THE IMPACT OF RETAIL-OWNED BANKS ON EMPLOYMENT AND ENTREPRENEURSHIP: EVIDENCE FROM MEXICO

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By

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ABSTRACT

The purpose of this paper is to study the impact of providing financial access to low and middle-income individuals on employment outcomes and entrepreneurial activities. I use evidence from a case in Mexico, where in 2006 the Ministry of Finance authorized five retailers to add banking services to their pre-existing locations in order to target low income customers. This study is unique because: (i) it is the first to measure the impact of that policy change on employment outcomes and (ii) it is the first to study the effect of a massive increase in banking services in Mexico using the data from five different “retail-owned banks”.

When the policy was introduced in 2007, the distribution and density of pre-existing retail stores, which were turned into bank branches, was uneven across municipalities. This pre-existent difference in retail stores across municipalities (together with the change in policy in 2006) can be exploited as a “quasi-natural experiment” to identify a shift in supply of banking services. Therefore, I use a Difference-in-Difference model to calculate the changes in employment and entrepreneurship between municipalities that received a branch versus municipalities that did not receive a new branch after the policy change.

The results of this analysis suggest that enhancing access to finance to low and middle-income individuals can have a positive impact on informal entrepreneurship. In particular, the likelihood of being an informal business owner increased by about one percentage point for
males. However, the results also indicate that the likelihood of being a male formal business owner decreased by 0.46 percentage points. Therefore, it is important to recognize that: first, although introducing this type of banking can increase entrepreneurship, this might mainly be in the informal sector and it might even shift potential formal entrepreneurs to the informal sector; and, second this policy has no significant effect on women entrepreneurship.
To my friend and husband

Many thanks,
Kiyomi Erika Cadena Kotsubo
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1. Introduction

Formal credit institutions, such as traditional banks, are usually reluctant to lend to individuals without a credit history and verifiable proof of employment. These requirements are especially constraining for low income households which, in developing countries, usually work in the informal economy and lack formal documentation. In order to obtain loans, these individuals depend on informal money lenders or pawn shops, who charge high interest rates. Therefore, when low and middle-income households want to start a small business they face a very high cost of capital or simply have no access to financial instruments. Expanding access to financial services promises to help reduce poverty and stimulate economic development. Microfinance advocates hold that access to microcredits for small business investment can lift people out of poverty through productive activities. They hypothesize that by removing credit constraints or lowering effective interest rates, more small businesses will be created, which in turn will increase employment.

The constraints to access financial services in traditional credit institutions are especially problematic in countries like Mexico, where approximately 55 percent of the population works in the informal sector (Ruiz, 2010) and thus is not eligible for traditional loans. In order to tackle the problem and increase the level of financial inclusion, the Mexican Ministry of Finance authorized the creation of 5 new “retail-owned banks”\(^a\) in November 2006. The retail-owned banks are retailers for electronics and household goods, which after the authorization added banking services to their pre-existing locations. With this new policy, the government sought to

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\(^a\) The retail-owned banks authorized in 2006 were: Bancoppel, Banco Wal-Mart, Banco Ahorro Famsa, Banco Facil and Banco Amigo.
achieve two goals: first, to create more competition among banks in order to benefit customers; and second, to provide access to a segment of the population that has been traditionally excluded from the financial system.

There are several features that make these new retail-owned banks unique. In the first place, they eliminated the proof of income requirement. Retail-owned banks have low documentation requirements, usually only proof of residence or a co-signer. Second, pre-existing retail stores already had experience making small installment loans for merchandise (since they were allowed to sell items on credit). Retailers already had information on clients and knowledge on how to collect payments from them. Third, since many clients knew the retail stores before, they trust banking services provided by them. This is important in a country such as Mexico where a large segment of the population does not trust traditional banks\(^b\).

Fewer requirements and more competition in lending are expected to reduce the barriers and costs for borrowers, especially those who work in the informal sector. In terms of barriers, people in the informal sector can now request a loan without having full documentation. In terms of costs, it is expected that with more options available the interest rate would decrease making the loans more affordable. Although, the average annual percentage rate (APR) for retail-owned banks is significantly higher than the one from traditional banks, it is lower than the one charged by pawn shops. For example, the APR in 2009 for retail-owned banks was 84%, while traditional

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\(^b\) Source: In 2009, a survey performed by the Mexican Central Bank (Banxico) revealed that 56% of the respondents had little or no trust in banks. [http://www.banxico.org.mx/publicaciones-y-discursos/discursos-y-presentaciones/discursos/%7B4181FADB-E801-8CCA-60E3-C027A864C4CD%7D.pdf](http://www.banxico.org.mx/publicaciones-y-discursos/discursos-y-presentaciones/discursos/%7B4181FADB-E801-8CCA-60E3-C027A864C4CD%7D.pdf)
banks charged around 45%. However, this is still much lower compared to the 231% APR charged in pawn shops in the same year\(^c\).

The authorization of banking services in the pre-existing retail stores presents an opportunity to study the impact of expanding access to finance on employment and entrepreneurship, both in the formal and in the informal sectors. This paper examines the impact of the expansion of retail-owned banks in Mexico, that traditionally target low and middle-income households, on the individuals’ employment status. The hypothesis is that because of the low requirement feature of retail-owned banks, the fraction of informal business owners will increase and the number of non-employed individuals will be reduced.

The rest of the paper is organized as follows. Section 2 presents a brief background and literature review of the effects of access to finance on employment and entrepreneurship. Section 3 provides a background of the new retail-owned banks; Section 4 presents the hypothesis for the four different employment outcomes; Section 5 describes the conceptual model, and Section 6 describes the data that I use. The results of the model are examined in Section 7 and some limitations are presented in Section 8. Finally, Section 9 concludes and describes some policy implications.

## 2. Background and Literature Review

Access to finance is viewed as a key element for economic development. Financial products can help households to smooth consumption, save and cope with risk. Ultimately,

\(^c\) Source: Own calculations using data from the National Committee for the Defense of Users of Financial Institutions (CONDUSEF) and the Federal Bureau of consumer Interests (PROFECO). The calculations for the APR in retail-owned banks only includes Banco Facil and Bancoppel, which were the ones available.
access to finance is considered a tool for poor and low-income households to escape from poverty. This idea has gained more attention since the 1990s with the expansion of microfinance throughout the world. However, despite the rapid expansion of the microfinance industry, there remains an intense debate on the extent to which access to finance can lift people out of poverty. Critics of microfinance argue that people end up over-borrowing and trapped in a long-term cycle of poverty. More broadly, the debate is about the effects that financial access has on economic outcomes and on whether expanding access to banking services allows low-income households to engage in productive activities.

