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The Bracero Program and Entrepreneurial Investment in Mexico

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Abstract: The Bracero Program was a massive guest worker program that allowed over four million Mexican workers to migrate legally and work temporarily in the United States from 1942 to 1964. This paper examines the development impacts of the program, especially its effect on individual investments. Exploiting microdata and within person variation in migration choices, I estimate an individual fixed effects model to obtain the effect of bracero migration on the individual's decision to start a new business. Results indicate that individuals migrating as braceros were more likely to start new businesses, and that bracero trips were more likely to result in business investment than were illegal trips. Several alternative explanations are systematically eliminated. Survival analysis is used to further explore the timing of business investment and how that was related to migration. Hazard models suggest that bracero migration was associated with a greater hazard of investment. These models also suggest that illegal migration was less successful in encouraging immediate entrepreneurial activity. This provides strong evidence that the Bracero Program increased economic growth and development by spurring new investment and that this boost was greater than for other migration options at the time.

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Keywords: Mexico, temporary workers, guest workers, migration, investment, development

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Preliminary – Not for Citation

Introduction

The Bracero Program was a temporary worker program established between the United States and Mexico from 1942 to 1964. Over the life of the program, over four million agricultural workers were allowed to migrate legally to the United States to work for short periods of time at specified wages. Not only was this program advantageous to U.S. interests that obtained cheaper labor in their fields, but it potentially provided a boost to economic development in the communities in Mexico that sent braceros to the United States. The positive income shocks to bracero households might have been used for investment in activities that provided economic benefits. Much of the sociology and demography literature, however, speaks about the inextricable link between the Bracero Program and the phenomenon of illegal or undocumented migration. Controversy surrounds this guest worker program precisely because it is viewed by some as having created a gateway for undocumented migration and all of the problems that accompany it.

In this paper, I explore two distinct, yet related, questions. Firstly, I analyze whether or not bracero migration encouraged investment by individuals in productive activities, such as in starting new businesses. Secondly, I analyze whether or not bracero migration encouraged investment by individuals in these activities to a greater extent than did illegal migration. Both of these questions are a step in the direction to better understanding whether the Bracero Program, despite its problems, provided a boost to economic growth and development in those communities that sent workers to the United States.

The effect of bracero migration on entrepreneurial activity is ambiguous. In a capitalconstrained world, positive, temporary income shocks can increase business activity by households, especially in those industries that require large capital investments (Yang 2008).

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The Bracero Program provided positive income shocks to households that sent workers to the United States through relatively high wages earned working in the United States. The trip to the United States, however, was not a cheap one. These workers paid bribes, transportation, and other costs. Moreover, while working in the United States, several deductions were taken from their pay. After paying all of these expenses, the positive income shocks might not have been as great as one would think. The remainder might have been used for household consumption or for financing future trips to the United States, not for investment in potentially productive activities at home.

Likewise, the question of whether an individual migrating as a bracero was more likely than an individual migrating illegally to start a new business upon his return home is equally ambiguous. Braceros working in the United States, all else equal, surely earned higher wages than did those who worked illegally since their wage was protected by contract and was supposed to reflect the prevailing wage paid to domestic workers. Illegal workers, however, did not face all of the same deductions from their pay. The illegal workers could stay longer in the United States, thus increasing the payout to their total trip, and they had greater flexibility in moving from farm to farm to find the best opportunity. Therefore, it is not clear that the payoff to individuals migrating as braceros would be higher than the payoff to illegal migrants. Again, this question will require an empirical approach to determine whether or not there existed a premium to bracero migration in terms of post-migration investment.

In this paper, I utilize individual-level data from the Mexican Migration Project (MMP) to develop a credible empirical strategy that addresses each of these questions. One could run an OLS regression of business investment on migration behavior to answer this question, although the estimates would likely be biased by unobservable characteristics that influence both

migration behavior and investment behavior. The MMP, however, provides a detailed life history for individuals in the survey, including investment, migration, and demographic characteristics for each year of his or her life. I utilize the within person variation in migration behavior to difference out any unobservable characteristics of the individual that could bias the estimation. I also estimate Cox proportional hazard models to explore the timing of business investment relative to migration behavior.

Using these methods, I find that bracero migration did indeed increase the propensity to invest in new business upon the migrant's arrival back home in Mexico. Estimates suggest that there is an 80 to 100 percent increase in the propensity to start a new business in the year following a bracero trip to the United States. I also find that illegal migration is not associated with a similar increase in entrepreneurial activity upon return home to Mexico. These estimates are robust to ruling out alternative explanations such as correlation with major demographic characteristics or a particular pattern to migration that might indicate a purposeful investment strategy. All in all, these results suggest that bracero migration did provide the means necessary for individuals to invest in productive activities at home and that there was a premium to bracero migration over illegal migration in the opportunities afforded for entrepreneurship in Mexico.

