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Migration, Business Formation, and the Informal Economy in Urban Mexico

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Abstract

Although the informal economy has grown rapidly in several developing nations, and migration and informality may be related to similar types of credit constraints and market failures, previous research has not systematically attempted to identify if migrant households are more likely to start informal and formal businesses alike and if this association varies across local contexts. We examine the relationship between prior U.S. migration and the creation of both formal and informal businesses in urban Mexico using several criteria to indirectly assess sector location. We use data from 56 communities from the Mexican Migration Project to estimate multilevel survival and nonmultilevel competing risk models predicting the likelihood of informal, formal, and no business formation. The recent return migration of the household head is strongly associated with informal business creation, particularly in economically dynamic areas. On the other hand, migrants are only marginally more likely to start formal businesses in highly economically dynamic sending areas.

Keywords

international migration; business formation; informal sector; Mexico; United States; development

1. Introduction

Individuals who migrate between Mexico and the United States often do so in response to capital constraints, as sending areas often have nonexistent, malfunctioning, or inefficient credit and capital markets (Lindstrom, 1996; Lindstrom and Lauster, 2001; Massey and Espinosa, 1997). For many households, the temporary U.S.-bound migration of one or more members serves as a way to acquire human capital, purchase land and inputs, build a home, or start a business in their home communities (Durand et al., 1996; Ilahi, 1999; Massey and Parrado, 1994; Massey and Parrado, 1998). Starting a business venture is of particular importance, as it is through productive activities that individuals have the clearest impact on

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the economic well-being of their households, sending areas, and, ultimately nations (Massey and Parrado, 1994; Taylor et al., 1996a; Taylor et al., 1996b).

Previous studies have found that return migrants are indeed more likely than their nonmigrant peers to start (generally micro- and small) business enterprises (Dustmann and Kirchkamp, 2002; Ilahi, 1999; Massey and Parrado, 1998), and to keep these ventures more profitable (Woodruff and Zenteno, 2007). Most of these studies, however, have not examined whether businesses started by “migrant households” (i.e., by return migrants themselves or, less commonly, by their relatives using the money migrants remit) are disproportionately located in the formal or informal sector (i.e., if businesses are registered, comply with regulation, and pay taxes, fees, and worker fringe benefits). This distinction is relevant to consider given that the sector location of economic activity may have different development implications (e.g., in terms of local multiplier effects (Arias et al 2010; Massey & Parrado 1998; Massey & Parrado 1994). As such, migration could be contributing to development in different ways and at different levels depending on the sector businesses started by migrants are located in.

In this paper, we look at the association between migration and business formation in Mexican urban locales using a multidimensional classification of the degree of formality-informality of a venture based on several correlates of sector location using (some) factors previously identified for the Mexican case by Tokman (1992).¹ We study urban areas because more formal economic participation takes place in them (Arias et al., 2010; Grindle, 1988; Itzigsohn, 2006; Tokman, 1992), and as it is less problematic to attempt a classification of formal and informal ventures in these settings with the measures available to us. We use multilevel survival analysis techniques on a sample of 56 Mexican urban communities from the Mexican Migration Project (MMP), located in eighteen states and four regions, thereby expanding the geographic focus of prior studies, which mostly studied these decisions in places located in more “traditional” migrant-sending regions (e.g., Massey and Parrado, 1998: Table 1). This broader geographic coverage is relevant given the steady expansion of Mexican migration outside its Historical heartland in Central-Western Mexico over the last three decades (Durand and Massey, 2003; Durand et al., 2001).

While previous work has shown that households are able to overcome capital constraints (or acquire the human capital useful for) starting a business through migration (Massey and Parrado, 1998), particularly in economically dynamic sending areas (cf., Lindstrom, 1996), this research aims to contribute to the migration and development literature by assessing if migrant households are disproportionately likely to start informal businesses only, or if they are also more likely to start businesses (likely) located in the formal sector. We also examine if migration reduces capital constraints allowing migrants to use money saved during their stay in the U.S. to start businesses shortly after returning to their sending communities and according to their level of migration experience. At the end of the paper, we speculate if patterns of migrant business formation according to time after return and U.S. experience could further provide clues into whether remittances and savings from migration help ease capital constraints only, or if an individual may be accruing human capital that could become relevant for business formation during his/her experience abroad.

Further, the sector in which people start a business may depend on the (regulation and) investment climate in sending areas (Durand et al., 1996; Feldman, 2001; Lindstrom, 1996; Massey and Parrado, 1994; Massey and Parrado, 1998), as signaled for instance by the

¹As we point out in the Data and Methods section, our classification allows for the distinction of more relative to (considerably) less informal business ventures. Throughout the rest of the paper, we refer to these two extremes as more or less informal and as formal and informal as well.

variation in informal sector activity across Mexican locales (Arias et al. 2010). As such, we also examine if the association between migration and business formation varies according to community characteristics used in prior work as indicators of economic dynamism (e.g., Lindstrom and Lauster 2001). Finally, although previous work has stressed the implications of business registration regulations and macroeconomic shocks and policies on sector location, we examine which household and community factors are associated with formal versus informal business creation, a relatively underdeveloped theme in the literature considering the considerable growth of informality in the latter half of the twentieth century (de Soto, 2000), while paying particular attention to the differences between the determinants of sector participation between migrants and nonmigrants.

2. Background and previous research

2.1. Determinants of informal versus formal business formation

It is well documented that informal economies have flourished in developing nations (Davis, 2004; de Soto, 2000; Portes and Castells, 1989; Tokman, 1992), including Mexico (Bruhn and Love, 2009; Schneider, 2002; Arias et al 2010; Centeno and Portes, 2006). Informal economic activities are defined as those occurring beyond governmental regulation or control (Centeno and Portes, 2006; Feige, 1990; Portes et al., 1989). Though the sector of course includes outright illegal activity, it is mostly composed of otherwise legitimate business activity that goes un- or under-registered in order to avoid meeting (e.g., workplace) requisites and regulations (Lagos 2008) or paying legally required contributions, such as taxes, fees, and worker fringe benefits (Levy, 2008). Recent estimates indicate that slightly less than half of Mexican workers contribute to and are eligible to receive health services from the Mexican Institute of Social Security (IMSS in its Spanish acronym) and other institutions providing coverage to public sector workers (e.g., ISSSTE, PEMEX), an often-used indicator of informal labor (Arias et al., 2010; Levy, 2008; World Bank, 2006).²

The original rise of a large informal sector can be perhaps partially explained by (the combination of a relatively weak rule of law and) the somewhat burdensome requirements for formal business registration (Arias et al 20110: p. 9; de Soto 2000; Lagos 2008). Other factors, however, have contributed to its growth in the last few decades. In Mexico in particular, the sizable growth of the informal economy has been posited to be a result of relatively poor employment prospects for the working poor in general (particularly women; Benería and Roldán, 1987; Cunningham, 2001) and the higher instability of employment in the formal sector during economic crises and times of austerity (Centeno & Portes 2006; González de la Rocha, 2001; Lustig, 1990: p. 1337), displacing people to the informal sector. Likewise, the informal sector has apparently absorbed the lack of formal (especially non-*maquiladora* and government) employment growth in the aftermath of various forms of economic restructuring associated with trade liberalization in the country taking place since the late 1980s (Centeno and Portes, 2006: p. 38) and of NAFTA in particular (Polaski 2004: p. 17, 20; see also Itzigsohn 2006; Davis 2007).³ Note that business regulations and their enforcement vary considerably across Mexico (Arias et al. 2010), and that economic shocks and events like NAFTA have had different levels of impact across the Mexican territory (Hanson, 2003; Nevins, 2007; Polaski, 2004), all which help explain the considerable level

²More recent figures confirm this same notion. According to the 2010 Mexican Census, 51% of all employed individuals older than 12 years living in urban localities were not enrolled in health services provided by IMSS, federal and state ISSSTEs, and other programs for public workers. Not surprisingly, the number is much higher in rural areas, at 82%. We obtained this figure by doing a query on http://www.inegi.org.mx/sistemas/olap/Proyectos/bd/censos/cpv2010/P12Mas.asp?s=est&c=27823&proy=cpv10_p12mas. Last accessed, March 22, 2012.