The studies that explore the impact of access to finance on poverty alleviation and economic development can be divided into those that take one of two approaches: experimental and non-experimental. On the experimental side, Banerjee et al (2009) use a randomized controlled trial to study the effect of introducing microcredits on the creation of small businesses, investment and consumption in India. Their results indicate that providing access to finance to low income households has a positive effect on the number of new businesses created. Experimental and quasi-experimental studies have also taken place in Mexico. First, Niño-Zarazúa et. al (2008) estimate the impact of microcredits on labor and human capital in urban Mexico using the data from 3 microcredit programs. The authors find an indirect positive effect on poor wage earners, but this was only significant when the small business that obtained the loans reached a level of income well above the poverty line. Then, McKenzie and Woodruff (2008) study the effect of providing capital on businesses’ profitability. The authors performed a

randomized experiment which gave cash and capital stock to small retail firms. This exogenous shock to capital shock generated large increases in profits (33% per month), especially on firms that were more financially constrained.

Also following the experimental approach is the Karlan and Zinman’s (2007) field experiment in South Africa, where they estimate the impacts of a consumer credit supply expansion. The authors find that the increase in consumer credits has positive effects on economic outcomes, such as job retention, income, food consumption quality and quantity, and household decision-making. In the case of Mexico, retailers already had experience in making small installment loans for its merchandise; therefore, the expansion of retail-owned banks can be compared to a credit supply expansion.

Although the aforementioned randomized control trials have shown some positive impact of expanding access to finance on entrepreneurship and employment outcomes, some other experiments have shown that this is not always the case. For example, Dupas et. al (2011) also performed an experiment in Kenya where they provided information on credit options and lowered the eligibility requirements for an initial small loan. Their results indicate that –despite the increase in access to finance– only 3% of people initiated the loan application process. These results suggest that simply expanding access to banking services might not get people to use it and benefit from it. Thus, the impact of access to finance on economic development is not fully conclusive, and there is a need for further research. In addition, experiments in low-income countries might not shed light on the effects of access to finance in middle-income countries where the situation is markedly different. Therefore, it is important to use different approaches to analyze the impact from a broader perspective.
On the non-experimental side, natural experiments or quasi-natural experiments in Mexico, US and India have enabled economists to study the impact of expanding access to finance on employment and economic outcomes. In Mexico, the first attempt to target the unbanked population through a massive increase of banking services took place in 2002 when Grupo Elektra was authorized to introduce the first “retail-owned bank”: Banco Azteca. In October 2002, Banco Azteca opened more than 800 branches at once. Two papers study the effect of this first expansion of financial services on low income households. On the one hand, Bruhn and Love (2009) indicate the effect of the introduction of Banco Azteca on entrepreneurial activity, employment and income. Their results indicate that the increase of banking services led to an increase in informal business owners by 7.6 percent, total employment went up by 1.4 percent and income increased by 7 percent (Bruhn and Love, 2009, pp.16). In addition, Ruiz (2010) indicates that informal households in municipalities with Banco Azteca were better able to smooth their consumption. In this paper, I concentrate on the second shift in supply of banking services that took place after 2007 and evaluate whether the effects on entrepreneurial activity and employment are similar to that studied by Bruhn and Love (2009).

The shift in banking services that Mexico experienced in 2007 shares some resemblance to the banking deregulation that the US experienced from the 1970s through the 1990s. Both cases represent a shift in policy that resulted in an increased number of new banks in different states. Several authors have studied the effect of the US episode of banking deregulation. Black and Strahan (2002) found that an increase in new businesses following the deregulation of branching restrictions in the US. In addition, Cetorelli and Strahan (2006) indicate that
competition in the banking markets due to deregulation increased the share of establishments in the smallest size group and increased the total number of establishments.

Finally, the expansion of retail-owned banks in Mexico after 2007 can be compared to the expansion of bank branches in rural India between 1977 and 1990. A policy was enacted in India that required that, in order to open a bank branch in a location which already had one, the bank had to open four branches in locations with no bank branches. Burgess and Pande (2005) find that the expansion of banking services explains a reduction in rural poverty (as measured by the headcount ratio) of 17%.

To summarize the results from the non-experimental approach, natural experiments in Mexico, US and India have shown that enhancing access to finance has a positive effect on entrepreneurial activity and poverty alleviation.

3. Background on Retail-Owned Banks

The majority of the population in Mexico lacks formal access to the financial system. According to the World Bank, 25% of the urban population and only 6% of the rural population have savings accounts\(^e\). The Mexican government recognized this problem, and in order to increase financial inclusion, the Ministry of Finance authorized the creation of 13 new banks in 2006.

The new banks followed different approaches and targeted different segments of the population (Table 1). A few of these banks focused on private banking and high-end activities, such as investment banking or pension funds. Most banks, however, targeted low and middle-

income individuals with monthly incomes of US$200-$3,600 (Skelton, 2008) who have traditionally been excluded from the financial system. This market represents around 44 million people\(^1\). Among these new banks, retailers that add financial services in their location stand out. For instance, by the end of 2008, Bancoppel and Wal-Mart had already around 581 and 432 bank branches, respectively.

There are several characteristics that put “retail-owned banks” in an advantageous position to attract low and middle-income households. First of all, they already had a database of clients. Retailers had been offering small installments loans for their merchandise prior to the bank authorization. Thus, they had experience on how to collect payments and they even had their own credit records. Second, retailers already had a defined targeted market and frequent customers, whereby the new license allows them to offer additional financial services. Third, retailers were the only institutions willing to offer small loans when traditional banks disregarded this segment. The unbanked population reported to use stores and retailers as their primary source of credit (Skelton, 2008). Thus, customers could have already developed some loyalty to the retailers. Finally, the retailers have a large network of branches across the country and this allows them to use the existing infrastructure and reduce the cost and time of startup.

After their authorization in the 2006, retailers slowly started to open bank branches in their stores. Figure 1 shows the number of retail-owned banks over time. Bank branches started to operate in 2007, but it was not until the last quarter of 2008 when the total number of branches reached over 1,500 units.

