAJO
RGIASVLL	REGLAMENTO GENERAL PARA LA INSPECCION Y APLICACION DE SANCIONES POR VIOLACIONES A LA LEGISLACION LABORAL
LSS	LEY DEL SEGURO SOCIAL
LI	LEY DE INFONAVIT

STPS-INS-11

Figure 5.5: Survey for Employees at Inspected Establishments



INTERROGATORIO A LOS TRABAJADORES DE LA EMPRESA: _____

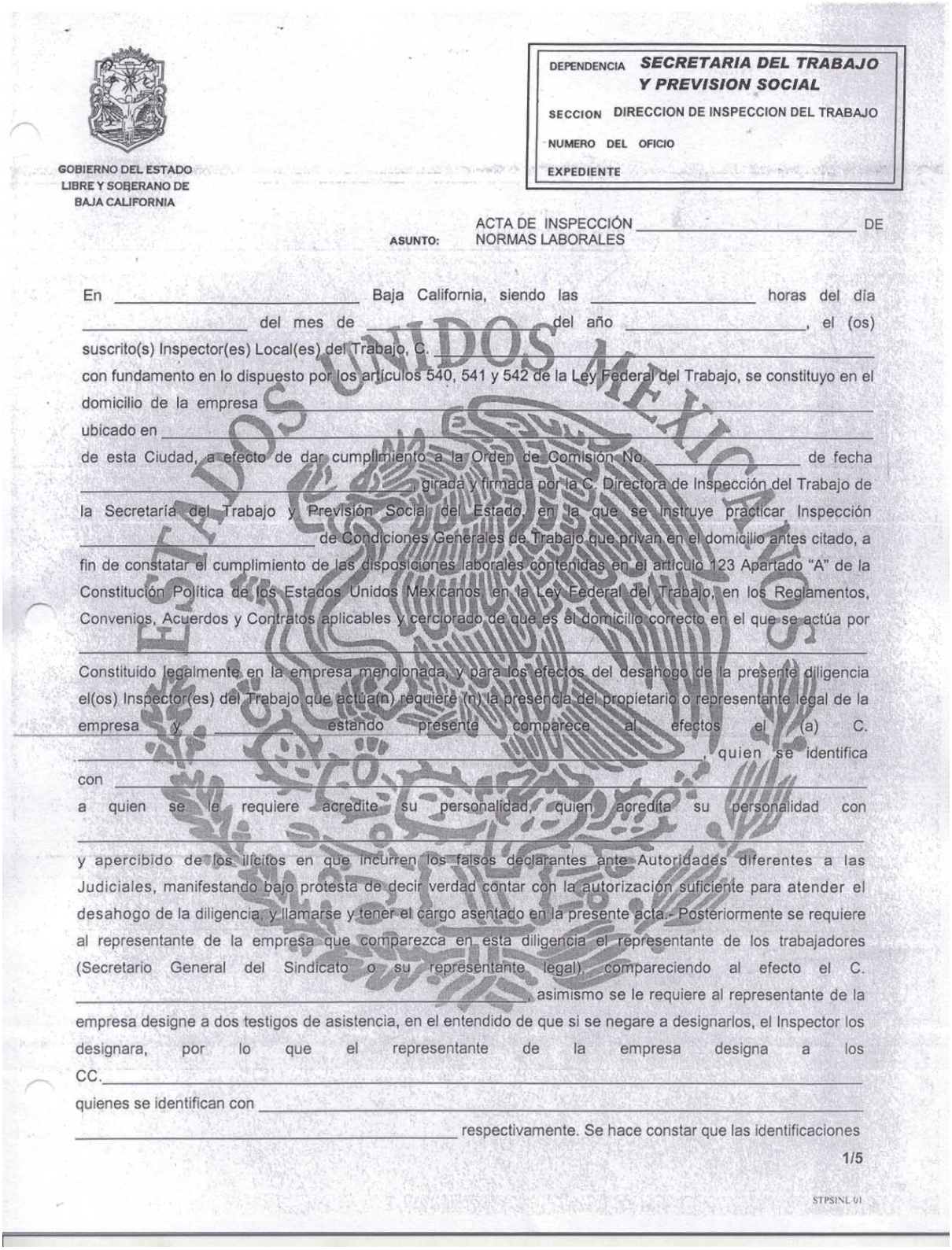
ACTA NUM. _____

	SALARIO	HORAS EXTRAS	DESCANSO OBLIGATORIO	VACACIONES	AGUINALDO
MBRE: _____	( ) DIA ( ) QUINCENA ( ) MES	( ) DIARIAS ____ HORAS	FORMA DE PAGO: _____	DIAS: _____	FECHA:
TEGORIA: _____	COMISION (%)	ULTIMAS PAGADAS ____ (FORMA)	DESCANSO SEMANAL _____	PRIMA: _____	SEGURO SOCIAL:
IGUEDAD: ACCIDENTES DE TRABAJO:	JORNADA DE TRABAJO:		PRIMA DOMINICAL: _____	ULTIMAS: _____	SAR-INFONAVIT:
NTRATO ESCRITO:	DESCANSO ½ HORA:	FIRMA ( ) NOMINA ( )	PAGO DIA TRABAJADO: _____	( ) RECIBO/ NOMINA ( ) NINGUNA:	FIRMA TRABAJADOR:
MBRE: _____	SALARIO	HORAS EXTRAS	DESCANSO OBLIGATORIO	VACACIONES	AGUINALDO
EGORIA: _____	( ) DIA ( ) QUINCENA ( ) MES	( ) DIARIAS ____ HORAS	FORMA DE PAGO: _____	DIAS: _____	FECHA:
IGUEDAD: ACCIDENTES DE TRABAJO:	COMISION (%)	ULTIMAS PAGADAS ____ (FORMA)	DESCANSO SEMANAL _____	PRIMA: _____	SEGURO SOCIAL:
ITRATO ESCRITO:	JORNADA DE TRABAJO:		PRIMA DOMINICAL: _____	ULTIMAS: _____	SAR-INFONAVIT:
	DESCANSO ½ HORA:	FIRMA ( ) NOMINA ( )	PAGO DIA TRABAJADO: _____	( ) RECIBO/ NOMINA ( ) NINGUNA.	FIRMA TRABAJADOR:

SERVACIONES: _____

EL C. INSPECTOR DEL TRABAJO

Figure 5.6: Inspection's Results Report



GOBIERNO DEL ESTADO
LIBRE Y SOBERANO DE
BAJA CALIFORNIA

DEPENDENCIA **SECRETARIA DEL TRABAJO Y PREVISION SOCIAL**
SECCION DIRECCION DE INSPECCION DEL TRABAJO
NUMERO DEL OFICIO
EXPEDIENTE

