The Effects of the *Bracero* Program (1942-1964) on Educational Attainment, Marriage, and Divorce in Mexico

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Abstract.

In this paper, I examine the effects of the Bracero program, which brought Mexican workers into the United States on temporary guest worker visas from 1942 through 1964. I build on Kosack (2019) which focuses on the effects of the program on educational attainment for the school-aged population in Mexican states. I use a similar empirical strategy, which instruments for the number of braceros in each state using the locations of recruitment centers. However, I introduce a larger data set and measure the distance to the recruitment center in three different ways. I also use the same empirical strategy to examine the effects of the program on marriage and divorce which, to the best of my knowledge, has not yet been researched. I find ambiguous results regarding educational attainment, but a decrease in both marriage and divorce for states with more exposure to the program.

Introduction

Today, Mexico has the second most emigrants in the world (at approximately 13 million people), 98% of whom live in the United States. Both permanent and impermanent migration between the two countries has long been a part of their shared history, as have debates surrounding their migration policies. Frequent themes in this debate have included access to stable jobs at good wages for Mexican workers and the threat of poor treatment for Mexican workers in the U.S. However, the less obvious potential benefits to broader Mexican society are not often discussed. It is likely that temporary migration, including that of guest workers, affects both the individuals migrating and the communities to which they send remittances and eventually return. In order to have informed and productive discussions, it is important to have fuller knowledge of potential difficulties and benefits to all of society for both countries involved.

In this paper, I examine the effects of one of the U.S.'s largest agricultural guest worker programs, the *Bracero* program, which brought Mexican workers to the U.S. on temporary guest worker visas from 1942 through 1964.[1] The most obvious effect of the program was the

[1] For further context, at its peak, the Bracero program resulted in between 400,000 and 450,000 contracts per year. Today, there are two comparable temporary worker visas: H2-A, an unskilled worker agricultural visa, and H2-B, an

improvement of many Mexican workers' livelihoods by providing jobs at competitive rates (as compared to average Mexican wages). However, I look closely at the effect the program had on educational attainment and marriage markets in the communities that sent braceros abroad for a more nuanced view of the program. The effects of the program are theoretically ambiguous. It is possible that reducing income constraints through remittances may have increased educational attainment, but it is also possible that the program increased economic incentives to drop out of school in pursuit of a bracero contract. Similarly, improved economic conditions may have decreased financial barriers to marriage and divorce, incentivized women to marry or stay married to bracero spouses, and/or disrupted social norms by fracturing families. In other words, it is not clear what the anticipated net effect of the program may have been on education or the marriage market. Nonetheless, understanding the historical effects of this program may bring some clarity to contemporary immigration debate.

I analyze these questions in two ways. First, I build on Kosack (2019) who focuses on the effect of the program on educational attainment and documents largely positive effects on educational attainment and school investment. I use a similar empirical strategy, instrumenting for the number of braceros from each state using the locations of recruitment centers. My analysis differs from Kosack's in that I use a larger data set and measure the distance to the recruitment center in three different ways. I then use the same empirical strategy to examine the effects of the program on marriage and divorce, which, to the best of my knowledge, has not yet

unskilled worker non-agricultural visa. The legal cap for H2-B visas (a comparable unskilled, temporary non-agricultural visa) is 66,000 per year and governmental exceptions to the cap have resulted in an actual number of just over 80,000 visas in FY2016, FY2017, and FY2018. There were 200,000 H2-A visas (for which there is no cap) in FY2018. Moreover, FY2018 had twice the number of H2-A visas as FY2013 and this is the largest number of H2-A visas since the beginning of the program. (USCIS 2019; Department of State 2018; Wilson 2016; Garip 2017)

been researched. I begin by looking at the total number of marriages and divorces, and then focus on the number of marriages for different age groups.

My results are consistent with a slight, though imprecisely measured, effect of exposure to the *Bracero* program on educational attainment, marriage, and divorce. States that were more exposed to the program appear to have had more students enrolled around the age when children enter secondary school, a decrease in enrollment for men at the age where males can become braceros, and an increase in enrollment in later ages for women. In the short run, there were fewer marriages and fewer divorces for states that have more braceros, but an increase in divorces five years later. This suggests competing incentives and delayed effects of relaxing resource constraints. On one hand, there are economic incentives to get married and stay married in order to benefit financially from a partner's participation in the program. However, there may also be an increased incentive to divorce arising from increased independence, family disruption, and/or increased educational attainment. Moreover, increased economic stability and cheaper family and household formation may also make entering and exiting marriage more economically and socially accessible. I find a larger and more statistically significant effect of exposure to the Bracero program on marriage for the 20- to 24-year-old age group, corroborating these findings.

Background on the *Bracero* Program

Given the time period and data collection norms of the time, information on the *Bracero* program is relatively sparse, and the documentation that does exist is primarily in the form of written records that are difficult to access.[2] The background information in this section is heavily

[2] Kitty Calavita's *Inside the State: The Bracero Program, Immigration, and the INS* (1992) is considered to be one of the most thorough reports on the program. Calavita went through thousands of poorly archived and disorganized Immigration and Naturalization Service (INS) papers obtained through FOIA requests.

based on Kosack (2019) and several sociological and historical accounts of the program, including Sterett (1995), Zolberg (2006), Garip (2017), Calavita (1992) and records from the Bracero History Archive.[3] Even within what is available, there is some discrepancy in the reported numbers of braceros, institutional motivations, and descriptions of working conditions.

The *Bracero* program, which resulted in nearly 4.5 million contracts between 1942 and 1964, invited a specified number of men (dubbed "braceros") from Mexico into the U.S. with agriculture contracts ranging in length from six weeks to six months. President Roosevelt first authorized the program from 1942 to 1943 through an executive order and then Congress extended the program by law until 1947. Nearly 170,000 bracero contracts were signed from 1942 through 1945. Tensions between the interests of big farmers and labor unions eventually came to a head and Congress passed administration of the program entirely to the Immigration and Naturalization Service from 1947 to 1951. The program was originally intended to increase the supply of low-skilled workers (specifically, agricultural workers) in the U.S. due to shortages arising from World War II. By the 1950s, farm production had increased by 50% while the pool of domestic farm workers had decreased by 30% (Zolberg 2006), resulting in a shortage of 8 million farm workers by 1951.[4] Thus, by 1951, the number of braceros had more than doubled to about 200,000 contracts per year.

Until the 1950s, the U.S. had generally agreed to ensure the rights of Mexican workers through oversight by the Department of Labor, which was concerned about the displacement of

[3] The Bracero History Archive is a joint project of the Roy Rosenzweig Center for History and New Media, George Mason University, the Smithsonian National Museum of American History, Brown University, and the Institute of Oral History at the University of Texas at El Paso.

[4] In post-industrial U.S. society, there were significant technological improvements to pre-harvest technologies, such as mechanical innovations for planting, pesticides, and fertilizers, while there were few improvements to the actual process of harvesting. Therefore, there was great need for physical labor in the harvesting season but not in the planting season. In conjunction with other technological innovations and shifting norms in society, white-collar workers began to outnumber blue-collar workers domestically in the mid-1950s. (Zolberg 2006)

jobs and wages for domestic workers. However, in 1950s, President Eisenhower ordered a substantial decrease in oversight, which significantly worsened conditions. Moreover, the rhetoric of Cold War and ideas of citizenship in the 1950s began drawing significantly more attention to illegal immigration, which led to a new policy that resulted in what has been described as "institutionalized indentured labor" (Zolberg 2006). While employers received no consequences for the employment of undocumented immigrants, the immigrants themselves were removed, taken to the border, immediately "recruited" to the program, and "paroled" to employers for the remainder of the season. In June 1954, the federal government escalated its efforts, launching a six-week program called "Operation Wetback" during which the government reported "rounding up" over one million undocumented immigrants and deporting them. Of course, part of the reason why so many undocumented immigrants came to the U.S. in the first place was that the demand for cheap agricultural labor far exceeded the supply, and in an effort to curb the flows of undocumented immigration, INS approved a massive increase in bracero contracts. From 1955 through 1960, the program resulted in over 400,000 contracts per year, which more than doubled that of the prior decade.