³Note, however that (more rigorous) studies of the association between trade liberalization and the proliferation of informality points to more mixed evidence in Brazil and Colombia (Goldberg and Pavnik 2003), a result (according to Goldberg and Pavnik) of the role of institutions in regulating the labor market (and, perhaps, business formation).

of spatial variation in levels of informal vis-à-vis formal economic activity (Arias et al. 2010).

While these studies point to the role of macro-structural forces in informal versus formal sector participation, little research has systematically analyzed with much nuance the household and community factors associated with sector location choice. Yet, it follows from the account given above that overly strict regulation, economic crises, and liberalization-fueled restructuring have of course disproportionately affected the poor (and helped swell up their ranks). Perhaps as a result, formal sector participation has become increasingly socially stratified over time (Cammack 2009). As such, we expect households with higher physical, financial, and human capital endowments to be less likely to start more informal business activity. More importantly, we control for these factors in order to avoid confounding the (net) role of migration with that of (other) human, financial, and physical capital endowments. As the decision to form a business (Massey & Parrado 1998), the sector location of a business (Arias et al. 2010), and the likelihood of U.S.-bound migration (Lindstrom and Lauster 2001; Lindstrom 1996) could also be a reflection of local socioeconomic conditions, we also control for the characteristics of sending communities and assess if they are mediating the association between migration and formal/informal business creation. We discuss these issues further next.

2.2. Migrant business formation and the role of local economic conditions

Migration may help ease capital constraints where credit and capital markets are nonexistent or inefficient (Lindstrom, 1996; Lindstrom and Lauster, 2001; Woodruff and Zenteno, 2007). This is indeed suggested by past research showing a positive association between migration and business formation in several sending countries (Dustmann and Kirchkamp, 2002; Ilahi and Jafarey, 1999; Massey and Parrado, 1998). In Mexico, Massey and Parrado (1998) found that return migrants are more likely to start businesses than their nonmigrant peers, mostly in wholesale and service sectors, net of various household-level, community-level, and national economic controls. Despite this general finding, Massey and Parrado found no significant associations between a business' number of employees (a commonly-used predictor of informality; Tokman, 1992) and migration experience (see Massey and Parrado, 1998: p. 15). This suggests perhaps that migration could ease capital constraints equally in formal and informal sectors.

However, the number of workers may not be an accurate measure of sector location when the data mostly pertains to micro- and small enterprises as it is the case in Massey and Parrado's (and our) data as shown in Table 1 below. The weakness of firm size as a measure of informality may be particularly problematic in rural communities, where the identification of formal ventures is considerably less accurate than in urban locales (Arias et al., 2010: p. 35), at least with the data at our disposal. For these reasons, we use a multidimensional measure that includes additional variables associated with informality following prior work by Tokman (1992), explained in more detail below, and focus on urban communities only.

We also depart from and build upon Massey and Parrado's study in three additional ways. First, we use a broader and more recent set of Mexican communities, sending states, and geographic regions than Massey and Parrado's study, reflecting the continued growth of Mexican migration in places South and East of Mexico city (Durand and Massey 2003). This broader focus could help understand migrant and nonmigrant (formal and informal) business formation more broadly and in times and places with higher informal sector participation.

Second, we build on Massey and Parrado's approach by looking at the role of both migration experience (used by the authors in their analyses) and duration since return (not employed by them) in the likelihood of business formation. Lacking exact remittance/savings data for all U.S. migrations of the household head, we include the amount of migration experience as a proxy for the amount of savings and money sent, but also for the amount of human capital potentially gained in the United States: as such, we expect to find a positive association between migration experience and business formation. Further, we use duration since return in an attempt to identify if: migrants are more likely to start a business shortly after returning, potentially signaling the use of migration to overcome capital constraints; or a few years after return, perhaps indicating a lower ability of migration to ease capital constraints and, perhaps, the (at least moderate) relevance of the human capital acquired during the experience abroad. Duration since return also allows us to explore if there it takes time to (re)integrate into the formal sector after migration.

Third, we build on Massey and Parrado's study by testing whether the association between migration and either informal or formal business creation varies according to economic opportunities in sending areas. Among other motivations related to some form of socioeconomic advancement, people use migration as an investment strategy to overcome capital constraints in their household and sending community (Lindstrom and Lauster 2001; Lindstrom 1996). This motivation could be particularly likely in more economically-dynamic places with imperfect capital markets (Lindstrom 1996), where forming a business may be more likely to pay off but difficult to achieve for working-class households without wealth or access to credit (given, for instance, their lack of formal title over fixed assets to use as collateral; de Soto 2000). As the local economic climate could further determine the sector location of a business (Lindstrom, 1996; Lindstrom and Lauster, 2001; Massey and Parrado, 1998: p. 19), we examine whether migration may be more likely to contribute to formal or informal business formation according to the level of economic dynamism in each of these sectors. We explore these community effects using multi-level models, which (among other things, discussed below) adjust standard errors for the clustering of households in communities.

2.3. Development implications of sector location

Despite the fact that informal economic activity in Mexico contributes to roughly a third of national GDP (Schneider, 2002: p. 19), the effects of informality on broader economic growth are often debated, as the output of informal activities could have been arguably higher had it being formal(ized). This is so as the informal economy may lead to market inefficiencies and thus slow down economic growth (de Soto 2000; Arias et al 2010; de Soto 2002). Further, the tax revenue unpaid by informal entities and workers may prevent the government from improving the nation's infrastructure (which, in theory, should foster development). The informal sector may also cut into the market (and profitability) of more (formal and) productive businesses (Lewis, 2004). In addition to potentially handicapping the profitability of larger formal competitors, informal businesses may also hinder their own capacity to profit and growth while often staying small in order to avoid detection (Arias et al., 2010; Lewis, 2004). As such, the economic multipliers of informal economic activity could be somewhat lower than those of formal sector participation.

Yet, by easing capital constraints, informal sector participation could also enable entrepreneurship that could have otherwise not taken place. Some scholars assert that informal businesses receive indirect subsidies by avoiding taxes and regulation (e.g., Arias et al., 2010: p. 29). For instance, Tokman (1992: p. 62) calculates that fulfilling all formal-sector obligations might cost small businesses as much as 28% to 50% of their profits. These savings could thus allow businesses to survive the marketplace and compete with larger

firms and, in the end, contribute to economic stability (a nontrivial goal in countries like Mexico in the last three decades) and, more moderately, to growth.

In addition, informal activity may bring other benefits fitting under a broader understanding of development. For instance, informal markets seem to foster greater local economic opportunity, community cohesion, and empowerment (Itzigsohn, 2006: p. 87), as well as deter involvement in illegal activities such as the (increasingly violent) drug trade (Ratner, 2000). Centeno and Portes (2006) conclude that the informal economy acts as a “de facto” system of social development, providing economic and social opportunities for the working class. Accordingly, it may be the natural place for migrant households to start productive ventures given that migration is oftentimes used as an investment strategy aimed to overcome credit and capital constraints in sending areas (Lindstrom, 1996; Massey and Parrado, 1998). Before examining this possibility in both informal and more formal ventures, we describe the data and methods used in our analyses.

3. Data and methods

3.1. Data

We use retrospective household and community-level data from the Mexican Migration Project (MMP) supplemented with municipal-level data from the 1970–2000 Mexican Population and Housing Censuses gathered by the Mexican Institute of Statistics and Geography (INEGI). The MMP, a collaborative effort between researchers at Princeton University and the University of Guadalajara, collects wide-ranging multilevel social, economic, and demographic data with particular focus on migration to the United States. As of this writing, the MMP has collected data (once and only once) in 128 different Mexican communities, the first four in 1982 (Massey et al. 1987) and the rest between 1987 and 2009, surveying between 4 and 6 new communities each year.