Providing answers to these research questions, I make several important contributions. First of all, I better illuminate the migration history between the United States and Mexico, exploring the true impact of the program at the time, in spite of the criticisms and controversy found in other literatures. Second, I provide evidence that a guest worker program between the United States and Mexico could be good development policy as it encourages individuals to invest in productive activities that might spur economic growth and development. Finally, I show that a program like the Bracero Program provides greater benefits to those that choose legal over illegal migration.

Migration and Development

Considerable work is done in the economics literature to describe the link between migration and economic development. Hildebrandt and McKenzie (2005) and McKenzie and Rapoport (2011) study the impact of current migration on human capital investment in children, examining health outcomes and educational attainment, respectively. Both papers use the same household survey data from Mexico, and both utilize an instrumental variables strategy that uses historic migration rates as an instrument for current migration rates. Using the similar empirical methodologies, Hildebrandt and McKenzie (2005) find that migration causes an increase in positive health outcomes for children, while McKenzie and Rapoport (2011) find that migration reduces educational attainment for children. Hanson and Woodruff (2003) find that children in Mexico that come from households with external migrants in the United States tend to complete more years of schooling. They conclude that remittances from migration must relax the household income constraint, allowing parents to make greater investments in their children.

In addition to these aspects of human development, other studies examine the impact of migration on investment behavior. Yang (2008) uses exchange rate shocks to show that migration from the Philippines causes increases in entrepreneurship, especially in relatively capital-intensive enterprises. He concludes that remittances earned abroad allow for this increase in investment. Woodruff and Zenteno (2007) find that migration in Mexico leads to an increase in investment in microenterprise, especially in those industries where remittances allow for individuals to relieve capital constraints. These papers provide a nice analysis of migration in

general, but not of the effect in particular of a temporary worker program in the context of Mexico and the United States.

Gibson and McKenzie (2010) present evidence that temporary worker programs can have significant, positive development impacts. They show that a recent program that brings Pacific Islanders to work temporarily in New Zealand has positive effects on income, consumption, durable goods consumption, and subjective well-being. Some work has been done specifically on the impacts of the Bracero Program. Reichert and Massey (1982) argue that, although the program might have provided significant sums of money for migrants to remit home, it did little to increase actual economic development in the sending communities. Sandos and Cross (1983) suggest that bracero earnings were unlikely to be used in investment, given the lack of opportunities, and so were more likely used for household consumption. Kosack (2014) shows that bracero migration increased human capital investment in the sending regions in Mexico, thereby increasing economic development. It will be important to understand whether or not the Bracero Program provided additional, positive development impacts in Mexico, such as in increase in capital investments that lead to entrepreneurial activity.

A Brief History of the Bracero Program

In 1917, the United States Congress took a first step to limit the widespread migration to the United States and passed an immigration act that required immigrants to be literate and to pay a head tax upon entry in the United States. It also prohibited entry by those immigrants that were entering as contract laborers or those individuals "who have been induced, assisted, encouraged, or solicited to migrate to this country by offers or promises of employment...to perform labor in this country of any kind, skilled or unskilled." Also during 1917 the United States entered into World War I, simultaneously depleting the agricultural sector of its labor supply and increasing demand for agricultural foodstuffs in support of the war effort. Growers appealed to the United States for an exception to the new immigration bill so that they might maintain a steady flow of contracted, migrant labor from Mexico. They were granted their exception with a provision in the new law that allowed the Commissioner General of Immigration to bypass the requirements for entry under the new act and permit temporary migration by laborers from Mexico if conditions in the labor market should so require it (Scruggs, 1960). Thus, in 1917 growers were granted permission under this proviso to import Mexican labor and this continued, through extensions by the Secretary of Labor, well after the end of World War I, into the mid-1920s. This first episode, sometimes referred to as the ``First Bracero Program," was a unilateral policy that allowed farmers to contract directly with laborers and that placed certain demands on the farmers, such as promises to pay costs to return migrants to the border, to provide adequate housing, and to keep track of the worker while he was in the United States.¹

The late 1920s and the 1930s were a time when the migration of temporary laborers from Mexico was all but stopped. The lack of war or other crisis to prompt a labor shortage as well as other developments such as the Great Depression which raised unemployment in the United States made such an importation unpopular and infeasible. As the United States found herself heavily involved in World War II, however, farmers once again called for the United States government to take action. As before, the war both greatly reduced the labor supply and increased demand for agricultural products. The farmers perceived a labor shortage and lobbied the government to allow the importation of migrant labor from Mexico for relief. This time, Mexico decided to take an active role in the process and the resulting immigration program was a bilateral effort by both the United States and Mexico.

¹ For a more complete description of this program, see Scruggs (1960).