As the Civil Rights movement of the 1960s flourished, the program came to be seen by the public as exploitative by undermining the well-being of Mexican workers, discouraging unionization of farm workers, and subordinating laborers based on ethnicity. Still, the farms that were benefitting from the program were able to negotiate for its continuation until 1964. The final reauthorization by Congress in 1963 included the stipulation that the program would end the following year.

Because it was low-skilled work, there were few requirements of braceros other than that they be males over the age of 16 and physically capable of the work.[5] Many workers returned for multiple contracts. Historical evidence suggests that while workers had access to higher wages abroad than in Mexico, they were also subject to harsh and even abusive working conditions. Due to lack of oversight, workers were forced to work excessive hours, were not paid overtime, and were not always payed prevailing wages (or even what their contract had stated). The nature of the work itself was also strenuous and unforgiving.

Nonetheless, many still chose to participate in the program as it offered higher wages than they could earn in Mexico. High unemployment rates coupled with an exponential population growth left little in the way of economic opportunity in Mexico.[6] In order to participate in the *Bracero* program, Mexican workers had two options: they could get a voucher guaranteeing a job from a local mayor and then travel to a recruitment center, or they could travel directly to the recruitment center and hope they would be selected for a job.[7] In both cases, the worker had to pay his own way to the recruitment center, but the employer would pay for the workers to travel from the recruitment center to the place of work in the U.S. Since travel was costly in terms of both time and money, individuals who lived closer to a recruitment center were more likely to be braceros, independent of other factors, due to lower costs.[8] This means that the distance from a given state to a recruitment center can potentially instrument for the number of braceros from that state.

[5] Age was not always thoroughly vetted, however, and one can reasonably infer that a number of youth near the age of 16 may have participated, as supported by qualitative evidence.
[6] The population of Mexico was 26.3 million in 1950; it had grown to 69.7 million in 1980. (Zolberg 2006)
[7] There is evidence suggesting that bribes were needed in order to get a contract, particularly at the points in time when the supply of potential braceros far exceeded the number of bracero contracts. (Zolberg 2006)
[8] A substantial sociological literature attributes a non-trivial portion of migration to the network structures of potential migrants. Someone who knows of another person who has migrated is more likely to migrate themselves. Therefore, historical migration from a particular state/region might also play a role in the decision to migrate. (Portes 1998; Garip 2017)

Both Mexico and the U.S. stood to gain a great deal politically from the program. Mexico benefited from having a powerful ally, while the political party that ran the government throughout the 20th century, the PRI, gained favor by providing a solution to high levels of unemployment. Similarly, the U.S. was able to maintain its relationships with Mexico throughout the 1950s and 1960s as its relationships with other Latin American countries deteriorated. Mexico's alliance was particularly important as the U.S. sought to expand its presence in the Western Hemisphere. Benefits also extended beyond the political, as Mexican families and U.S. farmers saw economic improvements.

However, the structure of the program changed over time in response to concerns and the relative bargaining power of the two countries. This manifested primarily in recruitment centers opening and closing over the course of the program, moving around Mexico. The U.S. wanted to place the centers as far north as possible to minimize the cost to farmers for transporting the workers. To the extent this was not possible, they preferred placing centers in the central states near railroads to facilitate transportation. Conversely, Mexico wanted to place the centers as far south as possible to decrease competition with their own agricultural endeavors in the north and benefit their poorest states in the Yucatan peninsula. Ultimately, the disparity in bargaining power between the U.S. and Mexico played an important role in the placement of recruitment centers. On one hand, Mexico had numerous hesitations including concerns over the treatment of their workers and their payment, and concerns over increasing competition with their own agricultural sector.[9] Additionally, the U.S. agricultural sector became economically dependent on the program. At the same time, Mexican families also came to rely on income generated from the

[9] The concerns were so great that two central states, Jalisco and Michoacan, originally banned bracero contractors from operating within their states. (Durand and Massey 2004)

program. It is possible that recruitment centers were disproportionately placed in poorer areas, where Mexico felt they were most needed and the U.S. was likely to find more workers.

Unfortunately, documentation regarding the negotiations is sparse and difficult to obtain. There are noticeable shifts northward in recruitment center positions over time (detailed in the Appendix), suggesting an increasing power imbalance favoring the U.S. in negotiations. Nevertheless, the complex relationship between the two countries, as illustrated by the movement of the recruitment centers, introduces plausibly exogenous variation in recruitment center placement which I use in my IV strategy.

Theory

Educational Attainment

The program affected Mexico both through the absence and return of the migrant workers, and through the injection of money into the local economy. In fact, as early as 1926 there were over 100,000 remittances sent per year averaging nearly 50 times the average daily wage in Mexico (Portes 1995). Therefore, remittances are one mechanism through which we might expect guest-worker programs to affect education. Remittances (both from permanent and temporary migrants) lead to higher consumption, higher savings, or both. Their amount, frequency, and use are often influenced by the migrant's contact with individuals who have migrated before, geographic proximity, and access to transportation, among other things (Cuecuecha and Pederzini 2012). Income constraints often force families to discontinue children's education due to an inability to pay and/or the competing incentive to have children work for more income. Thus, it is not surprising that, overall, there is consensus in the literature that remittances improve education around the world by reducing the need for child labor and by

financing education (Calero et. al., 2009 in Ecuador; Kugler, 2006 in Colombia; Edwards and Ureta, 2003 in El Salvador; Yang, 2008 in Philippines; Mansour, 2011 in Jordan).

Intuitively, we would also expect remittances to affect educational outcomes through health improvements as healthier children are often more successful in school. It is difficult to disentangle the directionality of effects between education and health, but Eide and Showalter's (2011) review of studies finds several papers with strong identification strategies that causally link educational attainment to health. Hassan et al. (2017) also reviews several studies on the effect of remittances and find that there is general agreement that remittances increase human capital through improved health outcomes and increased educational attainment. Similarly, Zhunio et al. (2012) uses a sample of 69 low- and middle-income countries and find that remittances improve overall health and educational attainment in such countries. Finally, Vargas-Silva (2006) reviews a different set of studies and concludes that while the effects of remittances trend positively, the magnitude of the positive effect on education is not clear.

However, effects on educational attainment are also likely to vary by gender. Men are typically the first or only people in their family to migrate, due to gendered social norms of work outside of the home, the structure of most guest-worker programs, the jobs available to guest-workers, and the potential hardship of the physical act of migrating. This makes women more likely to stay behind and therefore likely to complete more education in the country of origin. Additionally, men have social pressures that increase the likelihood of leaving and disrupting their education. Generally, if an individual believes that the opportunity cost of education (which might not be valued in the country they aspire to migrate to) is lost wages at a fair rate in decent conditions, and they are already resource constrained, it may be rational for them to leave their school in favor of the employment opportunity. Since the employment opportunity is more often

open to men than women, men are more likely to leave the educational system. That said, an individual who is less likely to be successful in school might also be more likely to seek a job as a bracero. Those who seek bracero jobs might be, in some other way, systematically different than those who do not.

For women, there is little reason to expect that the program would incentivize them to leave school since they were not allowed to directly participate as braceros. By introducing more decision-making power to mothers and decreasing income constraints, the program may have induced higher educational attainment for women. Since the wives of braceros were left behind and presumably in charge of the home and financial decisions, this may have also had an effect on educational attainment, as women may invest more in their daughters than men would have otherwise (Case and Paxson, 2001). That said, although they might be absent, the men might experience an increase in bargaining power as a result of their higher income and may actually have more control over the households' expenditures. Additionally, gender equality in education might be treated as a luxury good, where male children are given priority for education and marginal income is likely to affect female children's education. In other words, it is possible that as households become wealthier, preferences about boys' and girls' education change.

Temporary guest-worker programs are also more likely to result in volatile family situations, since one parent might be leaving and returning. This may have consequences (psychological and otherwise) which may affect a child's ability to complete their education. Indeed, Eriksen, Hvidtfeldt, and Lilleør (2011) find evidence that family disruption has negative impacts on learning, behavior, and consequently educational attainment. Steele, Sigle-Rushton, and Kravdal (2009) find similar evidence that absence of fathers negatively impacts educational attainment. However, they find that absence due to divorce has a larger negative effect than

absence due to death, which suggests that the temporary and likely amicable absence of fathers on guest-worker programs may have smaller effects.

Given the complicated relationship between education, income constraints, remittances, health, economic incentives, and family disruption, it is difficult to predict the program's effect. In fact, the program may have had different effects by gender, age, and length of exposure to the program.