ASUNTO: ACTA DE INSPECCIÓN _____ DE NORMAS LABORALES

En _____ Baja California, siendo las _____ horas del día _____ del mes de _____ del año _____, el (os) suscrito(s) Inspector(es) Local(es) del Trabajo, C. _____ con fundamento en lo dispuesto por los artículos 540, 541 y 542 de la Ley Federal del Trabajo, se constituyo en el domicilio de la empresa _____ ubicado en _____ de esta Ciudad, a efecto de dar cumplimiento a la Orden de Comisión No. _____ de fecha _____, girada y firmada por la C. Directora de Inspección del Trabajo de la Secretaría del Trabajo y Previsión Social del Estado, en la que se instruye practicar Inspección _____ de Condiciones Generales de Trabajo que privan en el domicilio antes citado, a fin de constatar el cumplimiento de las disposiciones laborales contenidas en el artículo 123 Apartado "A" de la Constitución Política de los Estados Unidos Mexicanos, en la Ley Federal del Trabajo, en los Reglamentos, Convenios, Acuerdos y Contratos aplicables y cerciorado de que es el domicilio correcto en el que se actúa por _____ Constituido legalmente en la empresa mencionada, y para los efectos del desahogo de la presente diligencia el(os) Inspector(es) del Trabajo que actúa(n) requiere (n) la presencia del propietario o representante legal de la empresa y _____ estando presente comparece al efectos el (a) C. _____, quien se identifica con _____ a quien se le requiere acredite su personalidad, quien acredita su personalidad con _____ y apercibido de los ilícitos en que incurren los falsos declarantes ante Autoridades diferentes a las Judiciales, manifestando bajo protesta de decir verdad contar con la autorización suficiente para atender el desahogo de la diligencia, y llamarse y tener el cargo asentado en la presente acta.- Posteriormente se requiere al representante de la empresa que comparezca en esta diligencia el representante de los trabajadores (Secretario General del Sindicato o su representante legal), compareciendo al efecto el C. _____, asimismo se le requiere al representante de la empresa designe a dos testigos de asistencia, en el entendido de que si se negare a designarlos, el Inspector los designara, por lo que el representante de la empresa designa a los CC._____ quienes se identifican con _____ _____ respectivamente. Se hace constar que las identificaciones

1/5

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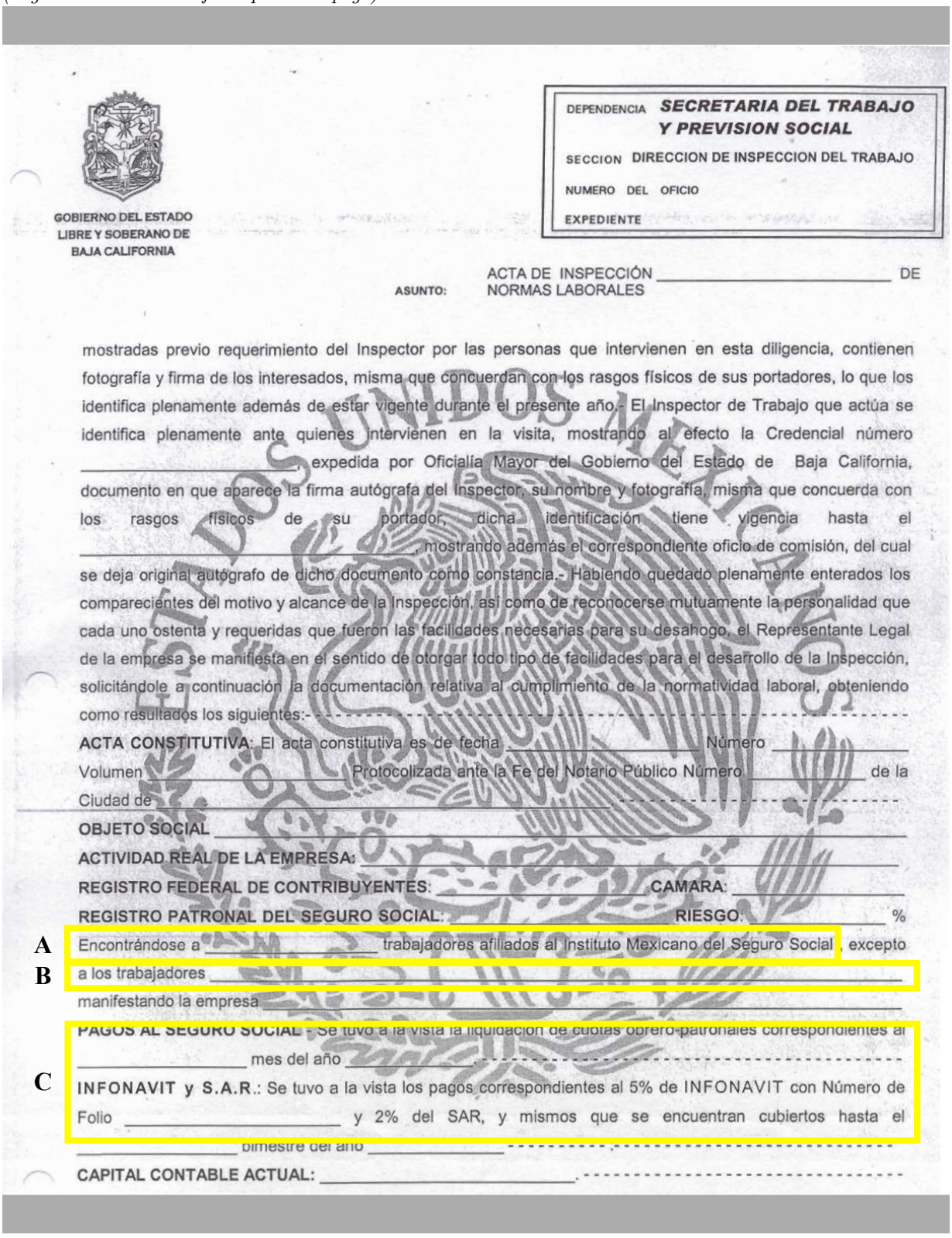