Although the communities visited by the MMP were not explicitly selected for their high migration intensities, they all have at least some level of migration. Beyond the likely underrepresentation of communities with none to very low levels of U.S. migration, MMP researchers have chosen communities with varying socioeconomic conditions and degrees of urbanization (Massey and Capoferro, 2004). While MMP communities were mostly concentrated in Central-Western Mexico during the first few years of data collection, since the late 1990s the sample has increasingly included places in the Borderlands and south and east of Mexico city (Massey and Capoferro, 2004),⁴ in response to the changing geography of migrant origins (Durand and Massey, 2003; Durand et al., 2001). Before this expansion, despite the nonrandom selection of communities, the characteristics of MMP migrants were very similar to those obtained from the Mexican National Survey of Population Dynamics (ENADID), a nationally and state-wide representative sample of households (Massey and Capoferro, 2004; Zenteno and Massey, 1999).

Despite its lack of national or regional representativeness, one of the MMP’s main strengths is that it combines a large and varied set of places and is a representative sample of (most) of each of these communities. MMP fieldworkers canvassed each community (except in larger cities, where specific sections of the city or neighborhoods were chosen), selected a simple random sample of around 200 households, and interviewed them with a semistructured survey instrument known as the ethnosurvey (Massey and Capoferro, 2004).⁵

⁴See also [http://mmp.opr.princeton.edu/databases/pdf%20codebooks/Appendix%20A%20-%20Sample%20Information%20\(MMP128\).pdf](http://mmp.opr.princeton.edu/databases/pdf%20codebooks/Appendix%20A%20-%20Sample%20Information%20(MMP128).pdf). Last accessed January 29, 2012.

⁵See <http://mmp.opr.princeton.edu/databases/ethnosurvey-en.aspx>. Last accessed January 29, 2012.

The ethnosurvey instrument contains socioeconomic information on the household, importantly including business and property histories, along with basic sociodemographic information and the migration histories of all household members. Because of the detailed migratory histories collected by the MMP (especially for the household head, for whom we have migration timing information for every U.S. trip), the data allow for the exploration of how migration experience and duration since return are associated with business formation. Further, migration and business formation processes are both embedded in time, making the MMP an adequate data source to analyze their complex relationship. As some items relevant for the analysis (e.g., business formation histories) were included only in communities surveyed after 1998, we use data on 56 urban communities surveyed since that year, with a median refusal rate of 4.7% in these places. This selection of communities, ranging from large towns to neighborhoods in a couple of large metropolitan areas, yielded a total of 9,460 households, located in 18 states.

3.2. Methods

We used the retrospective business formation and migration histories to estimate discrete-time multilevel survival models (see Barber et al., 2000) predicting the probability that a household starts a new formal or informal business in year t as a function of a set of household, community, and municipality characteristics in year $t - 1$. We study household-level decisions because businesses, especially those in the informal sector, are a household- (and family-wide) venture that relies on the labor of various household members (Massey and Parrado, 1998; Tokman, 1992). Likewise, the migration decision of one of the household members (in the Mexican setting, typically the household head) is made with the active engagement and collaboration (or despite the opposition) of other household members (Aysa and Massey, 2004; Hondagneu-Sotelo, 1994).

Because the MMP sampling procedure clusters households within communities, and community characteristics are relevant to U.S. migration processes (Lindstrom and Lauster, 2001; Massey and Espinosa, 1997; Riosmena, 2009) and to business formation in the context of market failure (Durand et al., 1996; Massey and Parrado, 1994; Massey and Parrado, 1998; Stark and Bloom, 1985), we use a (bi-level) random effects model that adjusts standard errors for the clustering at the community level and provides estimates conditional on the community-wide random effects (Luke, 2004). We find this choice appropriate empirically, as the Median Odds Ratios (MOR) of null, or naïve, models without any covariates predicting both informal and formal businesses are high (1.84 and 2.02 respectively).⁶ Multilevel models also allow for a statistically appropriate estimation of cross-level interactions. This is a useful property given our interest in also assessing whether the effect of migration on informal and business formation varies according to the economic dynamism of the sending community.

Given that the MMP data record only the year of occurrence of an event, a relatively coarse timing measure, we use a discrete time approximation by estimating multilevel logistic regressions predicting informal/formal vs. no business (using Stata's *xtmelogit* procedure) on a set of pseudo-observations for each year before the creation of a business or the survey year (whichever comes first; see Singer and Willett, 2003). To test whether the determinants of informal and formal business initiation are similar, we also estimate (nonmultilevel) multinomial models predicting the competing risks of formal vs. informal vs. no business formation and present the results for the formal vs. informal contrast only.⁷ To analyze

⁶The MOR, a measure used in multilevel logistic models similar to the conventional intraclass correlation coefficient used in multilevel linear models, is the median odds ratio of business formation between individuals located in communities with the highest risks of business formation and those in communities with the lowest risks (Merlo et al., 2006, p. 92).

household with migratory history compared to those without we also ran multinomial models for migrants and non-migrant households comparing formal to informal businesses.

As retrospective data such as these are subject to a series of memory recall biases (Smith and Thomas, 2003), we observe households starting at 15 years before the survey year (or the initiation of the current union of the household head, whichever occurs first)⁸ and censor them after the start of a business or at the survey year, whichever occurs first. In the case of business formation, we also note a change in the dependent variable. We estimate separate models predicting the initiation of formal and informal businesses respectively, in addition to a multinomial (i.e., competing risk) model in which we compare the divergent determinants of formal vis-à-vis informal business formation.

3.3. Variable definitions

The business histories in the MMP do not include explicit questions about licensing, tax, or benefit contributions that would allow for a more straightforward identification of sector location. We therefore use four criteria following principles previously proposed by Tokman (1992) in the Mexican setting. First, informal businesses are much more likely to employ family members. Second, businesses with more employees are likelier to be formal (since they are less able to avoid regulation and more able to afford compliance with it; see Arias et al., 2010; Tokman, 1992). Third, businesses capitalized with a bank loan are very likely to be in the formal sector, as banks will not generally accept the higher risk of lending to informal businesses (Tokman, 1992, p. 66). In addition to these proposed by Tokman, we add a fourth: businesses without a fixed location should be less likely to be formal.

Following these principles, which are also congruent with International Labor Organization's (ILO) criteria (Husmanns, 2004), we classify all businesses as informal if they involve street vending and were not initiated with a bank loan or: (1) were not initiated with a bank loan; (2) did not provide professional or technical services; and (3) employed fewer than five people (also see Figure 1 for a flowchart of this classification).⁹ Note that Tokman (1992) places the formal size cutoff at fewer than 15 workers. Our less conservative criteria, which aim to identify more formal and less informal microenterprises, reflect the generally small size of firms in our data. We discuss the implications and limitations of this predominance of microenterprises in the Conclusions section.

This classification yielded 1,055 informal and 124 formal businesses (see Table 1) representing 1.1% and 0.1% of the total household-years respectively (see Table 2). Although the percentage of households with an informal business seems congruent with estimates from other studies using nationally representative data in Mexico, our data include a lower share of formal businesses (Bruhn, 2011; Bruhn and Love, 2009; Schneider, 2002),

⁷Unfortunately, the *xtnlogit* (or any other Stata) procedure does not accommodate multilevel multinomial modeling. As the coefficients of our separate multilevel logistic models predicting informal and formal business creation respectively were similar to those obtained with the multinomial model, we deem the multinomial model a sufficiently adequate choice. Although the model without a multilevel structure may yield standard values that are too low, note that, for the most part, we found no significant differences in the "effects" of return migration on formal vs. informal business creation. Therefore, and as the simpler model may understate p-values, our conclusions should not change when we use a multilevel model for these contrasts.