Marriage and Divorce

The *Bracero* program may have also affected marriage and divorce through sustained and repeated removal of men from their homes and communities. It is possible that women experienced increased independence due to a spouse's absence and may have become accustomed to (and indeed preferred) a life without their partner. The experience of separation from a spouse and the lack of communication methods (or inability to pay for phones or letters) may have also had psychological consequences leading to increased divorces. There may also have been a cultural component, as divorces may have initially been more common and easier to obtain in the U.S. than in Mexico, leading to an increase in divorces through cultural exchange.

However, the economic incentives to remain married to a bracero spouse may increase as the family becomes more dependent on the remittances. As the 22-year-long program grows older and communities begin to expect it to continue, economic incentives for marrying a bracero (or potential bracero) might rise. Since women were never allowed to participate in the program, one of the most obvious ways for women to benefit economically from the program was to marry someone who was (or could be) a bracero. Naturally, the wages of all workers in Mexico would be expected to increase due to the decrease in labor supply, as braceros leave, and the need to compete with wages offered in the U.S.

At the same time, a reduced number of men in particular communities may also increase competition for spouses as women have fewer marriage options. Men who participate in the program may become a more economically appealing partner while men who do not participate in the program face less competition in their community. Thus, the bargaining power between men and women also shifts in favor of men, which may affect the number of marriages or divorces.

Lastly, and perhaps most importantly, decreased economic constraints may have reduced barriers to marriage or divorce. If individuals had more resources to complete the religious and legal requirements for marriage and divorce, there may have been an increase in one or both. Since individuals were more likely to participate in the program at younger ages, this may have been particularly true for younger individuals seeking a spouse. Thus, it is unclear the extent to which these effects on marriage and divorce may overlap and differ by gender and age.

Data

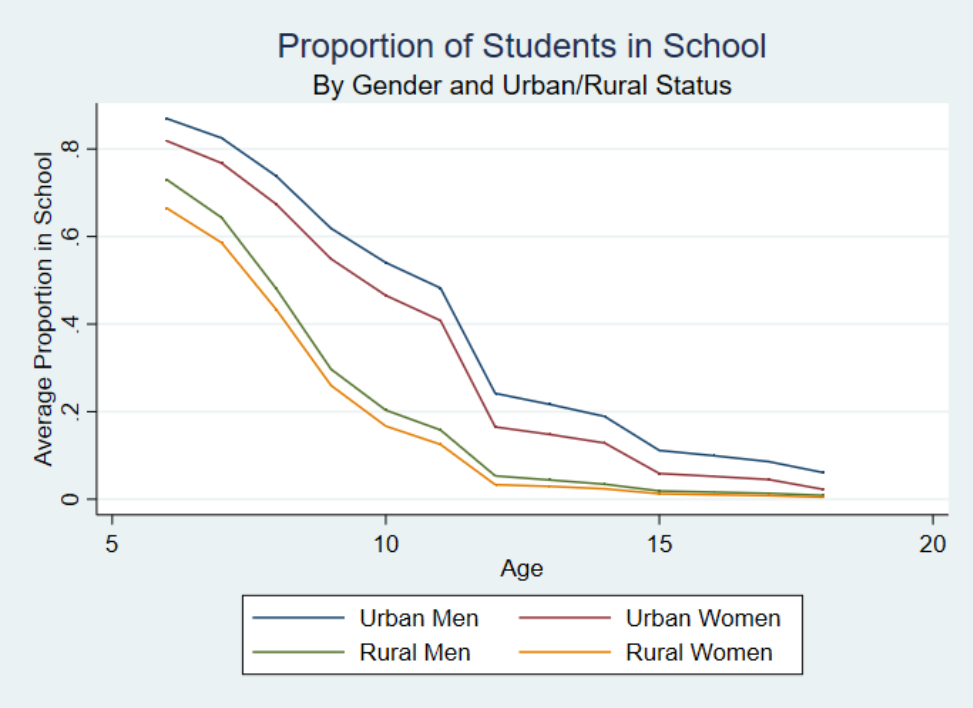
I obtained most of my data using the University of Minnesota's International IPUMS, which makes available individual-level census data from around the world. While Kosack's (2019) original paper uses only the 1970 Mexican census data, I have chosen to include the Mexican censuses of 1960, 1970, 1990, 1995, and 2000.[10] Each of these censuses include microdata for 1-10 percent of the population and include data on educational attainment for individuals who were of school age during the time of the program. For example, a 57-year-old in the 1990 census would be counted as an individual born in 1933, and thus a six-year-old in 1939 and a nine-year-old in 1942 when the program began.

[10] Unfortunately, there is no data available for 1980.

The census data includes information on each individual's state, municipality, gender, age, and educational attainment (in years). I use the age and educational attainment to find the age at which they left school and count the number of individuals in each state's birth cohort by gender and urban/rural status, using the census assigned weights. I make three assumptions in this process. First, I assume students are beginning school at the age of six when primary school begins. This was not altogether unreasonable for the time period.[11] I also assume that students were born in and stay in the state in which they currently reside. The travel difficulties and persistent immobility of the population suggest that this, too, is not an unreasonable assumption. In 1950 the only area that saw a population increase above 300,000 was the Federal District, while in 1970 the only areas were the Federal District and the surrounding state of Mexico (*Atlas de Migracion Interna en Mexico* 1988). Last, I assume there were no significant gaps in between years of education. This is possibly the most problematic assumption, but one which I can see no way to get around, since it is necessary make this assumption in order to link the observation to the number of braceros in that state. I use these total counts to create proportions of students enrolled between the ages of 6 and 18 for each birth cohort by year, state, gender, and urban/rural status.[12] I also calculate proportions of students who leave school at each age between 6 and 18 at the same level of observation. This methodology is identical to that used in Kosack (2019), with the exception of the number of censuses included.

[11] Since the early 20th century, the law had required the state to provide free public schooling, which most families participated in. A brief history of education in Mexico notes that two years of Pre-K begin at the age of four, and first grade begins at the age of six (Andrade de Herrera 1996).
[12] Urban places are defined consistently across Mexican samples as localities with 2,500 or more persons; individuals designated as "urban" live in urban places.

Figure 1. Summary Statistics of Proportion of Students in School by Age and Rural/Urban Status



Notes: This data includes the birth cohorts of 1925 through 1958 for the years in which schooling coincided with the *Bracero* program. Note the differences between urban and rural enrollment, which might suggest different effects of the program for each. Data from IPUMS.

Figure 1 includes comparisons of each gender and age group's enrollment rates split by urban/rural designation. These proportions are found by first summing the observations in the census data of each birth cohort, gender, and state by urban/rural status. I then find the number in each birth cohort, gender, and state by urban/rural status enrolled at each age between six and 18 years old and average by gender, state, and urban/rural status to find these comparative proportions. There is a consistently smaller proportion of rural students enrolled compared to urban students, and a consistently smaller proportion of women enrolled compared to men over time. There is also a sharp drop in enrollment for rural students at 10 years old and for all

students at 13 years old.[13] This suggests that there is a consistent and significant difference between schooling for rural and urban students and by gender, and program may have a different effect on students in urban and rural areas.

Using Mexico's yearly statistical yearbooks authored by *el Instituto Nacional de Estadistica y Geographía* (INEGI), the same source used in Kosack (2019), I also transcribe the number of braceros from each state. [14] I was able to obtain braceros data for the years 1942-1954 and 1958-1962.[15] Unfortunately, the statistical yearbooks do not report the number of braceros by municipality, and I am not aware of any individual-level information on participation in the program. Therefore, regressions are conducted at the state-year level, merged with previously detailed enrollment data. I create a list of latitudes and longitudes of all recruitment centers and each state's geographic center, capital, and largest city in each year in order to generate the instruments. I used the recruitment center locations and years in Kosack's (2019) paper, which he obtained by transcribing the international agreements that set up the program.[16] Table 1 includes summary statistics, including means and standard deviations, of key variables used throughout this paper. Note the variation in distances (for all measures), the even distribution of sexes, and the wide variation in school enrollments.