The first major agreement was signed on July 23, 1942 by representatives of both the United States and Mexican governments.² This agreement established a number of terms and conditions under which the program was to operate. First of all, the agreement outlined the contracting environment, stipulating that contracts were between the worker and the United States government.³ These contracts were to be written in Spanish and supervised by the Mexican government, and the farmers to whom these workers were subcontracted were required to abide by all features of the agreement. Thirdly, the workers were to be paid wages equal to the prevailing wage for domestic agricultural workers in the region, and they were guaranteed pay for time that they might spend underemployed. Finally, the workers were guaranteed paid transportation from the recruitment centers to the place of work and back to the recruitment center at the end of the contract, housing and medical care of the same level enjoyed by domestic workers, and access to a savings fund (EAS 278). This agreement did not expire with the end of World War II, but rather continued in existence until December 31, 1947 (TIAS 1968).

From 1947 to 1951, bilateral cooperation between the two countries was weak. One bilateral agreement lasted a mere eight months, entered into force on February 21, 1948 and terminated by Mexico on October 19, 1948 (TIAS 1968). Another was entered into force on August 1, 1949 and terminated by Mexico on July 15, 1951 (TIAS 2260). For periods not covered by a bilateral agreement, agricultural workers continued to be used by the United States in a system of unilateral, direct recruitment, similar to that under the First Bracero Program (Craig, 1971).

² This agreement was entered into force by an exchange of diplomatic notes on August 4, 1942 (EAS 278). It was later amended and replaced with an agreement entered into force by an exchange of diplomatic notes on April 26, 1943 (EAS 351).

³ Specifically with the Farm Security Administration that was in charge of the program in the United States at this time.

This continued until the Korean War when military conflict yet again spurred agricultural interests to push the government for a formal temporary worker program. At this time, the Bracero Program was institutionalized with the passage of Public Law 78 by Congress on July 12, 1951. This law amended the Agricultural Act of 1949, giving the Secretary of Labor control over the temporary worker program. This law would be renewed time and time again (every two years) and served as the legislative foundation for the Bracero Program for 13 years from 1951 until its end in 1964. Recognizing their superior bargaining position in the midst of the Korean War, Mexico signed a bilateral accord in 1951 with the United States which, similar to the agreement from 1942, secured several important worker guarantees.⁴ The agreement, however, was allowed to expire and when the United States attempted to renegotiate terms more favorable to growers, Mexico refused.⁵ Only after an attempt by the United States to circumvent Mexican authority and pursue direct recruitment did Mexico agree to compromise and sign a new agreement in 1954.⁶ This agreement included a number of concessions by Mexico to the demands of the United States (Craig, 1971).⁷ This agreement was renewed time and time again until it was allowed to expire on December 31, 1964.⁸ Around the same time the agreement was signed in 1954, the United States launched a coordinated attack against the employment of illegal labor in the United States called Operation Wetback. This drive against illegal labor and

⁴ This agreement was entered into force on August 11, 1951 by an exchange of diplomatic notes (TIAS 2331).

⁵ This agreement was allowed to expire on January 15, 1954.

⁶ This agreement was entered into force by an exchange of diplomatic notes on March 10, 1954.

⁷ These concessions included vesting the Secretary of Labor with the power to determine wages, removing the authority of Mexico to unilaterally ``blacklist" entire counties and prevent them from receiving braceros, and an opening of recruitment centers in Mexico closer to the border with the United States (TIAS 2932).

⁸ The expiration date was agreed upon in the final extension entered into force by an exchange of diplomatic notes on December 20, 1963 (TIAS 5492).

employers that hired illegal workers began on June 17, 1954 and saw the number of illegals plummet for the period from 1954 to 1959 (Craig, 1971).

The Bracero Program met its demise in 1964 when domestic opposition to the program in the United States reached a critical mass. At this point, however, the Bracero Program had left its permanent mark on the history of US-Mexico migration. Over its 23 year lifespan, over four million Mexican laborers came to the United States to labor as temporary agricultural workers, making this program the largest guest worker program in the history of the United States.

Much of the existing work concerning the Bracero Program lives outside of the traditional economics literature. The history literature takes a descriptive approach, detailing the various phases of the program. Scruggs (1960) describes the origins of the program in the very first episodes during World War I. Similarly, Scruggs (1962) traces the initial development of the program with the onset of World War II. Furthermore, Scruggs (1963) highlights a case study of the program as it was experienced in the state of Texas. Beyond simply describing the development of the program over time and the different players involved throughout, these histories lay an important foundation for future economic analysis.

Additionally, considerable work is done in the sociology and demography literature to better understand the implications of programs like the Bracero Program on migrant populations. Reichert and Massey (1982) argue that, although these programs may provide significant sums of money for migrants to remit home, they do little to increase actual economic development in the sending communities and they are not truly temporary in nature. In fact, they describe how guest worker programs actually perpetuate migration, both legal and illegal, by inducing a reliance on income that can only be earned abroad. Another study uses a unique micro data set to test these theoretical hypotheses of the inherently "non-temporary" nature of these so-called temporary

worker programs (Massey & Liang, 1989). The authors find that braceros were more likely to make repeated trips to the United States, that children of braceros were likely to become migrants, and that a significant portion of braceros eventually settled permanently in the United States.