\(^1\)http://www.latinbusinesschronicle.com/app/article.aspx?id=1472
Retail-owned banks offer a wide range of basic financial products such as small personal loans and savings accounts with debit cards and minimum initial balance of as little as 50 pesos (US $4.57). In recent years, they have expanded to cover other types of products including credit cards, money transfers and insurance. Some are using new technologies to reduce risk and reach more clients. For example, Bancoppel is using finger tip scanners as a mechanism to identify their clients and avoid scams. In addition, retail banks have a network of ATM and internet banking for their customers.

As opposed to traditional banks, retail-owned banks require few documents for personal loans. The usual required documents are limited to: (i) an official ID, (ii) proof of residence, and (iii) having a savings account in the same bank. Some of the benefits of these loans (in contrast to previous lending for merchandise) are that the money can be used for any purpose and that customers do not require a co-signer. For these reasons, retail-owned banks represent an opportunity for people working in the informal sector to access the financial system.

4. Hypothesis

The purpose of the paper is to analyze the impact of expanding financial services (through the introduction of retail-owned banks) on employment outcomes. In order to understand the full impact of the policy on employment, it is necessary to consider all the possible employment outcomes such as one’s status as an informal business owner, a formal business owner, a wage-earner or non-employed. It is expected that the expansion of financial access will affect each of those employment activities differently. The hypothesis of this study is

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8 Average exchange rate for 2007 was 10.93 pesos, source Banxico (Mexican Central Bank)
that, because of the special features of retail-owned banks, their introduction increases the number of informal business owners and reduces the number of non-employed individuals. In the following paragraphs, I describe the expected result for each of the employment outcome variables.

In terms of informal business owners, when the retail-owned banks started to open, more credits became available at better rates and with fewer requirements. Consequently, I expect that new informal micro-entrepreneurs could now get loans and start small businesses; and previous informal business owners could now get credit to invest more and maintain their current businesses. As a result, with the introduction of the retail-owned banks, I expect to see an increase in the probability of being an informal business owner. Other studies have found similar results. For instance, as described in the previous section, Bruhn and Love (2009) observed an increase in the number of informal business owners as a result of the first wave of retail-owned banks (Banco Azteca) in Mexico.

In terms of formal business owners, the introduction of retail-owned banks does not represent better opportunities for formal entrepreneurs. Formal businesses already had access to traditional banks, since they have the necessary documentation, and commercial banks tend to offer lower interest rates. Therefore, I do not expect to see an effect on the decision to become a formal business owner with the entrance of retail-owned banks. However, the introduction of retail-banks might represent a slight disincentive to making a business formal (since it reduces one of the advantages: to be able to obtain credit).

For the wage earners, the effect is not clear because there might be two opposing effects present. On the one hand, previous research has shown that increased availability of consumer
credits helps borrowers to retain their employment as wage earners (Karlan and Zinman, 2007). On the other hand, with the possibility of becoming an informal business owner, some workers would be encouraged to quit and become micro-entrepreneurs. Khalenque (2011) finds that expanding access to finance moves households towards self-employment, instead of having dual activities (i.e. to be self-employed and a wage earner at the same time).

In the case of the non-employed, people who were not in the labor force (or unemployed) might now be encouraged to open a small informal business. Hence, the likelihood of not being employed would decrease. Also, with fewer barriers to financial access, entrepreneurs may now obtain loans in case of external negative shocks. This would increase their chances of survival and prevent them from falling into unemployment. For example, Demirguc-Kunt et. al (2011) find that access to finance increases the likelihood of business survival. Therefore, by increasing financial access, I expect that the non-employed population would not increase.

5. Conceptual framework

When the Ministry of Finance authorized the creation of five new retail-owned banks in November of 2006, the distribution and density of pre-existing retail stores was uneven across municipalities\(^h\). Thus, the policy affected different municipalities differently. The pre-existing differences across municipalities can be exploited as a quasi-natural experiment. I use the cross-municipality variation in the opening of retail branches to identify a shift in supply of banking services and the impact on employment outcomes. Thus, I use a Difference-in-Difference (D-D)

\(^h\) Ideally, I would use the location of the retail store (before 2007) as identification. However, since the data for retail stores is not available at the municipality level, I use the location of the bank branches which is available at the CNBV. For this assumption to hold, I assume that all retail-owned bank branches that opened at some point after 2007 are those that had pre-existing retail branches.
model which compares municipalities with and without a new retail-owned bank before and after
the policy change in the first quarter of 2007.

One concern with this natural experiment is that the municipalities with high density of
pre-existing retail stores might be different from municipalities with low density of the retail
stores. Any level differences (such as the level of economic activity or the overall level of
financial development) might be correlated with the density of pre-existing retail stores. Thus, I
include municipality fixed effects dummy to capture those intrinsic differences between
municipalities. In addition, I include quarter fixed effects to control for variations in time that
that affect all municipalities. Hence, the remaining identification assumption is that the trend in
the outcome variable in “treatment” municipalities would not have been different to that in
“control” municipalities absent the policy change. The D-D regression can be expressed such
that:

\[ y_{ict} = \alpha + \beta_c + \gamma_t + \delta^* postBank_{ct} + \pi^* Z_{ict} + \epsilon_{ict} \]

where the subscript \( i \) denotes individuals, \( c \) denotes municipalities, and \( t \) denotes quarters. The dependent variable \( y \) denotes the employment status of the individual expressed as a dummy
variable\(^1\). I estimate four models, each with a different employment outcome as a dependent
variable. First, \( y \) is equal to one if the person is an informal business owner. Second, \( y \) is equal to
one if the person is a formal business owner. Third, \( y \) is equal to one if the individual is a wage-
earner and, fourth, \( y \) is equal to one if the person is not employed. On the right-hand side of the

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\(^1\) For a detailed explanation of the variables please see Appendix 1
equation, $\beta$ is a set of municipality fixed effects and $\gamma$ is a set of quarter fixed effects. Last ly, $Z$ is a matrix of individual control variables, which includes gender, marital status, age, and education dummies. The schooling dummies (primary school, middle school, high school, some college and college) refer to the highest level of schooling attended.

The main variable of interest is $postBank$ which is constructed by interacting two dummies: one that indicates the period starting in 2007 and the second that indicates if the municipality at some point opened a retail-owned bank branch (a variable that equals one if the municipality had at least one retail-owned bank at some point during the period 2005-I to 2010-IV).