I also use manually entered data from Mexico's statistical agency's report on marriage and divorce by state from 1950 through 1992. The introduction to the report states that it is not a new set of data, but rather the collection of data related to marriage and divorce that had

[13] Typically, primary school was completed at age 12, thus the drastic difference in both urban and rural enrollment rates at 13 years old may be due to the common practice of ending schooling after primary school rather than the *Braceros* program.
[14] The statistical yearbooks are called the *Anuario Estadistico de los Estados Unidos Mexicanos* or Statistical Yearbook of the United States of Mexico.
[15] Data are not available 1955-1957; thus, I drop observations tied to these years.
[16] Latitudes and longitudes were obtained through the website www.GeoNames.org . In Stata, I was able to find the distances between the recruitment centers and each form of center using the *geodist* command, keeping only the distance to the closest recruitment center.

Table 1. Summary Statistics of Key Variables

Variable	N	Mean	Standard Deviation	Min	Max
Distance to Capital	640	494.87	405.06	0	2,187.55
Distance to Center	640	546.94	661.62	15.85	9,981.38
Distance to Largest City	640	519.86	409.72	0	2,296.56
Number of Braceros	633	5,190.53	9,875.097	0	61,381
log(braceros)	622	6.41	2.77	0	11.025
Number of Students in School	32,896	6,934.30	16,586.95	0	266,505
Proportion of Students in School	32,896	0.28	0.29	0	0.9974
log(Students in School)	31,962	7.19	2.20	0	12.49
Proportion of Students who Leave by Age	35,366	0.066	0.087	0.000015	0.78
Students Enrolled in Urban Primary School	540	67,224.65	10,4901.2	970	1,088,245
Students Enrolled in Rural Primary School	664	50,136.11	40,416.84	640	360,686
Total Students Enrolled in Primary School	672	11,5388.8	11,9501.3	2,296	1,088,885

Notes: Distances are in kilometers. The observations for the number of students in school by age group, proportion of students in school by age group, and proportion of students who leave by age group are for each birth cohort, state, and by rural/urban status. There is a discrepancy in the number of observations for urban, rural, and total enrollments because the capital district has no rural data 1942-1949, there is no information on enrollments at all in the years 1961 and 1964, and there is no information on urban enrollment only in 1955 and 1956.

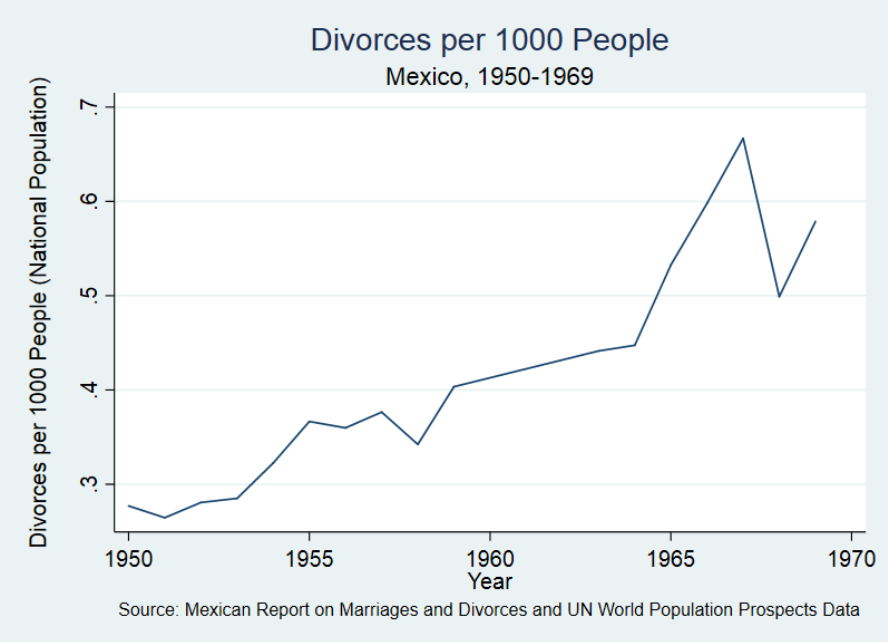
originally appeared scattered throughout a variety of other sources. The report makes no findings whatsoever; rather, it is simply national and state-level counts of marriage and divorce for each year. The marriages are also reported by the five-year age range of the man and of the woman entering the marriage, and the divorces are reported by their legal status and reason for seeking. For the purposes of my model, I use log(divorces) and log(marriages) because population counts necessary to compute marriage and divorce rates are not available in most years. I also use the marriages broken down by age groups, but I only look at the men. Although it would be ideal to have both, the time-consuming nature of data coding did not allow me to spend sufficient time obtaining both. Therefore, I chose to only use men, because their ages are easiest to identify in relation to their status as working-aged.

Overall, there is a positive national trend in both marriage and divorce rates, as demonstrated in Figures 2 and 3. These figures have been scaled to the national population of

Mexico in each year. Since the report begins in 1950, the graphs report the marriage and divorce numbers in the years 1950 – 1969, five years after the end of the program.

Figure 2. Graph of National Marriage Trends: Mexico, 1950-1969

Figure 3. Graph of National Divorce Trends: Mexico, 1950-1969



Empirical Strategy

OLS

I am primarily interested in the effect of the program on three aspects of the communities in the countries of origin: educational attainment, marriage, and divorce. I first estimate the effect of the program on each outcome using the following OLS model:

$$Outcome_{stc} = \alpha + \beta \log(Braceros)_{stc} + \delta_s + \mu_t + \gamma_s \times \text{year} + \epsilon_t,$$

where the outcome is, sequentially across my set of models, the log number of students enrolled at each age, the proportion of people who leave school at a given age, log marriages, log divorces, and log marriages of a specific age group.[17] The subscript *s* represents the state, the subscript *t* represents the year of observation, and the subscript *c* represents the birth cohort.[18] The regression may be conducted at the state-year level and includes state and year fixed effects, which will absorb any unobserved state-specific characteristics or year-to-year national factors which could affect both bracero participation and the outcome of interest. I include state-specific time trends for similar reasons. I also estimate the marriage and divorce regressions using a five-year lag because of the possibility that the economic or interpersonal reasons that drive marriages and divorces may not manifest immediately.[19]

In order for this model to produce causal estimates, a given level of participation in the *Bracero* program would need to be uncorrelated with any unobserved characteristics that might also be related to that state's educational attainment, marriage, and divorce. However, this OLS

[17] I add a one-year lag to the number of divorces because it is unlikely that the effect of the program on divorce rates would be observed in the same year as that of the braceros leaving the community. Therefore, I assume that divorces immediately resulting from spousal participation as a bracero are recorded in the following year.
[18] Birth cohort is only observed in the education data; it does not exist in the marriage and divorce data. Therefore, regressions of marriages and divorces on braceros follows the same model with the exception of birth cohort inclusion.
[19] For example, it may take time to gather the economic resources necessary for the legal process, or it may take time for spouses to decide they are no longer able to remain married.

regression most likely yields a negatively biased result, as there is strong reason to suspect that worse economic conditions are correlated with higher participation in the program due to lack of economic opportunity in their communities, *and* lower educational attainment, fewer marriages, and fewer divorces due to economic barriers. This threatens the causal interpretation of the OLS results, which requires an alternative identification strategy.

Instrumental Variable Strategy

Since travel was complicated, costly, and in some cases dangerous, the distance to a recruitment center was an important determinant of the number of braceros in a given state. I therefore use a state's distance from a recruitment center to instrument for the number of braceros. I measure a state's distance from the nearest recruitment center in three different ways: the geographic center of each state, the location of its capital, and the location of its largest (most populous) city. The first stage is as follows:

$$\log(Braceros)_{st} = \alpha + \beta \text{distance}_{st} + \delta_s + \mu_t + \gamma_s \times \text{year} + \epsilon_t,$$

which estimates the strength of the relationship between the distance to the closest recruitment centers (using each measurement) and the number of braceros in that state and year. The second stage is:

$$\text{Outcome}_{st} = \alpha + \beta \log(Braceros)_{st} + \delta_s + \mu_t + \gamma_s \times \text{year} + \epsilon_t,$$

which uses the estimated relationship between the number of braceros and distance in order to predict the outcome.

Instrumental Variable Assumptions

In order to interpret the results of these regressions causally, the instrument must satisfy three instrumental variable assumptions. First is the relevance assumption, which states that the

instrument must affect the probability of treatment. Second is the independence assumption, which concerns whether the instrument is as good as randomly assigned, conditional on controls. Lastly, the exclusion restriction must hold, which means that the only relationship between the instrument and the outcome of interest is the treatment itself.