⁸We included only years after the current union, as this generally signals the formation of the household in Mexico and as businesses and other assets are measured at the household level. Alternative models using a 25-year retrospective window suggest return migrants are also more likely to start formal businesses than nonmigrants (in contrast to the nonsignificant results reported on Model I, Column A, Table 3) while still finding no significant differences in the effect of return migration on formal relative to informal business formation (as it is the case in the model presented in Column C, Table 3). We deem the 15-year cutoff a more conservative estimate and thus present results using it.

⁹Our results do not vary whether we specify more than five employees total, more nonfamily than family workers, or at least three nonfamily employees.

perhaps as our sample is focused on smaller urban areas, where the share of small and thus informal businesses is larger (Becker, 2004).

As shown in Table 1, almost two-thirds of informal businesses were stores or street vendors, while almost three-fourths of formal businesses were professional services, stores, and workshops or factories. Both types of businesses were relatively small, with formal businesses averaging just over five workers while informal businesses average fewer than two. Indeed, nearly all informal businesses had fewer than five workers (with the exception of the rare street vending operations with more than five workers), whereas 59% of businesses classified as formal had fewer than five employees. Note that, although four street vending operations were started with a bank loan, our classification still labels them as informal. Finally, note that fewer formal than informal businesses (9.7% versus 12%) were initiated with “migradollars,” money sent or brought back by U.S. migrants. We explore this issue further in our multivariate analyses with more appropriate counterfactuals (i.e., by comparing migrant to nonmigrant business formation).

Like Massey and Parrado (1998), we take as our main independent variable the U.S. migration experience of the household head, as in Mexico most businesses are primarily formed by the financial and human capital contributions of household heads. We differentiate household-years in which the head is still in the U.S., in which the household may be receiving remittances regularly; from those after his/her return, in which s/he may be able to contribute both savings and labor to business ventures. Additionally, we explore cumulative years of international migration experience and years since return from a U.S. migration.

To isolate the effects of financial, human, and social capital obtained by the household head during his/her experience abroad that could be most likely to have an effect on business formation, we counted household heads as return migrants only during the 10 years after they returned to Mexico from a given migration trip.¹⁰ For the sake of brevity, we sometimes refer to households where the head has no current or recent migration experience as “nonmigrant” households, even though other household members may be current or recent migrants or the household head was one more than 10 years prior. As Table 2 shows, the head is reported to be in the United States in 4.0% of the household-years in the data, while we classify him/her as a return migrant in 19.2% of them. Further, on average, the household head has 0.8 years (9.6 months) of migratory experience and has been back in Mexico for 2.1 years after his/her return; conditional on the head being a migrant, this experience is 3 years of experience with 7.6 years since return.

We control for other household-level wealth and life-cycle variables that may predict business formation (Massey and Parrado, 1998) in addition to U.S. migration (Massey et al., 1987; Massey and Espinosa 1997; Riosmena, 2009). One of these is the number of residential and nonresidential properties owned during a given household-year. While (formally owned) residential properties can be used as loan collateral and can house a host of (generally informal) businesses, nonresidential properties may be more likely to be directly used for (formal) business activity. In total, about 65% of the households owned a housing property and 1.79% owned an additional residential property, while only 0.2%, already owned properties designed to host businesses (before the formation of a focal business in the data), with 1.4% owning other nonresidential properties. Overall, migrant households have slightly higher wealth levels, especially in terms of owning the dwelling they reside on (70% vs. 64% for nonmigrants). To further control for socioeconomic

¹⁰The MMP defines a migration trip as any move to the United States of more than two months with the purpose of living or working there; no tourist trips or short family visits are counted.

standing, we include the average level of schooling among all adults in the household, which averages 6.5 years across households in our data, 5.6 among migrant and 6.9 among nonmigrants households.

We include four variables to adjust for the life-cycle stage of the household, the age of the household head and the presence of one or more children aged 0–4, 5–12, and 13–17. Family life-cycle stage, in particular the presence of teenagers or young adults (and, in some circumstances, children) may signal a higher (unpaid) labor supply available, which can facilitate (informal) business formation (Davis, 2006). Conversely, the presence of infants and young children may impose time demands that complicate either starting a business or migrating. On average, the household heads in our data (during the average household-year, not at the time of the survey) are 43 years-old, with migrant heads slightly older than nonmigrant ones (44.5 vs. 42.8). For the average year in the data, 37%, 51%, and 37% of households have at least one child aged 0–4, 5–12, and 13–17 respectively with similar distribution for migrant and nonmigrant households alike.

We also control for community-level characteristics indicating the degree of migration and formal and informal local economic opportunity. Using MMP data for all individuals in the household roster, we calculate community-level migration prevalence ratios, defined as the estimated percentage of people aged 15 and over in the community with migration experience in the U.S. before the year in question (for a more detailed methodology on the construction of the variable see Massey et al., 1994). The prevalence ratio is commonly used in the migration literature to assess the magnitude of the sending community's connections with the United States (for studies using and evaluating the usefulness of the measure, see Fussell, 2004; Lindstrom and López-Ramírez, 2010; Massey et al., 1994). The mean prevalence ratio across communities during the average household-year is 11.8%. Intuitively, households with migratory experience (17.2%) come from communities with higher levels of community migration compared to nonmigrant households (10.5%).

Informal business formation by migrants could reflect the places they hail from and return to. As we note above, migration may occur in response to the types of market failure also associated with a larger informal sector. We control for local economic conditions associated with informal sector activity at the local (municipal) level by supplementing MMP data from the 1970–2000 Mexican Population and Housing Censuses, collected by the National Institute of Statistics, Geography, and Informatics (see www.inegi.gob.mx) and (mostly) available in the MMP community-level files.¹¹

We use three such indicators. The first, the female labor force participation rate, is regarded as a measure of economic dynamism (e.g., Lindstrom and Lauster, 2001).¹² As women make up the majority of informal-sector workers in Mexico, their labor force participation may specifically signal informal economic activity (see Table 3 below; also see Benería and Roldán, 1987; Cunningham, 2001). The second indicator is the percent of economically active, “occupied” workers in the municipality who are self-employed, a measure that typically includes a large proportion of informal workers. The third is the percent of the economically active population who employ at least one other individual, a measure of economic dynamism and an indicator that should include some degree of formal economic activity. Studies have found that all three of these measures are associated with the likelihood of U.S. migration (Lindstrom and Lauster, 2001; Massey and Espinosa, 1997;

¹¹We gathered additional information from the 2000 Census for communities sampled in the late 1990s, for which the MMP had no available data as of this writing.

¹²Lindstrom (1996) illustrated that the variation in migration duration and thus savings accumulated abroad are often contingent upon the female economic activity in the community. Further he argued that this is a robust estimator because unlike other community-level estimates it is not biased towards urban areas, men, or the formal economy (Lindstrom, 1996).

Riosmena, 2009) and with migratory trip durations (Lindstrom, 1996). Since the Mexican census is collected only every ten years, we interpolate these measures in the intervening years, assuming that the (average) rate of change in each indicator remained constant between censuses. In the average municipality and household-year in our data, 23.5% of women reported being in the labor force, 25.8% of economically active individuals were self-employed, and 2.4% acted as an employer. Migrant households come from communities with slightly lower levels of female and self-employment and slightly higher levels of employers in the community.

In addition to controlling for unobserved community-level characteristics that are uncorrelated with our covariates via the community-level random effects, we include fixed effects for locality size and region where the community is located, in an attempt to further control for unobserved characteristics correlated with the covariates (but fixed over time) that may be influencing or mediating the association between migration experience and business formation. First, we use fixed effects for community size, where 36% reside in large metropolitan areas, 23% in small urban areas, and 41% in towns. Almost 39% of household-years in the sample are located in the historically most active Central-Western region (a.k.a. the Historical region); 25.0% in the northern states (Border region); 24% in the states surrounding Mexico City (Central region); and 12.5% in the Southeastern region (for regional definitions, see Durand and Massey, 2003). As expected given the geography of Mexico-U.S. migration (Durand et al. 2001; Riosmena and Massey 2012), migrant households are disproportionately located out of metropolitan areas and in the Historical region.