GOBIERNO DEL ESTADO
LIBRE Y SOBERANO DE
BAJA CALIFORNIA

DEPENDENCIA **SECRETARIA DEL TRABAJO Y PREVISION SOCIAL**
SECCION DIRECCION DE INSPECCION DEL TRABAJO
NUMERO DEL OFICIO
EXPEDIENTE

ASUNTO: ACTA DE INSPECCIÓN _____ DE NORMAS LABORALES

mostradas previo requerimiento del Inspector por las personas que intervienen en esta diligencia, contienen fotografía y firma de los interesados, misma que concuerdan con los rasgos físicos de sus portadores, lo que los identifica plenamente además de estar vigente durante el presente año.- El Inspector de Trabajo que actúa se identifica plenamente ante quienes intervienen en la visita, mostrando al efecto la Credencial número _____ expedida por Oficialía Mayor del Gobierno del Estado de Baja California, documento en que aparece la firma autógrafa del Inspector, su nombre y fotografía, misma que concuerda con los rasgos físicos de su portador, dicha identificación tiene vigencia hasta el _____, mostrando además el correspondiente oficio de comisión, del cual se deja original autógrafo de dicho documento como constancia.- Habiendo quedado plenamente enterados los comparecientes del motivo y alcance de la Inspección, así como de reconocerse mutuamente la personalidad que cada uno ostenta y requeridas que fueron las facilidades necesarias para su desahogo, el Representante Legal de la empresa se manifiesta en el sentido de otorgar todo tipo de facilidades para el desarrollo de la Inspección, solicitándole a continuación la documentación relativa al cumplimiento de la normatividad laboral, obteniendo como resultados los siguientes:- ----------

ACTA CONSTITUTIVA: El acta constitutiva es de fecha _____ Número _____ Volumen _____ Protocolizada ante la Fe del Notario Público Número _____ de la Ciudad de _____ ----------

OBJETO SOCIAL _____

ACTIVIDAD REAL DE LA EMPRESA: _____

REGISTRO FEDERAL DE CONTRIBUYENTES: _____ **CAMARA**: _____

REGISTRO PATRONAL DEL SEGURO SOCIAL: _____ **RIESGO**: _____ %

A Encontrándose a _____ trabajadores afiliados al Instituto Mexicano del Seguro Social, excepto

B a los trabajadores _____ manifestando la empresa _____

C **PAGOS AL SEGURO SOCIAL** - Se tuvo a la vista la liquidación de cuotas obrero-patronales correspondientes al _____ mes del año _____ ----------