Relevance

The relevance assumption deals with the relationship between the instrument (distance to the nearest recruitment center by state) and the treatment variable of interest (number of braceros in a state). In this case, there is good reason to believe that individuals were more likely to become braceros based on proximity to a recruitment center because of the high monetary and time costs of travel in mid-20th century Mexico.[20] The shifting of recruitment center locations over time (listed in the Appendix, taken from Kosack (2019)) allows me to estimate how proximity to a recruitment center affects migration while controlling for state fixed effects.

Table 3 reports the first stage results of an IV regression of number of braceros on distance to a recruitment center. I include my three measures of distance: geographic center of a state to the nearest recruitment center, capital of a state to the nearest recruitment center, and largest city in a state to the nearest recruitment center. In each case, the coefficient of interest is negative and statistically significant, suggesting that the farther a state is from the closest recruitment center, the fewer braceros that state will have on average. Additionally, I report the F-statistic associated with the null hypothesis that there is no relationship between the two, and it is well above the standard threshold of 10. The capital and largest city instruments have similarly

[20] Presently, Mexico ranks 62 out of 137 countries in infrastructure, as determined by the World Economic Forum. The mediocrity in infrastructure and economy (it places 51st, globally, plateauing for the past 5 years) stems at least partly from a long history of under-development (Schwab 2017).

strong first stage relationships, while the geographic center instrument—the closest to the measurement used in Kosack (2019)—appears to have the weakest first stage.[21]

For the capital and largest city instruments, an additional kilometer away from the closest recruitment center corresponds to approximately a 0.2 log point decrease in the number of braceros for a given state, while for the geographic center instrument, an additional kilometer away corresponds to approximately a 0.05 log point decrease in the number of braceros in a given state. The average distance from a recruitment center is about for a state without a recruitment center is approximately 575 kilometers, compared to approximately 50 kilometers for a state with a center. Therefore, a state without a recruitment center is, on average, 525 kilometers further from a recruitment center than a state with a recruitment center. This suggests a high estimate of a 105 log point increase in the number of braceros, or approximately *three* times more braceros if a state has a recruitment center rather than being the average distance away.

Independence

In the context of my IV strategy, this assumption says that, conditional on the control variables in the model, the placement of the treatment centers is uncorrelated with other determinants of the outcome. My model includes state and year fixed effects, as well as state time trends, which together deal with many, though not all, concerns regarding independence.

[21] While the geographic center instrument is most similar in theory to Kosack's (2019), the first stage relationship is actually closest to my measurement of the capital and largest city instruments. This may have to do with the variety of ways in which the geographic center may be measured. The latitudes and longitudes I use for geographic center were collected from www.GeoNames.org . It may also be the case that the largest city and the capital (which are the same approximately 70% of the time) are more accurate representations of where the majority of braceros were traveling from. It is true that most braceros came from rural areas, but rural populations may also be skewed closer to more populous cities in order to access services and amenities (particularly legal ones) offered only in urban locations.

A concern one might have about this instrument is that recruitment centers were placed more often in poorer states which could supply the largest number of braceros and which had lower rates of schooling.[22] Similarly, poorer areas might have lower marriage and divorce rates due to financial barriers to both, and possible differences in marriage or divorce norms influenced by religion. However, the fact that particularly poor states may have had recruitment centers more often than other states does not threaten the validity of the instrument due to the inclusion of state fixed effects. By including state fixed effects, the regression absorbs time invariant differences across states, including the economic environment of a state that may cause them to consistently have more braceros and/or lower educational attainment, marriage rates, or divorce rates.

Another concern is that states may have different trends in educational attainment. For example, states that are better off might begin with higher rates of primary and secondary school completion, but poorer communities may experience faster growth in education and eventually converge to similar rates of primary and secondary school completion over time. Marriage and divorce are likely to follow similarly converging patterns as the accessibility of marriage and divorce increases while communication systems become more sophisticated in connecting norms across the country. Recruitment centers are more likely to be placed in poorer areas, and therefore areas where education and communications systems may be increasing or improving more rapidly than the rest of the country. Without including any covariates, the IV estimates could be upwardly biased because there would be a positive relationship between, for example,

[22] For the vast majority of the 20th century, Mexico was governed by a single party, the PRI. Kosack (2018) argues that this party may have promised recruitment centers to poorer areas, where the communities may have desired them, in order to gain political favor. Though difficult to test, it is quite plausible that the centers were, in fact, placed more often in poorer states for this reason.

education and divorce and recruitment center placement. I address this issue by including state time trends, which allow the trends in educational attainment to vary by state.[23]

Looking at the list of recruitment center locations, a third concern arises: rather than consistently being placed in the poorest or most northern areas, it is more likely that Mexico began by placing recruitment centers in their largest, economically stable cities and *then* tried to place recruitment centers in more needy states as time went on. Including state fixed effects and state time trends accounts for the differences between states, as previously described. Additionally, including year fixed effects in the regression accounts for differences in recruitment center placement as correlated with the year of placement. If there is a general trend of increasing numbers of braceros in states that would have experienced an increase in educational attainment, marriage, and over time without the program, this would be absorbed by the year fixed effects.

However, there are a few situations in which the year and state fixed effects and state time trends would not be enough to ensure the independence of the instrument. If there were a shock external to the program, which affected both the probability of a state obtaining a recruitment center and education attainment, marriage, or divorce, then this would violate the independence assumption. Any event that might negatively affect the economy, thereby increasing the likelihood of a recruitment center *and* affecting educational attainment, marriage, or divorce, but not directly related to the program, would be a concern. A drought, for example, might cause economic hardship that would prompt the Mexican government to bring a recruitment center to a given state. The drought might separately reduce educational attainment, marriage, and divorce independently due to increased financial constraints.

[23] The model assumes linear time trends.

To my knowledge, an incident such as this did not occur in the given time period, but it is not possible to rule out with certainty. Additionally, the tensions between the U.S. and Mexico, described in the background section, introduce an element of randomness and exogeneity to recruitment center locations. Since the U.S. wanted to place the centers as far north as possible while Mexico wanted to place centers as far south as possible, international factors and variations in bargaining power between the U.S. and Mexico were an important element in the decisions on recruitment center placement. It is unlikely that these factors and power imbalances had much to do with the economic or other background characteristics of the localities. The issues that prompted the U.S. to increase, decrease, or move the recruitment center locations were likely totally independent of the underlying trends in Mexico. In fact, historical narratives indicate that internal tensions in the U.S. between the INS and Department of Labor substantially affected the expansion and reduction of the program (Sterett 1995). Thus, while an exogenous shock may have occurred within Mexico, the major factors influencing the status of the program had little to do directly with the braceros' communities.

Exclusion

In order for the exclusion restriction to hold, the instrument must have no direct effect on the outcome of interest except through the treatment variable. This means that the placement of the recruitment centers did not directly affect educational attainment, marriage, or divorce except through the way they affected each state's participation in the *Bracero* program. There is no reason to suspect that the recruitment center placement had a direct effect on the cost, location of, or number of schools in the state, or anything else that could relate recruitment centers directly to educational attainment. There is also no clear theory as to why the placement of recruitment centers would have had a direct effect on the costs or barriers related to marriage and

divorce. Therefore, it is reasonably likely that the only effect recruitment center location had on educational attainment was in the way it affected bracero participation.

Results

Educational Attainment

Table 2 attempts to replicate Kosack's (2019) results using the same model and data, but with my three instrument measures. My results are all in the right direction but are all less statistically significant. Using the instruments with the most similar first stage, the estimated IV coefficients for urban enrollments are about three times larger, the estimated coefficients for rural enrollments are nearly one-tenth smaller, while the estimated coefficients for total enrollment are only off by 0.003. The instrument is measured independently while the other data is coded by

Table 2. Replication Results

	(1) Urban Enrolled	(2) Rural Enrolled	(3) Total Enrolled
OLS	0.0223*	0.00778	0.0118**
	(0.00870)	(0.00493)	(0.00364)
OLS – Kosack (2019)	0.00748	0.0122***	0.0103***
	(0.00479)	(0.00459)	(0.00320)
IV – Geographic Center	0.0462*	0.00592	0.0175*
	(0.0194)	(0.00946)	(0.00837)
IV – Capital	0.0916*	0.00386	0.0300
	(0.0389)	(0.0231)	(0.0171)
IV – Largest City	0.0913*	0.00588	0.0306
	(0.0386)	(0.0231)	(0.0171)
IV – Kosack (2019)	0.0326**	0.0534***	0.0303***
	(0.0147)	(0.0205)	(0.0103)
N	549	541	549

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. Data from *Anuario Estadistico* of number of students enrolled in urban, rural, and all (total) primary schools by state for the years 1942-1964. These regressions are *not* based on data gathered from the censuses. The year 1961 is not available in the data.

hand. However, there are some differences in the number of observations which point to sample differences as a possible culprit. It is also possible that one of us miscoded data, as much of it was entered by hand.