4. Results and discussion

Migrant business formation and the role of the amount of experience and time since return

Table 3 presents results from four separate random intercept multilevel event history models with two different dependent variables in addition to one multinomial logistic regression predicting formal vs. informal business formation. Models 1 and 2 in Column A show results of models predicting formal business relative to no business initiation while Models 1 and 2 in Column B predict informal business relative to no business initiation.¹³ Even though return migration is positively associated with both formal and informal business creation, the effect is not significant in the case of formal business creation (Model 1, Column A). On the other hand, households where the head returned from the United States within 10 years from the household-year under analysis had 54% higher odds of starting an informal business relative to households where the head had no current or recent migration experience at the household-year under analysis (Model 1, Column B).

The lack of significance of the return migration coefficients in the formal business model in Column A suggests that migration may be fostering additional informal but not necessarily formal economic activity. However, as shown in Column C, note that the lower the effect of migration on formal vs. informal participation is not significant either. As such, and given that the coefficient of return migration and years abroad on formal business participation are positive, we posit that migration is most likely, at a minimum, not negatively associated with formal business formation, though we cannot unequivocally conclude it is positively associated with the creation of more formal business ventures or at a similar or different rate as it is with informal ones.

¹³We employed a progressive adjustment modeling process in which 10 total models were run, but for the sake of parsimony we depict only one in each table.

Return migration status is associated with business formation according to both the degree of migration experience and the duration since returning from the United States. As shown in Model 2 in both Columns A and B, each additional year of international migration experience increases the odds of formal and informal business formation by 2% while each additional year of domestic experience after returning from the United States increases the odds of starting a formal and informal business formation by 1%.¹⁴ Although the coefficients are quite similar for formal and informal business formation, note that only those predicting formal business formation are not significant. Finally, households where the head was in the United States were less likely to start informal businesses, though these effects are not significant. Also, note that no households where the head was in the United States started a formal business in our data.

Note that, as in the case of the household head's prior migration experience, the migration prevalence of the sending community is positively associated with both formal and informal business formation. For each one-percentage increase in community members with U.S. migration experience, the odds of starting an formal or informal business increase by 2%. Also as in the case of household-level migration experience, only the effect of prevalence on informal participation is statistically significant while, at the same time, there are no significant differences between the effect of prevalence on formal vs. informal business creation, suggesting places with higher migration rates are not less conducive to formal business creation (though we cannot conclude that they are conducive to this kind of activity *per se*). Communities may have stronger migration traditions because they combine more economically dynamic conditions with imperfect/inefficient markets (Lindstrom and Lauster, 2001), and thus stronger informal economies. Alternatively, the act of migration may have further transformed these communities, allowing them to have more dynamic (informal sectors) as the economic multiplier effects of remittances lead to further economic activity by migrant and nonmigrant households (Massey and Parrado, 1994; Taylor et al., 1996).

As shown in Column A, few indicators significantly predict formal business creation, perhaps owing to lack of power. As might be expected, preexisting physical and human capital are positively associated with formal business creation. For instance, having a business property before the household-year in question is associated with 8.6 times higher odds of starting a formal business (see Column A, Table 3). While having these kind of asset is also associated with substantially (i.e., around 3.1 times) higher odds of starting an informal business (see Column B, Table 3), business property ownership is associated with 3 times higher odds of starting a formal relative to an informal business (Column C, Table 3). In a similar fashion, the possession of residential properties other than the dwelling of residence and the average schooling level of household members are also more strongly and significantly associated with formal relative to informal business creation, suggesting the possession of financial and human capital are likely to better predict the initiation of formal business ventures. In contrast, households with older heads are less likely to start formal relative to informal businesses: every additional year of age of the head is associated with a 2% decrease in the odds of starting a formal business relative to an informal one.

On the other hand, local economic climate factors appear to be only strongly associated with informal business creation. A one-percent increase in female labor force participation within the municipality is associated with a 6% increase in informal business creation relative to

¹⁴We also estimated a model with number of prior U.S. trips, the effect of which was not significant. For the sake of parsimony, these models are not depicted but are available upon request. In addition, we estimated models with squared terms for the migratory history variables to test for the nonlinear effects of these variables. These terms were not significant and, as such, we thus present simpler linear specifications.

starting no businesses (see Column B, Table 3). These associations are consistent with the idea that women are disproportionately located in the informal sector. Surprisingly, the local rate of self-employment is not significantly associated with informal business creation (at least after adjusting for other community-level economic characteristics, most notably locality size). On the other hand, a one-percent increase in the percent of workers who act as employers is associated with 22% lower odds of starting an informal business.

Although the percentage of people in the active labor force in the municipality who employ other individuals is not significantly associated with formal business creation, note that it does seem to make a difference in terms of the likelihood of starting a formal relative to an informal business. For each additional 1% of individuals acting as employers (a nontrivial amount), the odds of starting a formal relative to an informal venture increase by 41% (Column C, Table 3).

As such, starting a formal business seems to be related to the household's preexisting capital and socioeconomic status while starting an informal business appears to be more sensitive to contextual factors. However, this does not mean of course that migrants may be particularly likely to start (formal or informal) business in economically dynamic places. To explore this question, Table 4 shows results of models in which we add cross-level interactions¹⁵ between the prior migration experience of the head and the percent self-employed and who acts as employer in the municipality (Models 1 and 2 respectively) for both informal and formal businesses (Columns A and B respectively).¹⁶

The role of local economic conditions in migrant vs. nonmigrant business formation

As shown in Table 4, we find evidence that households with prior migration experience are particularly likely to start informal and (to a lesser extent) formal businesses in more economically dynamic communities (though most of these findings are only marginally significant at a significance level of 10%). Migrant households are even more likely to start informal businesses than nonmigrant households in municipalities with a higher percentage of individuals acting as employers (Column B, Model 1, Table 4). Likewise, migrant households are slightly even more likely to start a business than nonmigrant households in places with higher proportions of self-employed workers. As such, both formal and informal economic opportunities in sending areas seem to motivate migrant business formation above and beyond their general motivations to do so.

Furthermore, migrant households may be more likely to start a *formal* business venture than nonmigrant households in places with a higher percentage of the active labor force acting as employers, a rough proxy for more formal economic activity. Although, as shown in Table 3 as well, the higher propensity to initiate a formal business by migrant relative to nonmigrant households is not significant in places with an average percentage of employers (shown in Model 2, Column 1, Table 4), the (marginally) significant interaction between prior migration experience and the percent employer in the municipality suggests migrants may indeed be more likely to start formal business in places with more economic opportunities in the formal sector, though this evidence is only tentative given the marginal significance of the cross-level interaction term.¹⁷

¹⁵In multilevel models, cross-level interactions are fit by estimating a random slope on the main effect of the (household)-level variable while including both main effects and interaction term in the main regression equation (Luke, 2004).

¹⁶We further attempted several specifications using interactions between indicators correlated with informal participation at the community level (e.g., female labor force participation rates and return migrant status (not shown) and neither was significant.

¹⁷Additionally, we tested if the effect of other variables on (formal vs. informal) business formation differed among migrant and nonmigrant households (see Appendix I). With few exceptions, these effects did not differ between these groups.

5. Conclusions

Our study contributes to the literature on migration and development in several ways. First, we show that the higher entrepreneurship of return migrants in their sending communities observed in prior studies (Massey and Parrado, 1998) remains a feature of the migration process even though return migration dynamics have changed considerably in recent times (Massey et al. 2002; Passel et al. 2012; Reyes 2004; Riosmena 2004). Further, we show how this association is also overall similar in a broader set of communities than those studied in the past, located in both more traditional and emerging migrant-sending regions.