The necessary assumption for this identification strategy is that, in the absence of the reform, and thus in the absence of new retail-owned banks, the differences between municipalities with and without new retail-owned banks would have been similar before and after 2007-I. In other words, that the trajectories (in terms of job creation and business formation) of these two types of municipalities would have been similar if not for the authorization to add banking services in these retail stores.

6. Data Description

I have constructed the main variables from the Mexican National Employment and Occupation Survey (ENOE), which focus on individual’s economic activities. The ENOE is the survey that the Mexican government uses to calculate the unemployment rate and the size of the informal sector. The data is publicly available at the Mexican Institute of Statistics and
Geography (INEGI) website\(^1\). The ENOE has been conducted quarterly since 2005 and it is representative at the national level for four different sizes of localities according to the number of inhabitants (rural, urban small cities, medium and large cities). The survey covers a random sample of approximately 125,000 households each quarter. Each household remains in the survey for five consecutive quarters.

I use data from the first quarter of 2005 until the last quarter of 2010. This period allows me to have 8 quarters before the new retail-owned banks started to operate in 2007 and 16 quarters after the introduction. The data from the ENOE are appropriate to calculate my outcome variables because of the following: first of all, it covers 90% of the municipalities that received a retail-owned bank as a result of the change in policy. Second, the survey includes detailed questions about the individual’s economic activity such as whether the person is a business owner, self-employed or a wage earner. Finally, the ENOE distinguishes formal and informal firms.

From 2005-I to 2010-IV, the ENOE covered 1,208 municipalities. However, not all the municipalities in the ENOE had bank branches. I decided to use only the municipalities that have at least one bank branch (of any type) during any quarter of my period of study. In other words, I drop the municipalities that do not have any bank branch between 2005 and 2010. The reason why I decided to drop those municipalities is because they are too different to the municipalities that ever received a retail-owned bank. Almost all retail-owned banks open in municipalities where there were already bank branches (only in 6 municipalities the retail-owned bank was the

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\(^1\)http://www.inegi.org.mx/est/contenidos/espanol/soc/sis/microdatos/default.aspx
first bank to open). Thus, municipalities with other bank branches (but no retail-owned bank branches) constitute a better control.

I merge the ENOE with a database that compiles the number of bank branches of each type of bank in every municipality. I created the last data-set with information from the Mexican Bank Supervision Commission (CNBV). The CNBV publishes quarterly data for the number of branches by bank at the locality level\(^k\). However, there are two things to consider from this merging of the ENOE and the CNBV bank data. First, since the CNBV dataset is at the locality level, which is smaller than the municipality level, I grouped localities into the appropriate municipalities. In order to do this, I use the list of localities and municipalities from the INEGI and group them by name. However, twelve localities were identified in the CNBV data set as “other localities” and could not be included\(^l\). Second, since the Federal District was not correctly coded for all quarters I dropped it from the sample\(^m\).

Once I aggregated the CNBV data to have the same level of detail (municipalities) and frequency as the ENOE, I was able to combine them and determine the municipalities that had a bank branch during my period of study and the exact number of bank branches per municipality. I merged the ENOE and the CNBV data according to the name of the municipality. Ideally, this process should be done using the municipality code to avoid typos and misspellings of names. However, the two datasets had different identification codes and, therefore, I had to merge them by name. I only failed to merge the twelve localities that were coded as “others localities”.

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\(^l\) This is minor taking into account that there are 1,065 localities that reported to have bank branches.

\(^m\) From 2005-I to 2008-III, Distrito Federal was reported as only one city but from 2008-IV was divided by "Delegaciones", which are equivalent to municipalities. However, dropping Distrito Federal will not bias the results since it represents a small fraction of the sample in the ENOE (around 2.7%).
After combining the two datasets, my final sample covers 653 municipalities, of which 313 had at least one retail-owned bank open after 2007 and 340 did not have a retail-owned bank but had a branch of a different bank. At the individual level, my sample comprises 4,635,770 observations. Since I am seeking to analyze employment outcomes, I keep only individuals who are of working age (between 20 and 65 years old) in my sample and I only consider their primary job. I construct my key outcome variables by creating dummy variables for each person in the sample, which indicates if a person: a) owns an informal business b) owns a formal business c) is a wage-earner or d) is not employed. The construction of the variables is explained in the annex.

Table 2 presents the summary statistics for the outcome variables split by municipalities that have at least one retail-owned bank (Column 1) and by municipalities that did not have a retail-owned bank at that time, but had at least one branch from a different bank (Column 2). The summary statistics are also split before the reform in 2007-I (Panel A) and after the reform (Panel B).

The upper panel in Table 2 (pre-reform period) indicates that, in municipalities with retail-owned banks, 11.1% of the people in the sample own an informal business. In municipalities without retail-owned banks, around 16.3% of the sample owns an informal business. In general, the percentage of formal business is smaller than the percentage of informal businesses. In municipalities with retail-owned banks, 5.3% of the individuals own formal businesses. But in municipalities without retail-owned banks, only 4.6% of the sample has formal businesses. The majority of the individuals in the sample are wage-earners, 51.4% in municipalities with retail-owned banks and 44.4% in municipalities without retail-owned banks. The percentage of the sample that is not employed is similar in both types of municipalities;
32.1% in municipalities with retail-owned banks and 34.7% in municipalities without retail-owned banks.

The lower panel of Table 2 (post-reform period) shows that municipalities with retail-owned banks still have a lower percentage of informal business owners and a higher percentage of formal business owners than municipalities without retail-owned banks. However, the percentage of the sample in informal businesses was lower than in the pre-reform and the number of wage earners went up for both types of municipalities.

The sample also includes a series of individual level control variables such as gender, age, marital status, and education dummies. Besides age, all individual level control variables are dummy variables. The variable married is equal to one if the individual declares to be married or in cohabitation. The schooling dummies (primary school, middle school, high school and university) refer to the highest completed level of schooling. Table 3 presents the summary statistics for the individual control variables.

7. Results
a. Overview of Results

Figures 2 and 3 show the average of informal and formal business owners over time for municipalities that received retail-owned banks after the reform and municipalities that did not. From Figure 2, it appears that the percentage of informal business owners follows a constant trend in both types of municipalities, with and without retail-owned banks. However, the line of municipalities without retail-owned banks shows a slight downward slope after 2007. This is consistent with the statement that retail-owned banks allowed maintaining the level of informal
businesses. In contrast, as Figure 3 shows, the percentage of formal business owners is going down in both types of municipalities but the decrease in 2007 and afterwards is larger in municipalities with retail-owned banks after the introduction of the reform.