Table 3 shows regression results by age for men, estimated separately for each of the three instruments as well as OLS, and Table 4 does the same for women. My sample includes more observations than in Kosack (2019), as it is obtained from three censuses instead of one. Kosack's (2019) results suggest two main findings: a state that has higher participation in the *Bracero* program, or has more individuals who sign contracts as braceros, is related to an increase in enrollment for young girls of 2-3% and a decrease in enrollment for older boys of 1-2%. Notably, my results are less statistically significant and widely varied by age and instrument. Generally, I find a positive effect of increased numbers of braceros on the log of women in school and a somewhat ambiguous effect on men. Since students are often leaving school around age 12, as illustrated in Figure 1, the positive effect of bracero participation on 12-year-olds in school is particularly notable. At age 16 (when men are old enough to become braceros) there is a negative effect on enrollment of men, but a large positive effect for women ages 16 through 18. One hypothesis as to why this might occur is that increased resources from men dropping out of school and the accompanying remittances may be reinvested into the education of women.

Although the estimated effects on enrollment are very imprecisely measured, there are a few key differences between my results and those in Kosack (2019). First, the measured effect on men is much less positive at ages six through eight, while the measured effect on women is much smaller. This may indicate that the effects on young children are too small to be well measured, given that my sample was significantly larger and I did not find the same results. Just before men are able to become braceros, I also find a significant increase in schooling, unlike

Table 3. Regression of Students in School at Each Age, Men

Age	*N*	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	1244	-	-0.000484 *** (0.0000166) [853.9]	-0.00202*** (0.00005) [1437.1]	-0.00203*** (0.00005) [1443.7]
6	1244	-0.00124 (0.0162)	0.0193 (0.0685)	-0.00227 (0.0542)	-0.00152 (0.0540)
7	1244	-0.00606 (0.0161)	0.0339 (0.0685)	0.0162 (0.0541)	0.0180 (0.0540)
8	1244	0.00194 (0.0173)	-0.00165 (0.0733)	-0.0104 (0.0580)	-0.0102 (0.0579)
9	1244	0.0125 (0.0214)	-0.00701 (0.0905)	-0.0153 (0.0717)	-0.0170 (0.0715)
10	1244	0.0160 (0.0251)	-0.0109 (0.106)	-0.00898 (0.0841)	-0.00914 (0.0839)
11	1244	-0.00177 (0.0271)	-0.0140 (0.115)	0.0183 (0.0907)	0.0220 (0.0904)
12	1238	0.00307 (0.0352)	0.0298 (0.148)	0.0196 (0.118)	0.0258 (0.118)
13	1236	0.00977 (0.0362)	0.0204 (0.153)	-0.0196 (0.121)	-0.0187 (0.121)
14	1231	-0.00541 (0.0388)	0.0182 (0.164)	0.0662 (0.130)	0.0682 (0.129)
15	1197	0.0412 (0.0430)	0.0659 (0.185)	0.0629 (0.139)	0.0434 (0.138)
16	1196	0.0115 (0.0439)	0.0627 (0.198)	-0.0253 (0.142)	-0.0361 (0.141)
17	1127	-0.00126 (0.0462)	-0.189 (0.189)	0.0718 (0.159)	0.0575 (0.161)
18	1023	0.0255 (0.0513)	0.0761 (0.224)	-0.0550 (0.169)	-0.0800 (0.170)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistic in brackets. Each result represents a separate regression for each age group. Data from IPUMS and *Anuario Estadistico.*

Kosack who finds a negative effect. One reason why this increase in schooling may occur is that, although there may not be an incentive to continue schooling past the age when one can become a bracero, decreased resource constraints coupled with a "finish line" at 16 may keep boys in school who would have otherwise dropped out. Lastly, I see much larger and more significant effects on older girls, whereas Kosack (2019) finds essentially no results.

Table 5 shows a more general regression which aggregates the effects across ages. It illustrates a generally positive (though insignificant) effect of exposure to the *Bracero* program on educational attainment, but an effect that is almost twice the size for women.

Table 6 shows the same regression as Table 5, also broken down by instrumental variable and gender, but looks at the effect of exposure to the braceros program on the proportion of students who leave school at each age. Interestingly, this paints a different picture, where there is a smaller portion of students leaving school at each age for men, but a larger proportion leaving school at each age for women. This may suggest that women leave school at more concentrated ages than men. One possible theory that would explain this is that women are continuing education until the traditional exiting ages: 12, 16, and 18. Although these results are not statistically significant, the patterns between the two tables reinforce the possibility that an effect, though not large or precisely measured, may exist, and is plausibly different for different genders and ages.

Table 4. Regression of Students in School at Each Age, Women

Age	*N*	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	1244	-	-0.000496 *** (0.0000171) [840.5]	-0.00202*** (0.00005) [1409.3]	-0.00203*** (0.00005) [1417.4]
6	1244	-0.00422 (0.0174)	0.00358 (0.0737)	0.0173 (0.0583)	0.0178 (0.0582)
7	1244	-0.000592 (0.0174)	0.00355 (0.0735)	0.0173 (0.0582)	0.0169 (0.0580)
8	1244	0.00417 (0.0191)	-0.00456 (0.0808)	-0.0160 (0.0640)	-0.0189 (0.0638)
9	1244	0.00213 (0.0238)	-0.0344 (0.101)	0.00261 (0.0798)	0.00546 (0.0795)
10	1244	0.00424 (0.0287)	-0.0238 (0.121)	-0.0247 (0.0960)	-0.0241 (0.0957)
11	1243	0.00507 (0.0311)	-0.00579 (0.131)	0.0302 (0.104)	0.0321 (0.104)
12	1217	0.0314 (0.0403)	0.0879 (0.169)	0.0370 (0.134)	0.0444 (0.134)
13	1212	-0.0137 (0.0413)	0.0251 (0.171)	0.0249 (0.134)	0.0187 (0.133)
14	1203	-0.00930 (0.0431)	-0.269 (0.177)	0.0243 (0.143)	0.0228 (0.142)
15	1152	0.00732 (0.0457)	-0.177 (0.210)	0.0243 (0.143)	0.0978 (0.151)
16	1135	0.0168 (0.0462)	-0.0131 (0.184)	0.101 (0.153)	0.113 (0.153)
17	1170	0.0558 (0.0487)	0.200 (0.216)	0.118 (0.171)	0.149 (0.170)
18	941	-0.0214 (0.0513)	-0.000813 (0.230)	0.0583 (0.166)	0.0511 (0.168)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistic in brackets. Each result represents a separate regression for each age group. Data from IPUMS and *Anuario Estadistico.*

Table 5. IV Regression of Students in School by Gender and IV

	IV: Geographic Center		IV: Capital		IV: Largest City	
	(1)	(2)	(3)	(4)	(5)	(6)
	Men	Women	Men	Women	Men	Women
log(braceros)	0.00773	-0.0161	0.0174	0.0250	0.0133	0.0303
	(0.0607)	(0.0669)	(0.0476)	(0.0526)	(0.0475)	(0.0524)
Observations	15,712	15,393	15,712	15,393	15,712	15,393
R-squared	0.189	0.147	0.189	0.147	0.189	0.147

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. Data from IPUMS and *Anuario Estadistico.*

Table 6. Proportion of Students who Leave at Each Age by Gender and IV

	IV: Geographic Center		IV: Capital		IV: Largest City	
	(1)	(2)	(3)	(4)	(5)	(6)
	Men	Women	Men	Women	Men	Women
First Stage	-0.000498***	-0.000520***	-0.00207***	-0.00199***	-0.00208***	-0.00200***
	(0.000016)	(0.000018)	(0.000049)	(0.000050)	(0.000049)	(0.000050)
	[930.4]	[872.8]	[1818.3]	[1568.3]	[1824.0]	[1567.0]
log(braceros)	-0.00782	0.101	-0.0374	0.0300	-0.0359	0.0202
	(0.159)	(0.160)	(0.116)	(0.121)	(0.116)	(0.121)
N	17,952	16,592	17,952	16,592	17,952	16,592
R-squared	0.048	0.051	0.048	0.051	0.048	0.051

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistic in brackets. Data from IPUMS and *Anuario Estadistico.*

Marriage and Divorce

Marriage results are reported in Tables 7 and 8 and divorce results are reported in Tables 9 and 10. The contemporaneous results are statistically significant, while the lagged results are not statistically significant. Moreover, there is a marked difference in the OLS and IV results, which suggests that there is, in fact, significant bias in running the regressions purely on the association between the number of braceros and the log of marriage and divorce.