Much has also been written specifically about the political economy of the various bracero agreements. Grove (1996) discusses the program in the context of postwar state interventionism, but specifically as a form of insurance to correct a coordination problem that occurs between agricultural labor and growers. Timing is of the utmost importance in agriculture and contracting with migrant laborers allows the grower to reduce the problems associated with relatively undependable domestic labor. Postwar state interventionism is the subject of another work that analyzes the Bracero Program in the context of competing special interests and political alliance among different regional interests (Alston & Ferrie, 1993). They argue that the program was supported by the self-serving, regional motives of agricultural interests in the South and Southwest that desired cheap, dependable labor until technological advances, such as the mechanization of cotton, shifted their efforts away from the issue. The authors use an analysis of votes to support their argument. Basurto et al. (2001) analyze empirically the vote to extend the Bracero Program and find that legislators were influenced by the competing special interests on both sides of the debate. In his book tracing the legislative development of the Bracero Program over the course of its entire 23 year life, Craig (1971) identifies the various special interests and specific parties that were involved in each policy change. He identifies the incentives of each party and describes how the outcomes were related to relative bargaining position of each group.

Data

In this paper, I use the Mexican Migration Project (MMP), a database created and maintained jointly by Princeton's Office of Population Studies and the University of Guadalajara, to understand and explain the impact of bracero migration on sending communities in Mexico. The MMP is a rich data source that provides detailed information about individuals, households, and communities in Mexico. This source is a series of household interviews conducted from 1987 to the present, covering 134 different communities. Figure 1 illustrates the geographical coverage of the survey. For each wave of the survey, communities were chosen according to anthropological criteria (in particular, a sufficiently low sex ratio) in order to ensure that the community has some level of out migration to the United States.⁹ This is not a panel survey where the same communities are interviewed in each successive wave. Rather, during each round of surveying new communities are chosen such that a total of 134 have been selected from inception to present.

Within each chosen community, households are selected randomly for the survey. They are asked detailed information from basic demographic data to retrospective life histories to various outcomes for all members of the household. Most importantly for the study, the database provides a retrospective life and migration history for each head of household surveyed. For each individual, therefore, I can identify each reported trip to the United States, the documentation used to migrate, and the length of the trip. Moreover, the survey includes retrospective data that describes the demographic and investment characteristics of the migrant heads of household throughout their life histories. That is, the survey provides time-varying characteristics that I use to identify characteristics of migrants at the time of each trip.

⁹ Selection of communities in this survey is, therefore, not random. Communities are chosen specifically because they will have a substantial amount of out migration to the United States at the time of the survey. I use econometric techniques such as fixed effects regression models and instrumental variables techniques in order to overcome the selection problem.

I use the MMP survey data to construct an individual level, panel data set for the Bracero period, 1942 to 1964. An individual is coded a bracero in year t if he is in the United States during that year and he reports using bracero documentation on that trip, coded an illegal migrant in year t if he is in the United States during that year and he reports doing so illegally, and a non-migrant in year t if he does not report being in the United States during that year.¹⁰ Also included in the panel is data on the individual's age, the level of education he attained, his cumulative experience in the United States, whether or not he was married, the number of children he had, the parcels of land he owned, the hectares of land he owned, the number of properties he owned, and the number of businesses he owned, all at year t. Finally, I create an indicator variable for each person-year observation that indicates whether or not the individual acquired a business in year t. The sample of individuals is restricted to adult males only and comprises an unbalanced panel with 82,805 person-year observations for 6,928 individuals. Table 1 gives summary statistics over all person-year observations in the panel.

Table 2 gives information about how migrants compare in years when they travel as a bracero and years when they travel as an illegal migrant. On average, both illegal and bracero trips are made sometime between 27 and 28 years of age. At the time of a bracero trip, individuals are more likely to be married and have slightly more children. At the time of an illegal trip, however, individuals have slightly more years of education. In terms of assets owned, individuals tend to own more parcels of land and more properties at the time of an illegal trip. Individuals tend to own more hectares of land and more businesses at the time of an illegal

¹⁰ Person-year observations are dropped in those instances where reports of migrating or of documentation used are missing. The only types of migration considered in this analysis are bracero and illegal migration. All other reported types are dropped since, in sum, they represent a very small portion of migration to the United States.

trip. At first glance, nothing stands out in terms of selection into one type of trip or the other, except for the fact that married people seem more likely to travel as a bracero than illegally.

An important aspect of the data is that I rely on information that is recalled and retrospective in nature. There are potential recall biases that must be considered when conducting the estimation. Smith and Thomas (2003) test the reliability of retrospective migration data and find that more salient events and non-local moves are much more likely to be remembered correctly than the daily details of one's life. I use migration trips that are international moves and purchases of large assets such as businesses. These are important life events and are more likely to be accurately recalled.