INFONAVIT y S.A.R.: Se tuvo a la vista los pagos correspondientes al 5% de INFONAVIT con Número de Folio _____ y 2% del SAR, y mismos que se encuentran cubiertos hasta el _____ bimestre del año _____ ----------

CAPITAL CONTABLE ACTUAL: _____ ----------

(Figure 5.6 continues in the following page)

(*Figure 5.6 continued from previous page*)

GOBIERNO DEL ESTADO
LIBRE Y SOBERANO DE
BAJA CALIFORNIA

DEPENDENCIA	**SECRETARIA DEL TRABAJO Y PREVISION SOCIAL**
SECCION	DIRECCION DE INSPECCION DEL TRABAJO
NUMERO DEL OFICIO	
EXPEDIENTE	

ASUNTO: ACTA DE INSPECCIÓN ______________________ DE NORMAS LABORALES

D **SALARIOS**: El suscrito Inspector de Trabajo requirió las nóminas de pago las cuales _________ se mostraron, así como los recibos de pago de los últimos _________ meses, mismas que se revisaron de manera selectiva y se observo que se maneja un tipo de nómina _____________ para el personal, se paga _________ De la revisión de las nóminas se pudo comprobar que todos los trabajadores (operativo y administrativo) _________ perciben por lo menos un salario mínimo general o profesional, _________ encontrando violaciones al salario.--

REPARTO DE UTILIDADES:- Se exhibe la Declaración Anual del ejercicio correspondiente al año _________, cuyo resultado fiscal fue de $ ______________________, y la utilidad repartible fue de $ ______________________, misma que _______ fue repartida entre _________ trabajadores, como se acredita con _____________ firmados por los trabajadores de fecha _____________ y _________ fue mostrada el Acta Constitutiva de la Comisión para el Reparto de Utilidades --------------

VACACIONES Y PRIMA VACACIONAL: La prestación de vacaciones así como el 25% de Prima Vacacional _________ fueron pagadas por la empresa como se acredita con ______________________ firmado por los trabajadores.---

AGUINALDO: La empresa _____________ paga aguinaldo, toda vez que _____________ fueron mostrados _____________ firmados por los trabajadores, de fecha ______________________---------

LA EMPRESA _____________ fomenta actividades deportivas y culturales entre sus trabajadores.------

Se requirió y _________ se presenta el Cuadro General de Antigüedades de la empresa, mismo que _________ se encuentra publicado en las instalaciones de la empresa; _________ se exhibió el acta constitutiva de la comisión formuladora del cuadro general de antigüedades.-------------------------

PROCESO DE TRABAJO DE LA EMPRESA: ______________________________________

Una vez aplicados los interrogatorios a los trabajadores y revisada la documentación exhibida, se realizan las siguientes observaciones a la empresa: ______________________________________

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(*Figure 5.6 continues in the following page*)

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GOBIERNO DEL ESTADO
LIBRE Y SOBERANO DE
BAJA CALIFORNIA

DEPENDENCIA **SECRETARIA DEL TRABAJO Y PREVISION SOCIAL**

SECCION DIRECCION DE INSPECCION DEL TRABAJO

NUMERO DEL OFICIO

EXPEDIENTE

ASUNTO: ACTA DE INSPECCIÓN ____________________ DE NORMAS LABORALES

D

SALARIOS: El suscrito Inspector de Trabajo requirió las nóminas de pago las cuales ________ se mostraron, así como los recibos de pago de los últimos ________ meses, mismas que se revisaron de manera selectiva y se observo que se maneja un tipo de nómina ____________ para el personal, se paga ____________ De la revisión de las nóminas se pudo comprobar que todos los trabajadores (operativo y administrativo) ________ perciben por lo menos un salario mínimo general o profesional, ________ encontrando violaciones al salario.- -