There appears to be a contemporaneous general decrease in marriage and divorce as the exposure to the Bracero program increases. The lagged results also show a decrease in marriage, but an increase in divorce. This is consistent with the possibility that the economic and interpersonal effects of bracero participation take time to manifest, with some marriages remaining intact soon after a spouse's return and later ending in divorce. The contemporaneous marriage results in Table 7 are also consistent with the possibility that marriages are decreasing as women have a harder time finding a partner when men are gone. The results suggest that a ten percent increase in the number of braceros is associated with a 0.4% decrease in the number of marriages. However, the lagged results in Table 8 show an ambiguous effect on the number of marriages. The positive coefficient for one distance measure is more consistent with the theory that potential partners may have more money, making marriage more attractive. Nonetheless, the size of these effects are not statistically significant and are much smaller, suggesting that a ten percent increase in the number of braceros is associated with approximately a 0.1% increase *or* decrease in the number of marriages.

Table 7. OLS and IV Results for Marriages (Contemporaneous)

	(1)	(2)	(3)	(4)
		IV: Geographic		IV: Largest
VARIABLES	OLS	Center	IV: Capital	City
First Stage	-	-0.00138***	-0.00137***	-0.00140***
		(0.000350)	(0.000318)	(0.000318)
		[15.570]	[18.716]	[19.470]
log(braceros)	-0.00573	-0.0360*	-0.0482**	-0.0476**
	(0.00428)	(0.0195)	(0.0190)	(0.0186)
Observations	406	406	406	406
R-squared	0.997	0.924	0.997	0.925

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistic in brackets. Data from Marriage and Divorce report and *Anuario Estadistico.*

Table 8. OLS and IV Results for Marriages (With 5-Year Lag)

VARIABLES	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	-	-0.000441***	-0.00193***	-0.00193***
		(0.0000942)	(0.000344)	(0.000345)
		[21.865]	[31.481]	[31.299]
log(braceros)	0.00117	0.00946	-0.00969	-0.00393
	(0.00269)	(0.0116)	(0.00983)	(0.00972)
Observations	528	528	528	528
R-squared	0.997	0.997	0.997	0.997

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistics in brackets. Data from Marriage and Divorce report and *Anuario Estadistico.*

Table 9, which reports contemporaneous divorce, shows a stronger decrease in the number of divorces. The results from all three instruments are statistically significant and they report that a ten percent increase in the number of braceros is associated with between 1.4% and 1.8% decrease in divorces. This may imply that the economic incentive to remain married is relatively high but could also simply reflect the logistical inability to divorce when one spouse is absent. Lagged results in Table 10 show that a ten percent increase in braceros in a given state is associated with around a 0.3% to 0.6% increase in divorces, consistent with the latter theory. It is also possible that in communities where women may have grown more accustomed to the independence or have more financial stability, there may be a stronger incentive or ability to divorce.

Table 9. OLS and IV Results for Divorces (Contemporaneous)

VARIABLES	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	-	-0.00138***	-0.00137***	-0.00140***
		(0.000349)	(0.000317)	(0.000318)
		[15.532]	[18.696]	[19.461]
log(braceros)	0.000481	-0.143*	-0.184**	-0.166**
	(0.0175)	(0.0817)	(0.0788)	(0.0756)
Observations	407	406	406	406
R-squared	0.974	0.924	0.997	0.925

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistics in brackets. Data from Marriage and Divorce report and *Anuario Estadistico.*

Table 10. OLS and IV Results for Divorces (With 5-Year Lag)

VARIABLES	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	-	-0.000440***	-0.00193***	-0.00193***
		(0.0000943)	(0.000345)	(0.000345)
		[21.805]	[31.428]	[31.401]
log(braceros)	0.00751	0.0612	0.0252	0.0269
	(0.0105)	(0.0461)	(0.0378)	(0.0379)
Observations	527	527	527	527
R-squared	0.975	0.973	0.974	0.974

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. F-statistics in brackets. Data from Marriage and Divorce report and *Anuario Estadistico.*

A more nuanced story emerges when looking at the effects on specific subsections of the population by age. Given the braceros' grueling and physically strenuous work, it is not likely that many braceros would be far above the age of thirty. Moreover, the typical age of marriage is

the mid-twenties. Looking at the contemporaneous results in table 11, there is a statistically significant relationship between exposure to the Bracero program and marriage rates for precisely the ages 20-24. This age group is most likely to be both of marrying age and working as braceros, and since the magnitude of the IV estimated effect is much larger than the OLS estimated effect, this seems likely to be a less biased estimate. The fact that there are negative effects estimated on marriage for 15- to 19-year-olds and 20- to 24-year-olds is consistent with the theory that these individuals may be away and unable to marry or that fewer resource constraints decrease the necessity of marriage. Interestingly, there is also a strong and statistically positive effect for the oldest age group, above the age of 50. This suggests that reduced resource constraints allow individuals to get married out of preference rather than necessity, given the limited (financial and family) benefits to marrying above the age of 50.

The lagged effects in Table 12 offer a similar portrait, with more statistical significance and larger positive relationships between exposure to the program and marriage. This suggests that entering into marriage is easier at all ages, consistent with the possibility that resource constraints are more relaxed. Additionally, the substantial increase in marriages for those aged 20-24 is consistent with the possibility that the youngest braceros, aged 16-19, may return and have more opportunities to marry due to financial and social capital. Looking at the contemporaneous and lagged results in conjunction, we see the possibility that the total number of marriages may not change (consistent with the somewhat ambiguous, smaller, and less statistically significant results from the general results), but that the age of the marriage may actually be shifting. Men who are away during the years that the typical marriage window overlaps with prime bracero age (about 20- to 24-year-olds), may be similarly likely to get married as they would have otherwise been, but may be delaying marriage until they return

around the ages of 25 to 29 or 30 to 34. Thus, although it is not clear what the most "desirable" effect on marriage would be in terms of poverty reduction or increasing quality of life, it is clear that there is a relationship between age of marriage and exposure to the Bracero program. This suggests that, despite the lack of statistical significance, the results of other regressions in this paper may also be valid but masked by the heterogeneity within each grouping.

Table 11. IV Log Marriages by Age Group (Contemporaneous)

Age Group	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	-	-0.00106***	-0.00108***	-0.00111***
		(0.000128)	(0.000114)	(0.000114)
		[68.766]	[89.901]	[93.519]
15-19	-0.0200**	-0.0404	-0.0348	-0.0476
	(0.00838)	(0.0384)	(0.0358)	(0.0358)
20-24	-0.0211	-0.232***	-0.125**	-0.135**
	(0.0138)	(0.0836)	(0.0638)	(0.0641)
25-29	-0.00210	0.00410	0.0251	0.0261
	(0.00698)	(0.0317)	(0.0303)	(0.0300)
30-34	-0.0180**	-0.0128	0.00988	0.0117
	(0.00873)	(0.0397)	(0.0377)	(0.0373)
35-39	-0.0157	-0.0372	0.000358	-0.00373
	(0.0105)	(0.0480)	(0.0448)	(0.0442)
40-49	-0.0183	-0.110*	-0.0700	-0.0678
	(0.0133)	(0.0650)	(0.0580)	(0.0572)
50+	-0.0197	0.164*	0.162**	0.149*
	(0.0157)	(0.0860)	(0.0801)	(0.0776)
unknown	0.0248	-0.297	-0.272	-0.258
	(0.0714)	(0.247)	(0.219)	(0.216)
N	375	375	375	375

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. Data from Marriage and Divorce report and *Anuario Estadistico*.