Although our sample included newer as well as more traditional sending areas, and our results do hold for migrants returning to Mexico in the 1990s and 2000s, extrapolating them into the future should be done with caution. The migration dynamics of Mexicans have indeed changed substantially in the past two to three decades, with decreasing circular (Cornelius, 1992) and return migration rates (particularly in the short run, Massey et al., 2002; Riosmena, 2004). Although those who migrate to accumulate capital, particularly those leaving economically dynamic areas, may be more likely to have longer trip durations (Lindstrom, 1996); longer stays motivated by factors such as increased border enforcement (Angelucci 2012; Reyes 2004) may not signal the economic motivations of target earners but may increasingly indicate a higher likelihood of settlement and the reunification of families north instead of south of the border (Hondagneu-Sotelo, 1994). Likewise, the recent spike in return migration to Mexico (Passel et al., 2012) could have been a product of both the aftermath of the recession related to the U.S. housing bust and, at least partially, is related to the large number of Mexican citizens being forcibly removed from the country. As such, a large/nontrivial portion of contemporary return migrants may not have a particularly strong motivation to go back to Mexico and form businesses compared to past flows. Future research should thus analyze the implications of the recent global economic crisis and increasing immigration enforcement in the U.S. interior on Mexican (migrant and nonmigrant) microenterprise formation and performance. For reasons like these, we also argue that future research studying the economic effects of return migration should be updated more regularly and should study the transnational linkages which have allowed the formation and upkeep of these businesses.

We also provide a more precise understanding of the sector location in which migrant entrepreneurship is more likely to take place relative to nonmigrant business formation. Our analyses demonstrate a positive association between migration and business formation, most clearly in the informal sector, by far the most common sector of location of microenterprises in Mexico. Households where the head had with prior U.S. experience, particularly in those where the head had longer tenures in the United States were indeed more likely to initiate informal businesses. Although we find some evidence that the prior migration experience of the head is also positively associated with formal business formation, particularly in more economically dynamic areas with perhaps a stronger formal sector, these differences were either not statistically significant (as in the case of the average effect of migration experience on formal venture creation, as in Column A, Model 1, Table 3); or were only marginally so (as in the interaction between prior migration experience of the household head and the percentage of the active labor force acting as employers in Column A, Model 2, Table 4).

As such, we can at least conclude that it is highly unlikely that prior migration experience is negatively associated with formal business formation, while it indeed seems to contribute more clearly to entrepreneurship in the informal sector. Although the evidence supporting the role of migration in the formal sector is comparably weak to the evidence supporting the role of migration in the informal sector, also note that we did not find significant differences

between the effect of prior migration experience on formal and informal business formation (Column C, Table 3), in all cases could perhaps be due to a lack of power. Prior research showing that microenterprises financed with remittances do seem to be more profitable, partly because migration may have allowed households to start businesses in high-capital (perhaps more formal) sectors (Woodruff and Zenteno, 2007) could further suggest that migration may indeed have a nontrivial role in formal economic activity, though it is perhaps indeed lower than its part in stimulating informal activity.

In addition to the role of migration (or lack thereof) in explaining differences in the likelihood of starting a formal vs. and informal business, we do find substantially different determinants of formal versus informal business creation. In our analyses, households with greater human and financial capital (measured by schooling levels and owned properties respectively) were more likely to start formal businesses, regardless of migration status, family lifecycle state, and local economic conditions. Conversely, community characteristics were more relevant in predicting informal business creation. Households with lower socioeconomic status may be both aware of and dependent on contextual economic factors and, at any rate, be only able to start informal businesses if at all, particularly in more economically dynamic places with higher opportunities (in the informal sector). Therefore, our study adds to the growing body of research which has illustrated the informal and formal sectors have become increasingly socially stratified over time (Cammack 2009) and points to the potential relevance of context in influencing the sector location of ventures initiated by people with lower socioeconomic standing.

We recognize that, despite following general criteria identified in previous work (Tokman, 1992), our identification of informal and formal businesses may not be fully accurate. Still, because varying the thresholds to define a formal business numerous times in numerous ways did not affect our substantive results, we do not believe that problems with our criteria undermine our general conclusions, provided that these conclusions are understood as pertaining to (more) formal *micro*enterprises (as opposed to large, medium, or even small ventures). Our findings also have potential implications for understanding the role of context in (migrant and nonmigrant) business formation. As informality is quite prevalent in Mexico and elsewhere (de Soto, 2002; Levy, 2008), return migrants may be simply taking advantage of the opportunity structure available to them, which motivated their migration in the first place. In other words, inaccessible credit markets may motivate migration because financial services are not available to help form (or perhaps even formalize) a business and could loosen this constraints but only to the point of allowing migrant households to start businesses with lower requirements of capital in the informal sector.

Our data are not a representative sample of (urban) Mexico and thus cannot be generalized to the entire country and should be taken as describing the processes prevalent in many urban communities, particularly those in medium-sized urban areas (the MMP sample in metropolitan areas is small and the sampling is less random within them than in large towns and smaller cities). In addition, although the MMP has generally been shown to be representative of Mexican migrants (Massey and Capoferro, 2004; Zenteno and Massey, 1999), it remains unclear how accurate the MMP is regarding the representation of non-migrants.

As more attention is dedicated to regularizing informal economic activity in Mexico (Arias et al., 2010), policymakers should attempt to reach out to the migrant community both in sending areas and through Consulates in the U.S. Arias and colleagues (2010) assert that the stringent regulation of the Mexican economy forces millions into informality, potentially reducing national economic potential (also see de Soto, 2000). Since return migrants are clearly an entrepreneurial and risk taking group, they may be more accepting of the risks

associated with formalization. Efforts to facilitate formal economic registration and participation (or, less likely, crackdowns on informal businesses) might reduce the degree of informality in these communities. If these efforts also included loans such as microfinancing that does not necessitate hefty collateral leveraging, some individuals might decide not only to start and register a business in the formal sector but also remain in their home communities, a goal some policymakers in both the United States and Mexico find desirable, particularly when it pertains to unauthorized migration.

This, however, depends on the motivations behind migration and migrant business formation. On the one hand, our results are overall consistent with the New Economics of Labor Migration (NELM) theory (Stark and Bloom, 1985) and with other empirical studies (generally adopting this view) arguing that migration is an *ex ante* strategy to overcome the combination of capital constraints and credit market inefficiency (e.g., Lindstrom 1996; Massey and Parrado, 1998). This is of course particularly salient for the creation of informal businesses, which are rarely capitalized by bank loans and where, in fact, market failures could play a role in sector location.¹⁸

Yet, our results are also consistent with the idea that return migrants could be starting businesses in response to circumstances arising during or after the migration itself. For instance, migration experience may help individuals to accumulate specific types of human capital, providing them with skill and motivating or allowing them to mobilize critical social capital upon their return (Ma, 2002). For instance, the positive effect of migration experience on informal business creation found in our study (see Column B, Model 2, Table 3) could signal the relevance of human capital accumulation in the United States. Yet, migration experience (i.e., trip durations) should also be correlated with the amount of financial resources accumulated by migrants during their experience abroad (Lindstrom 1996). As such, our study suggests both motivations could be at play. Though we find perhaps the capital constraint explanation to be more plausible and compelling (as other scholars have), this remains an unanswered (and perhaps elusive) empirical question.

To boot, informal business creation could be an *ex post* response by some individuals to the difficulty of reinsertion in the labor markets of sending areas upon return. This motivation is likely contributing (but not solely explaining) our findings on the positive effect of duration since return on the likelihood of (informal) business creation (see Column B, Model 2, Table 3). Notwithstanding this initial speculation, a more nuanced understanding of when is business formation (and return migration more in general) a more *ex ante* vs. *ex post* strategy is required (see also Lindstrom et al. 2012) and seems particularly well suited for future qualitative research and for the collection and use of longitudinal data. Specific attention should also be paid to the migration of other household members aside from the household head and if their migration leads to the formation of informal or formal businesses.