REPARTO DE UTILIDADES:- Se exhibe la Declaración Anual del ejercicio correspondiente al año ________, cuyo resultado fiscal fue de $ ____________________, y la utilidad repartible fue de $ ____________________, misma que ______ fue repartida entre ____________ trabajadores, como se acredita con ____________________ firmados por los trabajadores de fecha ____________ y ________ fue mostrada el Acta Constitutiva de la Comisión para el Reparto de Utilidades - - - - - - - - - - - -

VACACIONES Y PRIMA VACACIONAL: La prestación de vacaciones así como el 25% de Prima Vacacional ________ fueron pagadas por la empresa como se acredita con ____________________ firmado por los trabajadores.- -

AGUINALDO: La empresa ____________ paga aguinaldo, toda vez que ____________ fueron mostrados ____________ firmados por los trabajadores, de fecha ____________________ - - - - - - - -

LA EMPRESA ____________ fomenta actividades deportivas y culturales entre sus trabajadores.- - - - - -

Se requirió y ________ se presenta el Cuadro General de Antigüedades de la empresa, mismo que ________ se encuentra publicado en las instalaciones de la empresa; ________ se exhibió el acta constitutiva de la comisión formuladora del cuadro general de antigüedades.- -

PROCESO DE TRABAJO DE LA EMPRESA: ____

Una vez aplicados los interrogatorios a los trabajadores y revisada la documentación exhibida, se realizan las siguientes observaciones a la empresa: ____

____

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(Figure 5.6 continues in the following page)

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GOBIERNO DEL ESTADO
LIBRE Y SOBERANO DE
BAJA CALIFORNIA

DEPENDENCIA **SECRETARIA DEL TRABAJO Y PREVISION SOCIAL**
SECCION DIRECCION DE INSPECCION DEL TRABAJO
NUMERO DEL OFICIO
EXPEDIENTE

ASUNTO: ACTA DE INSPECCIÓN ______________________ DE NORMAS LABORALES

EN EL USO DE LA VOZ EL REPRESENTANTE DE LA EMPRESA, MANIFIESTA LO SIGUIENTE:

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____

Siendo las __________ horas se da por terminada la presente Acta y leída que fue, se hace entrega de una copia a los que en ella intervinieron, firmando al margen para constancia y de conformidad los representantes obrero-patronales, así como los testigos de asistencia, firmando al calce el suscrito Inspector Local del Trabajo, que actúa y da fe.- **DOY FE**. --

EL C. INSPECTOR LOCAL DEL TRABAJO

____

REPRESENTANTE DE LA EMPRESA: REPRESENTANTE DE LOS TRABAJADORES:

______________________________ ______________________________

TESTIGOS DE ASISTENCIA:

______________________________ ______________________________

SECRETARIA DEL TRABAJO Y PREVISION SOCIAL
DIRECCION DE INSPECCION DEL TRABAJO
TERCER PISO EDIFICIO PODER JUDICIAL
CENTRO CIVICO Y COMERCIAL
MEXICALI, B. C. TEL 558-10-00 EXT. 1520

SECRETARIA DEL TRABAJO Y PREVISION SOCIAL
DELEGACION TIJUANA
BLVD. DIAZ ORDAZ S/N, CENTRO COMERCIAL
PLAZA PATRIA, TERCER NIVEL, LOC. 16, 17 Y 18
TIJUANA, B. C. 681-59-52 Y 681-23-88

SECRETARIA DEL TRABAJO Y PREVISION SOCIAL
DELEGACION ENSENADA
BLVD. LAS DUNAS Y LAS ROCAS INT. 104
EDIFICIO DE GOBIERNO
ENSENADA, B. C. TEL 17-23013