Table 12. IV Log Marriages by Age Group (With 5-Year Lag)

Age Group	(1) OLS	(2) IV: Geographic Center	(3) IV: Capital	(4) IV: Largest City
First Stage	-	-0.000439*** (0.0000322) [185.910]	-0.00196*** (0.000117) [283.059]	-0.00196*** (0.000117) [279.726]
15-19	0.00423 (0.00445)	0.00569 (0.0190)	-0.0114 (0.0162)	-0.00488 (0.0161)
20-24	0.0111 (0.00677)	0.0244 (0.0290)	0.0832*** (0.0272)	0.0817*** (0.0272)
25-29	0.00475 (0.00349)	0.00408 (0.0149)	0.0244* (0.0130)	0.0262** (0.0131)
30-34	0.00212 (0.00469)	0.0431** (0.0217)	0.0488*** (0.0186)	0.0554*** (0.0192)
35-39	0.00231 (0.00787)	0.0203 (0.0338)	0.0612** (0.0300)	0.0683** (0.0305)
40-49	0.00234 (0.00715)	0.0564* (0.0324)	0.0479* (0.0268)	0.0551** (0.0273)
50+	0.00640 (0.00795)	0.0698* (0.0363)	0.0501* (0.0295)	0.0652** (0.0304)
unknown	-0.0698 (0.0436)	0.0829 (0.189)	-0.150 (0.119)	-0.158 (0.120)
N	529	529	529	529

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Standard errors in parentheses. Data from Marriage and Divorce report and *Anuario Estadistico.*

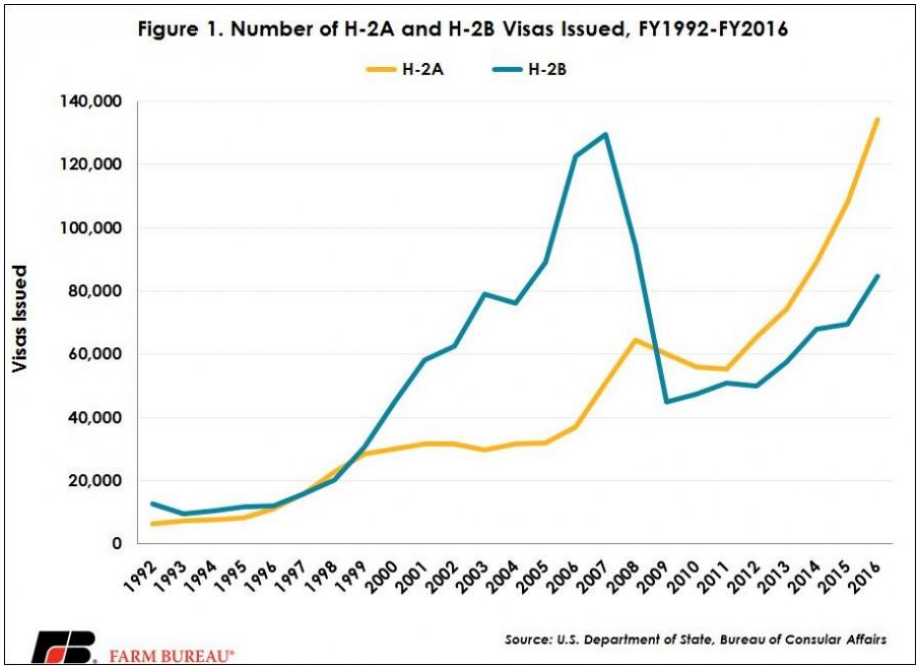
Discussion and Conclusion

The scale and structure of the *Bracero* program are unique, which make it a prime specimen to research the broad effects of guest worker programs. While the results may be specific to the era and communities in which braceros lived, studying this program can shed light

the possible legacies of guest worker programs. The effects of human capital development and family structures may very well carry on past the end of the program. The evidence suggests the Braceros program had an effect education, marriage, and divorce, which is important to consider as we move towards possible immigration reform.

Remittances were one of the many mechanisms through which the program benefitted communities in Mexico. Today, remittances make up approximately 3% of Mexico's GDP and the U.S. still has two specific visa programs typically used for individuals who work seasonally or short-term: the H2-A visa for unskilled, temporary agricultural workers and the H2-B visa for other unskilled temporary workers. Despite various iterations of guest-worker programs, debates surrounding the H2-A and H2-B visas remain the same as they were half a century ago with the *Bracero* program. In fact, in recent years, we have seen a drastic rise in H2-A and H2-B visa issuance very similar to that of the number of braceros in the late 1950s, as detailed in figure 4.

Figure 4. Temporary Worker H2-A and H2-B Visas, FY1992 – FY2016



Many continue to be concerned for the well-being of more easily exploitable foreign workers. The Southern Poverty Law Center has referred to the H2-A visa program as "close to slavery", while several farmworkers' activist and labor union groups remain concerned about the potential for harm.[24] Despite many organizations' efforts to improve access to legal counsel, many of the temporary migrants, whose jobs depend in large part on their employers' willingness to keep them on, are often left vulnerable to exploitation. Others are concerned for the effects of temporary workers on the local economies of where they migrate.[25] Although the Department of Labor must certify a shortage of domestic workers before allowing employers to request visas and hire foreign workers, some argue that this is not done very thoroughly. These arguments have blended into an increasingly contentious debate over immigration policy (which remains mostly as it was in 1965).

Policymakers have proposed a number of changes to the current H2-A and H2-B (along with other) nonimmigrant visa programs. Among the most well-known is former Representative Bob Goodlatte's (VA-6) amendment which would combine H2-A and H2-B visas under a new H2-C visa, primarily with the intention of curbing undocumented immigration and implementing E-verify.[26] Perhaps unsurprisingly, there are strong parallels between the both the present day temporary worker visa programs and the *Bracero* program, including the rationale for increasing the scope and number visas, the public concerns for both programs, and the ultimate reduction in federal oversight. As previously noted, the historical effects of the *Bracero* program may not be

[24] In fact, substantial evidence suggests that these workers continue to be highly exploited (Cuecuecha and Pederzini 2012).
[25] Labor economists generally agree that permanent migration has either no net effect or a relatively small negative effect on worker wages for workers with low levels of education. That said, the effect is somewhat ambiguous and a it cannot be said that there is a consensus. The effect of temporary workers and undocumented workers is less well understood.
[26] E-verify is an electronic database that would include all individuals with work authorization, which businesses would, in theory, be required to check before hiring someone.

a perfect indicator for possible present-day effects, but if we are to have thoughtful, evidence-based discussions about such policies, we will have to think more broadly and thoroughly about the effects (both benefits and consequences) of guest worker programs on all parties involved.

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Appendix. List of Recruitment Centers

Date of Opening	Recruitment Centers (City, State)
1942	Mexico City
1944	Guadalajara, Jalisco Irapuato, Guanajuato
1947	Zacatecas, Zacatecas Chihuahua, Chihuahua Tampico, Tamaulipas Aguascalientes, Aguascalientes
1 August 1949	Hermosillo, Sonora Chihuahua, Chihuahua Monterrey, Nuevo Leon
11 August 1951	Aguascalientes, Aguascalientes Guadalajara, Jalisco Irapuato, Guanajuato Chihuahua, Chihuahua Monterrey, Nuevo Leon
19 May 1952	Durango, Duranto Guadalajara, Jalisco Irapuato, Guanajuato Chihuahua, Chihuahua Monterrey, Nuevo Leon
10 March 1954	Mexicali, Baja California Durango, Duranto Guadalajara, Jalisco Irapuato, Guanajuato Chihuahua, Chihuahua Monterrey, Nuevo Leon
14 April 1955	Hermosillo, Sonora Mexicali, Baja California Durango, Duranto Guadalajara, Jalisco Irapuato, Guanajuato Chihuahua, Chihuahua Monterrey, Nuevo Leon
1 February 1962	Chihuahua, Chihuahua Monterrey, Nuevo Leon Empalme Sonora

Source: Kosack (2019), from international agreements