Empirical Strategies and Estimation

The Effect of Migration on Subsequent Business Investment

By increasing remittances to Mexico, the Bracero Program provided positive income shocks to participating households that could have been used for investment in new businesses. I investigate whether an individual who migrated as a bracero experienced greater levels of subsequent investment than an individual who did not migrate. Moreover, I exploit variation in illegal migration to see whether those who migrated illegally experienced greater levels of subsequent investment than those who did not migrate. I first estimate the model given in Equation 1.

Business Acquired_{*i*,*t*+1} =
$$\beta_0 + \beta_1 Bracero_{i,t} + \beta_2 Illegal_{i,t} + \theta_t + \epsilon_{i,t}$$
 (1)

This model includes year fixed effects to account for any macro trends that affect all individuals the same in a given year which could confound the estimates. I regress an indicator for whether or not an individual acquired a business in the next year on an indicator for whether they traveled to the United States as a bracero, an indicator for whether they traveled to the United States illegally, and year fixed effects.¹¹

The results of the estimation are given in Column 1 of Table 3. Traveling as a bracero is associated with a 0.481 percentage point increase in the likelihood that an individual acquires a business in the next year. This result is statistically significant at the 1% level and, more importantly, is economically significant. Consider the average likelihood of business acquisition in the sample of 0.5%. This effect reveals that traveling as a bracero is associated with nearly a 100% increase in the average likelihood that an individual acquires a business in the next year. Moreover, there is no statistically significant effect on subsequent business acquisition for an illegal trip to the United States.

It is likely that those who choose to migrate are a self-selected group and that they possess characteristics, both observable and unobservable, that differ systematically from those that do not choose to migrate.¹² If these characteristics are correlated with business acquisition, then this selection on unobservable characteristics will cause omitted variables bias in my estimates. I address this problem by exploiting within person variation in migration and including individual fixed effects in the regression specification. In this way, I compare outcomes for the same individual in years when they migrated as a bracero to years when they did not migrate as a bracero (and the same for illegal migration), thereby differencing out any potentially omitted characteristics that do not vary within individual over time. I estimate the model given by Equation 2.

Business Acquired_{*i*,*t*+1} =
$$\beta_0 + \beta_1 Bracero_{i,t} + \beta_2 Illegal_{i,t} + \theta_t + \gamma_i + \epsilon_{i,t}$$
 (2)

¹¹ The results are for the estimation of a Linear Probability Model.

¹² These characteristics may include things like ambition, ability, willingness to take risks, etc. Since they are generally unobservable, they are omitted and could be a potential source of bias.

I regress an indicator variable for whether or not a person acquired a business in the next year on an indicator for whether or not they traveled to the United States as a bracero, an indicator for whether or not they traveled to the United States illegally, year fixed effects, and individual fixed effects.¹³

The results of this estimation are given in Column 2 of Table 3. I show that an individual migrant is 0.586 percentage points more likely to acquire a business in the next year when they travel to the United States as a bracero than in years when they do not migrate. This is statistically significant at the 1% level and also economically significant. Given the average likelihood of business acquisition in the sample, this is over a 100% increase in the likelihood that an individual will acquire a business. Furthermore, the point estimate for the bracero effect increases with the inclusion of individual fixed effects. This implies that the estimates in Column 1 are negatively biased and might be evidence of negative selection on unobservable characteristic that leads to more business acquisition, then these results imply those with lower ability select into bracero migration. Again, there is no statistically significant effect of illegal migration on subsequent business acquisition.

The individual fixed effects model accounts for all time invariant, unobservable individual characteristics that could cause a bias in the estimates. It might be the case that individual-specific factors that do vary over time are correlated with both bracero migration and subsequent business acquisition. If this is true, then the estimates I obtain in the individual fixed effects model are still plagued by omitted variables bias.

For example, it might be the case that individual migration patterns are linked to certain milestones in their lives. People might be more likely to migrate as braceros when they have

¹³ These results are for the estimation of a Linear Probability Model.

families (i.e., if they are married and/or have children) to take care of, but less likely to start businesses if they can't take the financial risk with these dependents. People might be less likely to migrate once they gain higher levels of education since they have more opportunity in Mexico, but more likely to start businesses with their new knowledge. Older people might be less likely to migrate as the work in the fields in the United States is physically demanding, but more likely to start businesses as they have greater savings. The MMP survey provides information about the age, marital status, number of children, and educational attainment for individuals at each year in the life history. I use this information and estimate the model given in Equation 3.