OFICINA DE LA S.T.P.S. EN SAN QUINTIN
CARRETERA TRANSPENINSULAR
EDIFICIO DE GOBIERNO
SAN QUINTIN, B. C. 165-28-80

5/5

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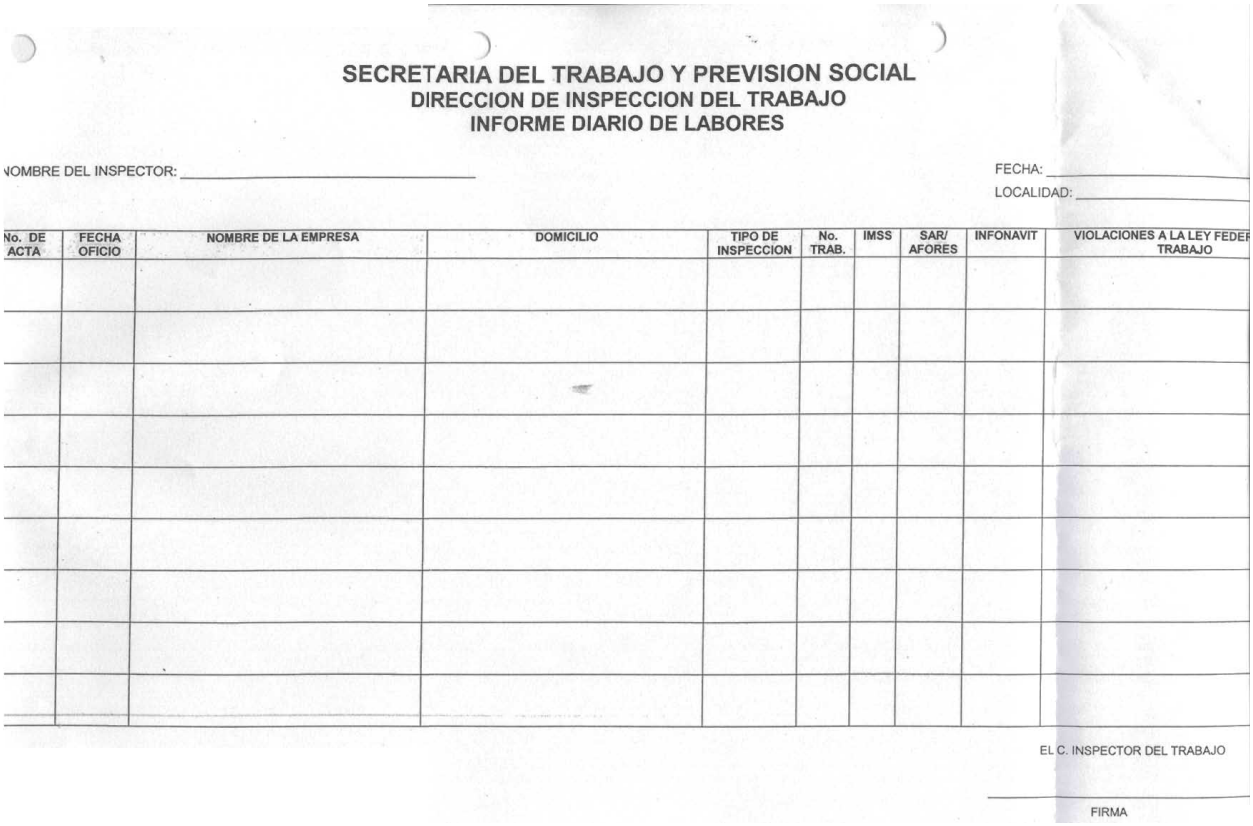

SECRETARIA DEL TRABAJO Y PREVISION SOCIAL
DIRECCION DE INSPECCION DEL TRABAJO
INFORME DIARIO DE LABORES

NOMBRE DEL INSPECTOR: _____ FECHA: _____

LOCALIDAD: _____

No. DE ACTA	FECHA OFICIO	NOMBRE DE LA EMPRESA	DOMICILIO	TIPO DE INSPECCION	No. TRAB.	IMSS	SAR/ AFORES	INFONAVIT	VIOLACIONES A LA LEY FEDER TRABAJO

EL C. INSPECTOR DEL TRABAJO

FIRMA