By providing estimates of the role of migration on informal and more formal business creation, and on the role of local economic conditions in mediating these associations, our study also contributes more broadly to our understanding of the role of migration on development. Although most of the businesses formed by return migrants are indeed informal and small, it would be incorrect to assume that migration does not contribute much to local development due to the economic multipliers of migradollars in general, especially those devoted to productive activities like those studied here, and even in sectors

¹⁸In this sense, it is perhaps surprising that prior studies adopting the New Economics of Labor Migration framework had not explicitly considered the interrelationship between migration and informality given the role of market failures and inefficiencies on both.

likely to include a nontrivial informal component (c.f. Massey and Parrado, 1994; Taylor et al. 1996). Therefore, even though migrants mostly form informal businesses, the implications for their household, community, and (to a lesser extent) national economic growth may be nontrivial, though perhaps less substantial than if their formal sector participation was higher, which we argue is highly contingent on context (see Table 4) and endogenous to the migration decision itself (Lindstrom 1996).

Given that the role of migration indeed seems to be different in informal and formal sectors (and across places), more research should examine the complex linkages between migration, business formation, sector location, and local development (and, in the end, the potential and limits of migration to contribute to development). For instance, the importance of the economic conditions of the community of origin for business formation may also explain why migration has higher economic multipliers in some communities while others only become dependent on remittances (e.g., Jones 1998), a process known as the “migrant syndrome.” More diverse and economically independent communities seem to be more likely to see migradollars invested in businesses, while those worse off could become increasingly dependent on these migradollars as a source of income that is not invested and, thus, does not generate substantial economic multipliers.

Notwithstanding and maybe due to the existence of some extremes, migradollars are often depicted as being passively consumed rather than actively invested (World Bank, 2006). Indeed, most remittances are not spent in necessarily productive activities (e.g., Durand et al., 1996; Massey and Parrado, 1994; Taylor et al., 1996). This is, however, the wrong counterfactual to evaluate the role of migration in development, as *return* migrant households do seem to devote a larger portion of their income, wealth, and time to productive activities than nonmigrants. Migrants’ private incomes have been scrutinized more intensely than those of most other social groups (Lozano Ascencio, 2003). By the same token, researchers and policymakers should ask similar questions about whether other social groups and institutions are reaching their potential to contribute to local and national economic development, as scholars have done, for instance, with regard to the wealth flows of commodity chains (Bair, 2005).

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Appendix I. Odds ratios from multinomial models predicting formal vs. informal business creation by household's migration status

Household Characteristics	A. Migrant households	B. Nonmigrant households
Head Returned From U.S.	-	-
Head in U.S.	-	-
Cumulative Migration Experience	-	-
Years Since Return	-	-
Business Properties Owned	1.00	2.87 [†]
Other Non-Residential Properties	3.32 ^{†a}	0.58 ^a

Household Characteristics	A. Migrant households	B. Nonmigrant households
Residential Properties Owned	0.86	1.04
Other Residential Properties	1.72	1.85 **
Average Household Schooling	1.22 **	1.13 **
Age of Household Head	1.00	0.97
At Least One Child in Age Group		
Children ages 0–4	1.46	0.71
Children ages 5–12	1.05	1.13
Children ages 13–17	0.93	1.62
Community and Municipality Level Characteristics		
US Migration Prevalence Ratio (%)	1.06	1.01
Female LF Participation Rate (%)	0.96	0.93
Pct. Self-Employed in Municipality ^I	1.03 ^a	0.96 ^{*a}
Pct. Employer in Municipality ^I	1.11	1.47
Community Size (REF = Metropolitan Area)		
Smaller Urban Area	0.13 [*]	0.43
Town	0.13 ^{†b}	1.27 ^b
Regions (REF = Historical)		
Border	0.12 ^{*b}	0.61 ^{†b}
Central	0.75	0.61
Southeast	0.56	0.76
Model Evaluation		
Events	296	883
Household-years	18138	76677
Log-likelihood	−1534.73	−4961.2

[†] p < 0.1

^{*} p < 0.05

^{**} p < 0.01

^{***} p < 0.001

Sources: Household data are from Mexican Migration Project; community-level data are from 1980, 1990, and 2000 Mexican Population and

Notes:

^I Percent pertains to occupied economically active population

^a Coefficient difference between migrants and nonmigrants significant at the .05 level

^b Coefficient difference between migrants and nonmigrants significant at the .10 level

HIGHLIGHTS

- Migration experience is strongly associated with informal business creation.
- Migration particularly contributes to formal ventures in economically dynamic places.
- Migration may contribute to formal business formation, but only in highly dynamic areas.
- Informal businesses were more dependent on community level contextual factors.
- Formal businesses were more dependent on capital and socioeconomic status.
- Migrants contribute more than their share to local urban economic development.

Figure 1.
Criteria used to classify businesses as formal/informal

Table 1

Characteristics of business in the sample by estimated sector location.

	Formal	Informal	All
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
Business type (REF = Trade [store/middleman])	21.8% (4.7%)	44.6% (6.7%)	42.2% (6.5%)
Street vendor	0.8% (0.9%)	20.7% (4.5%)	18.6% (4.3%)
Workshop/Factory	17.7% (4.2%)	11.6% (3.4%)	12.2% (3.5%)
Restaurants	5.6% (2.4%)	4.1% (2.0%)	4.2% (2.1%)
Personal and other services	7.3% (2.7%)	12.8% (3.6%)	12.2% (3.5%)
Professional services	33.9% (5.8%)	0.0% (0.0%)	3.6% (1.9%)
Primary sector (agriculture, cattle raising)	5.6% (2.4%)	2.1% (1.4%)	2.5% (1.6%)
Other	7.3% (2.7%)	4.2% (2.0%)	4.5% (2.1%)
No. of family workers	3.0 (3.0)	1.5 (0.9)	1.6 (1.1)
No. of nonfamily workers	2.6 (5.3)	0.3 (0.7)	0.5 (1.2)
Percent with no nonfamily workers > no. family workers	34.0% (5.8%)	7.0% (2.6%)	9.8% (28.2%)
Percent with more than 5 workers	58.9% (7.6%)	0.3% (0.5%)	6.4% (23.7%)
Percent financed with migradollars	9.7% (3.1%)	12.0% (3.5%)	11.8% (30.3%)
Other financing source (REF = Savings)	74.2% (22.2%)	86.5% (12.5%)	84.0% (14.7%)
Bank loan	15.3% (33.1%)	0.3% (5.3%)	1.8% (13.2%)
Loan from friends/family	5.7% (22.4%)	7.6% (25.5%)	7.5% (25.3%)
Other	4.8% (20.9%)	5.6% (22.3%)	6.7% (24.2%)
N	124	1,055	1,179

Sources: Households starting businesses within 15 years of survey year, living in urban communities (2,500+ hab.) in the Mexican Migration Project MMP128 database.