Business Acquired_{*i*,*t*+1}

$$= \beta_0 + \beta_1 Bracero_{i,t} + \beta_2 Illegal_{i,t} + \delta' X_{it} + \theta_t + \gamma_i + \epsilon_{i,t}$$
(3)

I regress an indicator variable for whether or not an individual acquires a business in the next year on an indicator for whether or not the individual migrated as a bracero, an indicator for whether or not the individual migrated illegally, a vector of controls (including marital status, age, number of children, and educational attainment), year fixed effects, and individual fixed effects.¹⁴

The results of this estimation are given in Column 1 of Table 4. The inclusion of these time-varying, individual characteristics does not change the estimates for the bracero effect on subsequent business acquisition in any substantial way.¹⁵ It is still the case that a bracero trip leads to greater than a 100% increase in the average likelihood that an individual acquires a business. Furthermore, all of the controls have the expected sign (as explained previously). It does not appear that lifestyle or milestone "shocks" to an individual can account for the positive effect of bracero migration on business acquisition.

¹⁴ The results are given for a Linear Probability Model.

¹⁵ They don't change the result for illegal migration either.

It is possible that there remain unobservable shocks that an individual faces which affect both the decision to migrate as a bracero and the ability to invest in new businesses. It is important to note, however, that the shocks which drove most people to bracero migration were negative shocks. Failed crops, extreme poverty, drought, and other events which made life hard at home induced many to leave their families and make the long, arduous trip to the United States. These extreme, negative shocks are likely to be negatively correlated with new business investment. Households that are facing conditions that make it hard to survive are unlikely to have the means to invest in new businesses. Thus, any remaining problems from omitted or unobserved factors are likely to cause my estimates to be negatively biased. The bias works against the positive effect on bracero migration that I find, and my estimate is likely to be a lower bound on the true effect.

In all versions of the model that I estimate, I find a statistically and economically significant, positive effect of bracero migration on business investment. All of the fixed effects regressions show a negative, statistically insignificant effect for illegal migration on business acquisition. This would imply that bracero migration provides a greater boost to individual investment in the next period than illegal migration.

The estimated effect of bracero migration is identified from two different types of people. The first type of person is a person that chooses only to migrate as a bracero over the time from 1942 to 1964. The second type of person is a person that chooses to migrate both as a bracero and as an illegal migrant during that time. The estimate is simply a weighted average over these two types. Similarly, the estimated effect of illegal migration is identified from two types of people. The first type of person is a person that chooses to migrate only illegally over the time from 1942 to 1964. The second type of person is the person that chooses both bracero and illegal trips over that time. Again, the estimate is simply a weighted average over these two types. These three types of individuals are likely to be very different and perhaps have different motives for migration. The estimated bracero effect might be most representative of "bracero only" types that choose bracero migration because they are most suited for it or because they are most suited to reap the benefits. To better understand the estimated impact of bracero migration relative to illegal migration, I separate this effect. The effect on those individuals with both bracero and illegal migration experience will give a good idea of how the effect of bracero migration compares to the effect of illegal migration for those individuals that are actually willing to choose between the two types.

Firstly, I create an indicator variable for whether or not an individual is a type that migrates as both a bracero and an illegal migrant over the period from 1942 to 1964. I estimate the model given by Equation 2, except I add an interaction term between this new variable and the bracero indicator, as well as an interaction term between the new variable and the illegal indicator. The main effect of being a "both" type cannot be identified since it does not vary within individual. The results of the estimation are given in Column 1 of Table 5. The bracero interaction term is positive. This reveals that the bracero effect for types that switch between bracero and illegal migration is actually more positive than the effect for those that only choose ibracero and illegal migration. Likewise, the illegal interaction. Thus, I find no evidence that the business acquisition "premium" to bracero migration is actually larger for those that avail themselves of the full menu of migration options.

Secondly, I estimate the model in Equation 2 for the 240 individuals in the sample that are "switchers" or that choose both bracero and illegal migration over the time of the program. The results of this estimation are given in Column 2 of Table 5. I find that for "switcher" types, bracero trips are associated with a one percentage point increase in the likelihood of acquiring a business in the next year. Comparing this to the average level of business acquisition in the total sample, this is a 200% increase in the average likelihood of business acquisition. It is economically significant and statistically significant at the 10% level. I am not surprised by the loss in statistical significance since the sample size is dramatically reduced. Illegal trips are associated with a negative effect on subsequent business acquisition, although this estimate is not statistically significant. This is further evidence that for those individuals who can be reasonably expected to choose between and take both bracero trips and illegal trips, the trips as braceros were much more advantageous in terms of their ability to contribute to subsequent investments. There seems to be a business acquisition "premium" to bracero migration relative to illegal migration.

This might not be a true premium if there is a systematic pattern to individual migration. If "switchers" choose illegal migration for specific purposes and bracero migration for specific purposes, the estimated gap might simply be a result of this pattern. For example, if an individual who makes two trips were to always travel illegally first and then as a bracero second, I would expect their business acquisition to be greater after bracero migration. They might end their migrant career as a bracero and use accumulated earnings to acquire a business. To investigate this possibility, I provide some descriptive evidence to the contrary. Figures 2 through 4 show that there does not appear to be any pattern in terms of the relationship between trip number and the type of trip taken. For switchers with two, three, and four trips, the proportion going as braceros and the proportion going as an undocumented migrant is approximately 50 percent for each trip. Figures 5 and 6 show that specific combinations of trip histories for switchers with three and four trips do not overwhelmingly dominate in the sample of "switchers." Although certain combinations are more popular than others, no pattern stands out that would suggest a pattern of strategic migration particularly for the starting of new businesses. This evidence suggests that there is no systematic pattern to illegal and bracero migration for "switcher" types, in terms of the order of the trips that are taken.