Figure 4 and Figure 5 show these patterns more clearly. The figures represent the coefficient of the difference between municipalities with and without retail-owned banks in each quarter/year. Figure 4 shows that, after the reform, the number of individuals who had informal businesses increased more in municipalities where retail-owned banks opened. Only in four (out of 16) quarters after the authorization, is the effect smaller than the largest of the pre-reform period. Figure 5 shows that the effect on formal business owners was negative the first year, then it becomes positive but below the pre-reform levels, and finally after 2009-1 it becomes negative again.

b. Econometric Results

Table 4 presents the results of the regression models for all four outcome variables (informal business owner, formal business owner, wage-earner and not employed). I follow the empirical model described in the identification strategy section, which consists of a Difference-in-Difference model to estimate the impact of opening retail-owned bank branches.

As can be seen in Column 1, the effect of the authorization of retail-owned banks on the likelihood of being an informal business owner is positive and statistically significant at the 1% level. This suggests that the introduction of retail-owned banks led to an increase in the fraction of informal business owners by 0.0051 (half a percentage point) which corresponds to 4.6% of the pre-reform fraction of 0.111 (Table 2 shows the summary statistics). This result suggests that
the expansion of retail-owned banks increased the number of informal entrepreneurs. Although of a slightly smaller magnitude, the positive impact is consistent with the results from Bruhn and Love (2009), who find a 7.6 percent increase during the first wave of retail-owned banks (Bruhn and Love 2009, pp 12).

Second, the results in Column 2 show that the effect of retail-owned banks on the fraction of formal business owners is negative (and statistically significant at the 5% level). The fraction of formal business owners went down by 0.003. The decline represents a 4.8 percent decrease of the pre-reform fraction of formal business owners.

One possible explanation of the decrease of formal entrepreneurs and the increase of informal business owners is that, once entrepreneurs have access to finance without the need of formally owning the business, they might prefer to open informal businesses. The idea is the following: an individual is assessing the benefits and costs of opening a formal versus an informal business. On one hand, it would be faster and easier to open an informal business since entrepreneurs would avoid the hassle and long wait to get the permit. On the other hand, one benefit of opening a formal business is that it might improve access to credit\(^a\). Thus, since the reform is extending access to credit without the requirement to have a formal business, entrepreneurs might have had fewer incentives to open formal businesses afterwards. However, in the absence of reform, some of those individuals would have chosen to open a formal business since that would get them access to the credit market. Then, the reform could have shifted some individuals who would have otherwise opened a formal business to open an informal one instead. Yet, it is important to note that the magnitude of the impact on informal owners is still larger.

\(^a\) For instance, Gatti and Honorati (2008) looking at 49 developing countries find that more tax compliance is associated with more access to credit.
than the one magnitude from the formal owners, hence overall there is a positive impact on entrepreneurship.

Column 3 presents the impact on the likelihood of being wage earners. The effect is negative but statistically insignificant. Finally, the last column in Table 4 shows the impact of the expansion of retail-owned banks on non-employed individuals. Although the coefficient is negative as it was hypothesized, it is not statistically significant.

c. Results by Gender

It is well accepted in the academic literature that women are more financially constrained than men, and it is one of the premises of microfinance. In rural Mexico, Love and Sanchez (2009) find that female micro-entrepreneurs are more likely to be credit constrained from informal lenders. This led me to hypothesize that the impact of the reform would be stronger for women than for men.

In order to investigate the gender differences and the impact of retail-owned banks, I estimate the results separately for women and men. Table 5 presents the impact of the expansion of retail-owned banks on all four different outcomes by gender. The coefficient on informal business owners is positive and statistically significant at 1% among men (Column 1, Panel B) but insignificant for women (Panel A). This goes against the hypothesis and suggests that men were also constrained and more able to take advantage of the new credit opportunities. One possible explanation for this result is that retail-owned banks might mostly target men. In fact, Cull et. al. (2009) shows that microfinance for-profit banks -which similar to retail-owned banks-

\^ See for a review Pitt and Khandker (1998), McKernan (2002), and Beck and Brown (2011)
serve a smaller percent of female borrowers as opposed to traditional non-profit microfinance institutions.

The effect of formal business owners is negative for men and statistically significant at the 5% level (Column 1, Panel B). Therefore, the same argument of opening informal businesses rather than taking up formal business activity can be made in the case of men. The impact on formal business owners is also negative in the case of women but the result is not statistically significant (Column 2, Panel A).

Table 5 also presents the impact of increasing access to finance on the proportion of wage-earners by gender (Column 3). Here, the effect for women is positive while the effect for men is negative; however, none of the results are statistically significant. Finally, the effect of the expansion of retail-owned banks on the proportion of people not employed is also insignificant for both genders.

d. Robustness of Empirical Results

As opposed to the introduction of the first retail-owned bank in Mexico\(^p\), the second wave of retail-owned banking services came gradually. The number of retail-owned banks over time is shown in Figure 1, which indicates that the process of adapting the retail stores and incorporating bank branches was slow. Very few retail stores added banking services right after the authorization in 2007-I. This is understandable as opening bank branches implies large fixed costs and many different aspects that take time. For instance, according to Dick (2007), the setup costs involved in opening a bank branch in the U.S are around $7 million, and the average

\(^p\) Banco Azteca open almost 800 branches at once
process to open the branch takes at least 7 months. But, it is important to consider that the cost and time of adapting a supermarket or retailers is lower than the opening of new branches.

Since it is not until a few quarters later that the presence of retail-owned banks is large, I use different cut-off points to indicate different potential entrances of the policy and analyze whether the results are sensitive to this. This exercise (shown in Table 6) helps to investigate the robustness of empirical results. I use four different quarters (2007-I, 2007-II, 2007-III and 2007-IV) assuming that opening bank branches implies many different aspects (legal and costs) that take time, which would mean that I would expect results only after some time.

The sign of the coefficients on informal and formal business owners, remain the same regardless the cut-off for the post-period. Both coefficients are statistically significant even after varying the indication of the entrance of the policy. The effect on being a formal business owner is statistically significant at the 5 percent level (at all cut-off points), and informal business owner is significant at the 1 percent level if the post-period is 2007-I but remain significant at 5 percent level for other post-periods.