Table 2

Means (and standard deviations) of variables of interest at mean household-year

Household Characteristics	Total	Migrants	Non-Migrants
	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
New Business Holding Type During Household-Year (REF = No Business)			
Formal	0.1% (3.6%)	0.1% (0.4%)	0.2% (0.4%)
Informal	1.1% (10.5%)	1.5% (1.2%)	1.0% (1.0%)
U.S. Migration Experience (REF = Head with No Current/Recent U.S. Migration Experience)			
Head had U.S. experience in last 10 years	19.2% (39.5%)	--	--
Head in U.S.	4.0% (19.5%)	6.3% (2.5%)	--
Cumulative Years of Experience	0.8 (8.9)	3.0 (4.9)	--
Years Since Return	2.1 (14.2)	7.6 (3.0)	--
Owns Dwelling of Residence	64.9% (47.7%)	70.1% (8.3%)	63.6% (7.9%)
Owns Another Residential Property	1.8% (13.3%)	2.8% (1.7%)	1.5% (1.2%)
Owns 1+ Business Properties	0.0% (0.5%)	0.2% (0.5%)	0.2% (0.5%)
Owns 1+ Non-Residential Property	1.4% (11.7%)	1.0% (1.0%)	0.1% (0.3%)
Average Schooling of Members (years)	6.5 (24.7)	5.6 (23.0)	6.9 (25.3)
Age of Household Head (years)	43.1 (49.5)	44.5 (49.7)	42.8 (49.5)
Percent with 1+ Children by Age Group			
Children ages 0–4	37.2% (48.3%)	36.9% (6.1%)	37.2% (6.1%)
Children ages 5–12	50.9% (50.0%)	51.2% (7.1%)	50.6% (7.1%)
Children ages 13–17	37.1% (48.3%)	38.0% (6.2%)	36.9% (6.1%)
Community/Municipality Characteristics			
Community US Migration Prevalence Ratio	11.8% (32.3%)	17.2% (37.7%)	10.5% (30.7%)
Municipal Female Labor Force Participation Rate	23.5% (42.4%)	22.7% (41.9%)	23.8% (42.6%)
Percent Self-Employed in Municipality ¹	25.8% (43.7%)	25.4% (43.5%)	25.9% (43.8%)
Percent Employer in Municipality ¹	2.4% (15.3%)	2.6% (15.9%)	2.3% (15.1%)
Community Size (REF = Metropolitan Area)			
Smaller Urban Area	23.0% (42.1%)	36.4% (6.0%)	19.9% (4.5%)
Town	40.9% (49.2%)	40.3% (6.3%)	41.1% (6.4%)
Regions (REF = Historical)			
Border	25.0% (43.3%)	22.4% (4.7%)	25.7% (5.1%)
Central	24.0% (42.7%)	15.9% (4.0%)	25.9% (5.1%)
Southeast	12.5% (33.1%)	6.1% (2.5%)	14.1% (3.7%)
No. events	1,055	124	1,179
No. Households	9,460	1892	7,568

Sources: Household data are from Mexican Migration Project; community-level data are from 1980, 1990, and 2000 Mexican Population and Housing Census (provided by MMP in COMMUN file).

Table 3

Odds ratios from multi-level event-history models and predicting (A) formal and (B) informal business formation and (C) multinomial models predicting formal vs. informal business initiation

Household Characteristics	A. Formal vs. No Business		B. Informal vs. No Business		C. Formal vs. Informal Business
	Model 1	Model 2	Model 1	Model 2	
U.S. Migration Experience (REF = Head with No Current/Recent U.S. Migration Experience)					
Head Returned From U.S.	1.22	-	1.54 ***	-	0.79
Head in U.S.	<i>a</i>	-	0.74	-	<i>a</i>
Cumulative Migration Experience	-	1.02	-	1.02 *	
Years Since Return	-	1.01	-	1.01 *	
Business Properties Owned	8.63 ***	8.74 ***	3.14 **	3.22 **	3.00 *
Other Non-Residential Properties	1.43	1.43	1.22	1.22	1.18
Residential Properties Owned	1.08	1.08	1.04	1.06	1.02
Other Residential Properties	2.41 ***	2.41	1.32 †	1.30 †	1.81 *
Average Household Schooling	1.21 ***	1.21 ***	1.06 ***	1.05 ***	1.14 ***
Age of Household Head	0.97 ***	0.97 ***	0.99 ***	0.99 ***	0.98 †
At Least One Child in Age Group					
Children ages 0–4	0.73	0.73	0.90	0.90 †	0.84
Children ages 5–12	1.02	1.02	0.93	0.93	1.12
Children ages 13–17	1.45 †	1.46 †	1.03	1.04	1.41
Community and Municipality Level Characteristics					
Migration Prevalence Ratio (%)	1.02	1.02	1.02 *	1.02 **	1.01
Female LF Participation Rate (%)	0.97	0.97	1.06 ***	1.06 ***	0.94 ***
Pct. Self-Employed in Municipality ¹	0.98	0.98	1.01	1.01	0.97 †
Percent Employer in Municipality ¹	1.17	1.17	0.78 ***	0.77 ***	1.41 ***
Community Size (REF = Metropolitan Area)					
Smaller Urban Area	0.56	0.56	1.56 *	1.60 *	0.39 *
Town	1.07	1.07	1.38	1.40	0.93
Regions (REF = Historical)					

Household Characteristics	A. Formal vs. No Business		B. Informal vs. No Business		C. Formal vs. Informal Business	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Border	0.44 **	0.43 **	0.88	0.86		0.52 *
Central	0.80	1.25	1.36 [†]	1.36 *		0.62
Southeast	0.63	0.63	0.89	0.87		0.73
Model Evaluation						
Events		124		1,055		1,179
Household-years				94,815		94,815
Log-likelihood	-867.9	-867.8	-5,638.8	-5,648.1		-6,665.5
Median Odds Ratio	1.84 ²	1.84 ²	2.02 ²	2.02 ²		-

[†] p < 0.1

* p < 0.05

** p < 0.01

*** p < 0.001

Sources: Household data are from Mexican Migration Project; community-level data are from 1980, 1990, and 2000 Mexican Population and Housing Census (provided by MMP in COMMUN file).

¹ Percent pertains to occupied economically active population

² Calculated against null model.

³ Coefficient not identifiable: no formal business ventures were formed with household heads in the United States.

Table 4

Odds ratios from multi-level-event history analysis predicting informal and formal business formation according to migration status and economic dynamism of sending community.

Household Characteristics	A. Formal vs. No Business		B. Informal vs. No Business		C. Formal vs. Informal Business	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
U.S. Migration Experience (REF = Head with No Current/Recent U.S. Migration Experience)						
Head Returned From U.S.	1.30	1.07	1.49 ***	1.51 ***		0.68
Head in U.S.			0.74 †	0.74 †		0.00
Business Properties Owned	8.78 ***	8.79 ***	3.19 **	3.17 **		2.94 *
Other Non-Residential Properties	1.43	1.38	1.22	1.21		1.13
Residential Properties Owned	1.08	1.08	1.04	1.04		1.02
Other Residential Properties	2.42 ***	2.37 ***	1.32 †	1.31 †		1.78 *
Average Household Schooling	1.22 ***	1.22 ***	1.05 ***	1.06 ***		1.14 ***
Age of Household Head	0.97 ***	0.97 **	0.99 ***	0.99 ***		0.98 *
At Least One Child in Age Group						
Children ages 0–4	0.73	0.72	0.90	0.89		0.83
Children ages 5–12	1.02	1.02	0.93	0.92		1.12
Children ages 13–17	1.45 †	1.45 †	1.03	1.03		1.42
Community and Municipality Level Characteristics						
Migration Prevalence Ratio (%)	1.02	1.03	1.02 *	1.02 *		1.02
Female LF Participation Rate (%)	0.97	0.97	1.05 ***	1.05 ***		0.93 ***
Pct. Self-Employed in Municipality ¹	0.98	0.98	1.01	1.01		0.96 †
Pct. Employer in Municipality ¹	1.18	1.07	0.77 ***	0.74 ***		1.37 *
Percent Self-employed · Head Returned	1.03		1.01 †			1.02
Percent Employer · Head Returned		1.39 †		1.14 †		1.25
Community Size (REF = Metropolitan Area)						
Smaller Urban Area	0.57	0.51	1.61 *	1.54 *		0.36 *
Town	1.05	0.99	1.39	1.33		0.88
Regions (REF = Historical)						

Household Characteristics	A. Formal vs. No Business		B. Informal vs. No Business		C. Formal vs. Informal Business	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Border	0.43 **	0.43 **	0.87	0.87	0.53 *	0.53 *
Central	0.81	0.79	1.32	1.32	0.63	0.63
Southeast	0.43	0.62	0.86	0.87	0.75	0.75
Model Evaluation						
Events	124		1055		1,179	
Household-years	94,815	94,815	94,815	94,815	94,815	94,815
Log-likelihood	-867	-866	-5,636.6	-5,636.4	-8,022	-8,022
Median Odds Ratio	1.84 ²		2.02 ²		-	-

⁺ p < 0.1

* p < 0.05

** p < 0.01

*** p < 0.001

Sources: Household data are from Mexican Migration Project; community-level data are from 1980, 1990, and 2000 Mexican Population and Housing Census (provided by MMP in COMMUN file).

Notes:

¹ Percent pertains to occupied

² Calculated against null model.