A final possibility to consider is trip duration. It might be that bracero migrants are more likely to start a business in the year following the trip because they are more likely to be home that year. If illegal trips to the United States lasted longer, then the effect on business starts might not appear until some years later. In Table 6 I explore this possibility. I regress an indicator for whether or not an individual started a business in the current year on an indicator for whether he left for a trip in any of the five years previous, the current year, or any of the five years after, for both bracero and illegal trips. The results show that only taking a trip as a bracero to the United States in at least one of the five years prior causes an increase to start a new business in the propensity to start a new business. These results suggest that, at least on a five year lag, it is not the delay from longer trips abroad driving the difference between the effect of bracero and illegal trips.

Survival Analysis to Investigate the Timing of Business Investment

In order to explore the timing of business decisions, I use survival or duration analysis. In this case, the analysis will describe the time to "failure," which is an individual's time to starting his first new business. I create a sample of males who were born no later than 1946, in order to only capture those who could have participated in the Bracero Program. The sample is censored on the right at 1965 to only capture those business decisions that occurred immediately after migrations during the time of the Bracero Program.¹⁶ I create a sample with multiple records per individual (so that I can include covariates that change in value over time), and drop any person-year observations that occur before age 18. In the language of survival analysis, a "failure" is defined as the first business start and an individual becomes at risk of failure at age 18. If a person does not start his first business by 1965, he is considered "censored" on the right hand side. This scheme gives a sample of 6,824 subjects with a total of 111,364 records and 661 observed failures (i.e., new business starts).

In Figure 7, I show the Kaplan-Meier survival estimates for the entire sample. A visual inspection of the graph reveals that by the end of the analysis time only 75% of those at risk remain without a business. This evidence suggests that although not common, people in the sample were starting businesses. In Figure 8, I show the Kaplan-Meier failure estimates for the entire sample. These show the inverse of the estimates in Figure 7. By the end of the analysis time 25% of those at risk had "failed" by starting new businesses. Again, this shows that people in the sample were starting new businesses.

The Kaplan-Meier estimates do not show how covariates affect the hazard of starting a new business in the sample. I utilize a Cox proportional hazards regression model to explore the effect of covariates on new business starts.¹⁷ The results of the estimation are reported in Table 7. In Column 1, I regress the time to starting the first business on an indicator for whether the individual took a trip to the United States as a bracero in the previous year. I find that bracero migration in the previous year increases the hazard of starting a new business by 87.5%

¹⁶ This bound on the right hand side can be adjusted higher to account for longer-post migration periods of observation.

¹⁷ The Cox model does not require any specification or parameterization of the baseline hazard function. It only requires the assumption that the shape of the hazard function is the same for all subjects. I am currently working on tests of this proportionality assumption and so they are not included in this draft.

compared to baseline, an effect that is both statistically and economically significant. I also find that other types of migration increase the hazard of new business creation, but these are not as significant. In Column 2, I regress the time to starting the first business on an indicator for whether the individual took an illegal trip to the United States in the previous year. I find that illegal migration in the previous year is associated with a 69.4% increase in the baseline hazard of starting a new business. This is smaller than the bracero effect and is only statistically significant at the 10% level. In Column 3 I include both indicators in the same regression and find consistent results. A bracero trip in the previous year is associated with a statistically significant 88.9% increase in the baseline hazard of starting a new business, while an illegal trip in the previous year is only associated with a 73.9% increase in the baseline hazard. Columns 4 through 6 repeat the same regressions, but include both year of birth and state of birth fixed effects. These account for any temporal or spatial factors that could confound the estimates. The resulting estimates are very similar to those in the first three columns. Bracero migration in the previous year is associated with a statistically significant increase in the hazard of starting a new business while an illegal trip in the previous year is associated with a smaller and less statistically significant increase in the same hazard. Overall, this analysis shows that a bracero trip in the previous year is associated with an increase of 80 to 90 percent in the baseline hazard of starting a new business.

Concluding Remarks

The Bracero Program provided individual bracero migrants with greater income than what they could earn at home. I show that the braceros did indeed use these positive shocks to their income to make subsequent investments in productive assets, such as new businesses. These new businesses likely provided a boost to economic growth and development in the

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communities that sent braceros to the United States. This shows that guest worker programs can be used as effective development policy to help encourage investment in poor areas. Furthermore, I show that there was a business acquisition "premium" to bracero migration. Individuals who made bracero trips were more likely to make subsequent investments in new businesses than those who made illegal trips to the United States. Despite the criticisms that there was little difference between bracero and illegal migration, I show that there were real returns to bracero migration that did not accrue to illegal migration.