For the case of wage earners, the coefficient remains negative throughout. However, the result is only significant assuming that the actual entrance of the policy was during the last quarter of 2007. Finally, the coefficient on not employed individuals is negative in 2007-I, but then it becomes positive. However, it is insignificant in all cases.

e. Robustness of Empirical Results with time trends

In order to address the fact that municipalities with retail banks might be on a different growth path than municipalities without retail banks, I control for different linear time trends.
Thus, I allow municipalities that had at least one retail bank to have the same time trend, and municipalities without retail banks to have a different time trend. Table 7 presents the impacts on employment outcomes with and without time trends. As can be seen from Columns 2 and 4, the effects on the likelihood of being an informal and a formal business owner without trends are not robust. The coefficients are not statistically significant once I control for the municipality-type time trend.

The fact that coefficients are losing significance is not entirely surprising, since this model does not have enough precision to estimate impacts. As I discussed before, the change was not all of a sudden (and even if it was, I would expect to see effects come gradually). Thus, part of the true impacts of the policy change are going to be absorbed by the group-specific time-trend, leaving very little to be estimated by the postBank variable (most of it will come only from the precise moment of change from pre to post to identify the impacts). Thus, I do not give much credence to these results. However, it is interesting to note that the coefficient on wage-earners and not-employed become significant once I include the time trend for the different types of municipalities. As can be seen in Column 6, the effect of the authorization of retail banks on the likelihood of being a wage earner is positive and statistically significant at the 5% level. This would suggest that the introduction of retail banks led to an increase in the fraction of wage earners by 0.0078. This result is line with the findings of Karlan and Zinman (2007), who suggest that an expansion on credit consumption has a positive impact on job retention. Furthermore, the coefficient on not employed is negative and statistically significant at the 1 percent level (Column 8). Therefore, the introduction of the retail banks led to an increase of
overall employment by .0107. This effect corresponds to an increase in employment of about 1.6 percent over the pre-reform level, which is consistent with the results of Bruhn and Love (2009).

8. Limitations

One limitation of this paper is that the analysis only takes into account the presence of retail-owned banks in the municipality and ignores geographic elements, such as the distances between the bank branch and the residence of the individual. For example, people living in municipalities without retail-owned banks might actually be very close to another municipality with this type of bank and they could easily travel to that branch. In addition, some municipalities are very large and, even though the municipality reports to have a bank branch, some households are simply not able to reach it. The omission of these geographical factors can be expected to lower the precision of the results presented here and likely biases the coefficients towards zero (since the treatment is measured with error, this biases the coefficient toward the null). For this reason, the results here presented can be thought of as lower bounds. Future research should consider this geographical element in the analysis and use the distance from the households to the bank branches as the variable of interest instead of the indicator for whether there is a bank in the municipality.

Another limitation of this paper is that it rests on the assumption that the decision to add banking branches on retail stores is not based on the trajectories of jobs or business creation from that area. This assumption is supported from the fact that branches were opened in pre-existing retail stores, which means that it is not possible that the banks opened branches in any place where businesses were about to be opened. However, it is possible that the banks decided not to
open a branch in some of their stores, and that this decision is correlated with the expected growth of (informal) businesses in those locations. Ideally, I would have used indicators of the number of existing retail stores in 2006 by the owners of the new retail banks, since those are clearly predetermined. However, this information was not publicly available.

If in fact retailers were deciding to add baking branches in municipalities on higher business creation trajectory, then results here presented could be biased. Nevertheless, as it was shown before in the paper, both trajectories (with and without retail-owned banks) were following a very similar pattern before the policy change. Therefore, it is very unlikely that retailers decided to open bank branches first where informal business owners were going to growth anyway – aside from the fact that this type of information is hard to predict.

Thus, the necessary assumption seems to hold, but in order to extend this analysis; further research could try to understand how the decision to add banking branches took place. For example, use the location of the pre-existing retailers instead of the actual banks (this information is not publicly available and I was not able to use it).

9. Conclusions and Policy Implications

This paper studies the impacts on employment of the late-2006 authorization from the Ministry of Finance to allow retailers to add banking services in their locations. These retailers tend to serve low and middle-income households, many of whom have been excluded from the financial system and work in the informal economy. The identification strategy exploits the introduction of the policy as a quasi-natural experiment to identify a shift in supply of banking services. Using a Difference-in-Difference model, I calculate changes in employment and
entrepreneurship between municipalities in the treatment group (with retail-owned bank) versus municipalities in the control group (without retail-owned banks).

Results indicate that the expansion of financial services through retail-owned banks helps unbaked population to become informal entrepreneurs or maintain their current informal businesses: the likelihood of being an informal business owner increases by about half a percentage point after the introduction of the new policy. Therefore, expanding access to finance can help low income individuals to engage in productive activities and, ultimately, escape from poverty. In terms of policy implications, new financial innovations such as retail-owned banks can be a tool to enhance welfare if greater levels of informal employment lead to higher incomes and potentially to higher levels of productivity.

However, despite the positive impact on the creation of informal businesses, results also indicate that the likelihood of being formal business owner decreases by about a quarter of a percentage point. Thus, although the expansion of access to finance helps low income individuals engage in productive activities, it is important to recognize the potential downside effect of des-incentivizing formality.

In addition, it is important to recognize that this policy has no significant effect on women entrepreneurship. While enhancing access to finance through retail-owned banks increases the likelihood of being an informal business owner by about one percentage point for males, the impact is not significant for women. The same happens on formal entrepreneurship. Whereas the likelihood of being a male formal business owner decreases by 0.46 percentage points as a result of the policy change, the effect is not significant for women.
From a public policy perspective, the fact that female entrepreneurship does not pick up and that formal business activity decreases poses a greater difficulty in the design of financial innovations. Thus, these types of policies should be complemented with other reforms that enhance female participation in entrepreneurial activities and incentives to increase formal business activities.

Overall, the findings of this paper support the literature in which enhancing access to finances leads to the formation and survival of businesses. This in turns is an important element for growth and poverty alleviation. In particular, the results are in line with the findings of the first massive increase of retail-owned banks that took place in Mexico. In both cases, access to finance to low and middle income people promotes economic development by fostering the survival and creation of informal businesses.
Table 1. New Banks and their Niches

<table>
<thead>
<tr>
<th>Name</th>
<th>Market Niche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barclays Bank Mexico</td>
<td>Government, Development Banks, Large Corporations, Financial Sector</td>
</tr>
<tr>
<td>Banco Compartamos</td>
<td>Low and middle income households</td>
</tr>
<tr>
<td>Banco Autofin Mexico</td>
<td>Low and middle income households, Automobile-sector firm</td>
</tr>
<tr>
<td>Banco Ahorro Famsa</td>
<td>Low and middle income households through Famsa stores</td>
</tr>
<tr>
<td>Banco Facil</td>
<td>Low and middle income households through Chedraui stores</td>
</tr>
<tr>
<td>Banco Multiva</td>
<td>Middle and high-income households, Corporate and middle-market enterprises</td>
</tr>
<tr>
<td>Bancoppel</td>
<td>Corporate and middle-market enterprises through Coppel stores</td>
</tr>
<tr>
<td>Banco Regional</td>
<td>Small- and middle-sized enterprises, Low and middle income households in Chihuahua state</td>
</tr>
<tr>
<td>Banco Amigo</td>
<td>Low and middle income households</td>
</tr>
<tr>
<td>Prudential Bank</td>
<td>Middle and high income customers</td>
</tr>
<tr>
<td>UBS Bank</td>
<td>Institutional investors, Investment trust, Insurance Company, Pension Funds</td>
</tr>
<tr>
<td>Banco Wal-Mart</td>
<td>Low and middle income households through Wal-Mart and Bodega stores</td>
</tr>
<tr>
<td>Adelante</td>
<td>Low and middle income households through Wal-Mart and Bodega stores</td>
</tr>
<tr>
<td>Volkswagen Bank</td>
<td>Volkswagen dealership customer</td>
</tr>
</tbody>
</table>

*Source: Edward C. Skelton, 2008. Reaching Mexico's Unbanked, Federal Reserve Bank of Dallas. 3(7)*
Table 2. Averages of Individual Level Outcome Variables

<table>
<thead>
<tr>
<th></th>
<th>Municipalities with at least one retail-owned bank branch</th>
<th>Municipalities without retail-owned banks branches, but with other banks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Panel A. Pre-Reform (Before 2007-I)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informal business owner dummy</td>
<td>0.1112</td>
<td>0.1630</td>
</tr>
<tr>
<td></td>
<td>(0.3144)</td>
<td>(0.3693)</td>
</tr>
<tr>
<td>Formal business owner dummy</td>
<td>0.0533</td>
<td>0.0461</td>
</tr>
<tr>
<td></td>
<td>(0.2246)</td>
<td>(0.2097)</td>
</tr>
<tr>
<td>Wage earner dummy</td>
<td>0.5140</td>
<td>0.4437</td>
</tr>
<tr>
<td></td>
<td>(0.4998)</td>
<td>(0.4947)</td>
</tr>
<tr>
<td>Not Employed dummy</td>
<td>0.3215</td>
<td>0.3473</td>
</tr>
<tr>
<td></td>
<td>(0.4671)</td>
<td>(0.4761)</td>
</tr>
<tr>
<td>Observations</td>
<td>1,309,415</td>
<td>240,527</td>
</tr>
<tr>
<td>Panel B. Post-Reform (After 2007-I)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informal business owner dummy</td>
<td>0.1092</td>
<td>0.1552</td>
</tr>
<tr>
<td></td>
<td>(0.3119)</td>
<td>(0.3621)</td>
</tr>
<tr>
<td>Formal business owner dummy</td>
<td>0.0508</td>
<td>0.0456</td>
</tr>
<tr>
<td></td>
<td>(0.2195)</td>
<td>(0.2087)</td>
</tr>
<tr>
<td>Wage earner dummy</td>
<td>0.5250</td>
<td>0.4597</td>
</tr>
<tr>
<td></td>
<td>(0.4994)</td>
<td>(0.4984)</td>
</tr>
<tr>
<td>Not Employed dummy</td>
<td>0.3150</td>
<td>0.3395</td>
</tr>
<tr>
<td></td>
<td>(0.4645)</td>
<td>(0.4735)</td>
</tr>
<tr>
<td>Observations</td>
<td>2,592,694</td>
<td>493,134</td>
</tr>
</tbody>
</table>

*Note:* standard deviation in parenthesis.
### Table 3. Summary Statistics of Individual Controls

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.5338</td>
<td>0.4989</td>
</tr>
<tr>
<td>Married</td>
<td>0.6664</td>
<td>0.4715</td>
</tr>
<tr>
<td>Age</td>
<td>38.32</td>
<td>12.38</td>
</tr>
<tr>
<td>Primary school</td>
<td>0.2793</td>
<td>0.4487</td>
</tr>
<tr>
<td>Middle school</td>
<td>0.2504</td>
<td>0.4332</td>
</tr>
<tr>
<td>High school</td>
<td>0.2106</td>
<td>0.4077</td>
</tr>
<tr>
<td>Some College</td>
<td>0.0621</td>
<td>0.2412</td>
</tr>
<tr>
<td>College Grad</td>
<td>0.1534</td>
<td>0.3604</td>
</tr>
</tbody>
</table>

Observations: 4,635,770

Note: dummy variables for schooling (primary, middle, high school and university) denote the highest schooling level attended by the individual, even if it was not completed.

### Table 4. Impact on Employment Outcome

<table>
<thead>
<tr>
<th></th>
<th>Informal business ownership</th>
<th>Formal business ownership</th>
<th>Wage-earners</th>
<th>Not employed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Retail*Post 2007-I</td>
<td>0.0051***</td>
<td>-0.0026**</td>
<td>-0.0021</td>
<td>-0.0004</td>
</tr>
<tr>
<td></td>
<td>(0.0019)</td>
<td>(0.0012)</td>
<td>(0.0025)</td>
<td>(0.0025)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.060</td>
<td>0.030</td>
<td>0.130</td>
<td>0.194</td>
</tr>
<tr>
<td>No. of observations</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
</tr>
</tbody>
</table>

Note: Clustered standard errors in parentheses (clustered at municipality level). Linear regressions include quarter and municipality fixed effects, as well as individual level control variables. Individual level control variables are gender, age, marital status, and education dummies. Significance levels: * 10%, ** 5%, *** 1%
Table 5. Impact on Employment Outcome by Gender