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Figures and Tables





Source: MMP and INEGI.



















Figure 8



Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Age (years)	82,805	28.142	8.651	18	75
Education (years)	82,635	2.875	3.302	0	24
Married (%)	82,805	0.550	0.498	0	1
Children	82,761	1.939	2.746	0	18
Land (parcels)	82,805	0.176	0.502	0	4
Hectares	82,805	2.133	25.630	0	1440
Properties	82,805	0.218	0.438	0	6
Businesses	82,805	0.069	0.275	0	4
Business Acquired (%)	82,805	0.005	0.073	0	1
Bracero (%)	82,805	0.039	0.194	0	1
Illegal (%)	82,805	0.014	0.120	0	1

Table 1 -- Summary Statistics over All Person-Year Observations

Source: Mexican Migration Project

	U	, <u>, , , , , , , , , , , , , , , , , , </u>
Variable	Bracero Trip	Illegal Trip
Age (years)	27.979	27.473
Education (years)	2.096	2.415
Married (%)	0.673	0.592
Children	2.424	2.292
Land (parcels)	0.274	0.215
Hectares	2.153	3.790
Properties	0.292	0.224
Businesses	0.059	0.091
Observations	3,238	1,201

Table 2 - Mean Characteristics at Time of Migration, by Trip Type

Source: Mexican Migration Project

	(1)	(2)		
VARIABLES	Business Acquired in t+1	Business Acquired in t+1		
Bracero	0.00481***	0.00586***		
	(0.00185)	(0.00220)		
Illegal	0.00266	-0.000192		
	(0.00274)	(0.00373)		
Constant	0.00395**	0.00471**		
	(0.00183)	(0.00184)		
Year Fixed Effects	Yes	Yes		
Individual Fixed Effects	No	Yes		
Observations	75,794	75,794		
R-squared	0.001	0.002		
Number of Individuals		6,547		

Table 3 -- Initial Business Acquisition Regressions, with and without Individual Fixed Effects

Notes: Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

Source: Mexican Migration Project

	(1)
VARIABLES	Business Acquired in t+1
Bracero	0.00594***
	(0.00220)
Illegal	-0.000160
	(0.00374)
Married	-0.000838
	(0.00116)
Age	0.000155
	(0.000118)
Education (years)	0.000653*
	(0.000386)
Children	-0.000656**
	(0.000292)
Constant	-2.96e-05
	(0.00343)
Year Fixed Effects	Yes
Individual Fixed Effects	Yes
Observations	75,595
Number of Individuals	6,534
R-squared	0.002

Table 4 -- Additional Business Acquisition Regressions

Notes: Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1. Source: Mexican Migration Project

	(1)	(2) Business Acquired in t+1		
VARIABLES	Business Acquired in t+1			
Bracero	0.00416*	0.0111*		
	(0.00232)	(0.00591)		
Illegal	0.00281	-0.00317		
	(0.00569)	(0.00472)		
Bracero*Both	0.00756			
	(0.00627)			
Illegal*Both	-0.00519			
	(0.00733)			
Constant	0.00471**	0.00161		
	(0.00184)	(0.00236)		
Year Fixed Effects	Yes	Yes		
Individual Fixed Effects	Yes	Yes		
Observations	75,794	3,924		
R-squared	0.002	0.009		
Number of Individuals	6,547	240		

Table 5 -- Business Acquisition Regressions for Different Types

Notes: Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

Source: Mexican Migration Project

	(1)
VARIABLES	Busines Acquired
Bracero Previous Five	0.00341**
	(0.00149)
Bracero	0.000283
	(0.00174)
Bracero Ahead Five	0.000699
	(0.00143)
Illegal Previous Five	0.00248
	(0.00224)
Illegal	-0.00433
	(0.00299)
Illegal Five Ahead	-0.00292
	(0.00192)
Constant	0.000365
	(0.000543)
	Υ.
Year Fixed Effects	Yes
Individual Fixed Effects	Yes
Observations	82.805
R-squared	0.002
Number of Individuals	6.02
in unider of maividuals	0,928

Table 6—Business Acquisition Regression with Lags and Leads

Table 7—Survival Analysis for First New Business Start						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	_t	_t	_t	_t	_t	_t
Bracero Trip in Previous Year	1.875***		1.889***	1.791***		1.809***
	(0.331)		(0.334)	(0.323)		(0.327)
Illegal Trip in Previous Year		1.694*	1.739*		1.537	1.592
		(0.520)	(0.534)		(0.477)	(0.495)
Vear of Birth Fixed Effects				x	x	x
State of Birth Fixed Effects				X V	N V	X V
State of Diffin Pixed Effects				Λ	Λ	Λ
Observations	111,364	111,364	111,364	111,364	111,364	111,364
Notes: Robust seeform in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.						
Source: MMP.						