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Panel A. Females</th>
<th>Panel B. Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal business ownership</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Formal business ownership</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Wage-earners</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Not employed</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Retail*Post 2007-I</td>
<td>0.0021</td>
<td>-0.0008</td>
</tr>
<tr>
<td>R-squared</td>
<td>(0.0020)</td>
<td>(0.0015)</td>
</tr>
<tr>
<td>No. of observations</td>
<td>2,474,767</td>
<td>2,474,767</td>
</tr>
</tbody>
</table>

Note: Clustered standard errors in parentheses (clustered at municipality level). Linear regressions include quarter and municipality fixed effects, as well as individual level control variables. Individual level control variables are age, marital status, and education dummies. Significance levels: * 10%, ** 5%, *** 1%
<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Informal business ownership</th>
<th>Formal business ownership</th>
<th>Wage-earners</th>
<th>Not employed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Retail*Post 2007-I</td>
<td>0.0051***</td>
<td>-0.0026**</td>
<td>-0.0021</td>
<td>-0.0004</td>
</tr>
<tr>
<td></td>
<td>(0.0019)</td>
<td>(0.0012)</td>
<td>(0.0025)</td>
<td>(0.0025)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.060</td>
<td>0.030</td>
<td>0.130</td>
<td>0.194</td>
</tr>
<tr>
<td>No. of observations</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
</tr>
<tr>
<td>Retail*Post 2007-II</td>
<td>0.0043**</td>
<td>-0.0025**</td>
<td>-0.0023</td>
<td>0.0005</td>
</tr>
<tr>
<td></td>
<td>(0.0018)</td>
<td>(0.0012)</td>
<td>(0.0025)</td>
<td>(0.0024)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.060</td>
<td>0.030</td>
<td>0.130</td>
<td>0.194</td>
</tr>
<tr>
<td>No. of observations</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
</tr>
<tr>
<td>Retail*Post 2007-III</td>
<td>0.0045**</td>
<td>-0.0025**</td>
<td>-0.0035</td>
<td>0.0015</td>
</tr>
<tr>
<td></td>
<td>(0.0018)</td>
<td>(0.0012)</td>
<td>(0.0025)</td>
<td>(0.0024)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.060</td>
<td>0.030</td>
<td>0.130</td>
<td>0.194</td>
</tr>
<tr>
<td>No. of observations</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
</tr>
<tr>
<td>Retail*Post 2007-IV</td>
<td>0.0046**</td>
<td>-0.0026**</td>
<td>-0.0042*</td>
<td>0.0023</td>
</tr>
<tr>
<td></td>
<td>(0.0018)</td>
<td>(0.0012)</td>
<td>(0.0025)</td>
<td>(0.0024)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.060</td>
<td>0.030</td>
<td>0.130</td>
<td>0.194</td>
</tr>
<tr>
<td>No. of observations</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
</tr>
</tbody>
</table>

*Note: Standard errors in parentheses (clustered at municipality level). Linear regressions include quarter and municipality fixed effects, as well as individual level control variables. Individual level control variables are gender, age, marital status, and education dummies. Significance levels: * 10%, ** 5%, *** 1%*
Table 7. Impact on Employment Outcome

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Informal business ownership</th>
<th>Formal business ownership</th>
<th>Wage-earners</th>
<th>Not employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Retail*Post 2007-I</td>
<td>0.0051***</td>
<td>0.0026</td>
<td>-0.0026**</td>
<td>0.0003</td>
</tr>
<tr>
<td></td>
<td>(0.0019)</td>
<td>(0.0026)</td>
<td>(0.0012)</td>
<td>(0.0015)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.060</td>
<td>0.048</td>
<td>0.030</td>
<td>0.026</td>
</tr>
<tr>
<td>No. of observations</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
<td>4,635,770</td>
</tr>
<tr>
<td>Group time trend</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: Standard errors in parentheses (clustered at municipality level). Regressions are linear include quarter and municipality fixed effects, as well as individual level control variables. Individual level control variables are gender, age, marital status, and education dummies. Significance levels: * 10%, ** 5%, *** 1%
Figure 1. Number of Retail-owned banks over time

Figure 2. Percentage of Individuals who are Informal Business Owners
10. Appendix 1

**Labor Force Dummy**
The lf dummy is equal to one when the individual
1. Worked at least one hour during the past week (either paid or unpaid), or
2. Is looking for a job in another country, or
3. Is looking for a job or preparing to open a business, or
4. Was on vacation, sick leave or strike during last week, or
5. Didn’t work last week for other reasons but will return to work in less than a month

The lf dummy is equal to zero for everyone else in the sample (people between 20-65 years old)

**Employed Dummy**
The employment dummy is equal to one when the individual
1. Worked at least one hour during the past week (either paid or unpaid), or
2. Was on vacation, sick leave or strike during last week, or
3. Didn’t work last week for other reasons but will return to work in less than a month

The employment dummy is equal to zero for everyone else in the sample

**Unemployed Dummy**
The unemployed dummy is equal to one when the individual is in the labor force and
1. Is looking for a job in another country, or
2. Is looking for a job or preparing to open a business, or

The unemployment dummy is equal to zero for everyone else in the sample

**Own Dummy**
The own dummy is equal to one for anyone who
1. Is employed following the criteria above and
2. Declared not having a boss, or
3. Say “yes” when they were asked “Do you own a business or work on your own?”

The own dummy is equal to zero for everyone else in the sample

**Formal Business Owner Dummy**
The register dummy is equal to one for anyone who
1. Owns a business (boss or self-employed) following the criteria above, and
2. Are classified into category 1 of the survey question “What is the name of your business?” In this case, name refers to the legal name under which the business is registered

The register dummy is equal to zero for everyone else in the sample

**Informal Business Owner Dummy**
The register dummy is equal to one for anyone who
1. Owns a business (boss or self-employed) following the criteria above, and
2. Are classified into category 2 of the survey question “What is the name of your business?” In this case, name refers to the legal name under which the business is registered

The unregister dummy is equal to zero for everyone else in the sample

**Wage-earner Dummy**
The wage earner dummy is equal to one for anyone who
1. Is employed following the criteria above and
2. Does not own a business
11. References


http://www.ft.com/cms/s/0/63757d46-0234-11e0-aa40 00144feabdc0.html#axzz1abEG0aid


