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Do U.S. Border Enforcement Operations Increase Human Smuggling Fees Along the U.S.-Mexico Border?

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Abstract

Undocumented migrants frequently hire border crossing experts, called "coyotes" to facilitate a successful, safer crossing. U.S. border enforcement actively counters these migrants. U.S. measures of enforcement and coyote fees grew together during the 20th century, suggesting a connection between enforcement and the coyote market. This paper tests the effect of border patrol agents and operations on coyote fees using a dataset compiled from the Mexican Migration Project, U.S. Customs & Border Protection, the Department of Homeland Security, and the United States Sentencing Commission. I do not find a significant connection between coyote fees and border enforcement, but do show that average prison time along the border acted as a shifter of supply prior to 2005.

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I. Introduction

Along the U.S.-Mexico border, undocumented, or “illegal,” immigrants[1] cross by night, forge legal documents, or engage in other skill-intensive activities in order to avoid detection by border patrol agents and reach higher wages in United States. Migrants who secure employment send home remittances, which are critical to household budgets and wider development (Stark and Bloom 1985; Durand, Massey & Zenteno 2001). Additionally, undocumented migration increases the integration of the southern United States and northern Mexican labor markets (Cortez and Islas-Carmargo 2009). Meanwhile, the United States government crafts policies aiming to reduce the flow of unauthorized migration in an effort to “secure the border.” Policies have included increases to the number of border patrol agents, implementation of surveillance technologies and a push for a border-wide wall.

To facilitate a successful crossing, many migrants hire experts, known as “coyotes.” (Gathmann 2008; Orrenius 2001). Coyotes are highly skilled in avoiding apprehension by border patrol agents and navigating treacherous areas like the Sonora Desert safely (Cornelius 2001). It follows that increasing border enforcement would raise demand for coyote services.

Following this link between enforcement and demand, Kyle and Koslowski (2001) argue that border enforcement policies increase the profitability and scale of the multi-billion dollar human smuggling industry. In the last thirty years, the average fee for coyote services has nearly quadrupled alongside the number of agents and time spent watching the border. This assumed theoretical link is also used in analysis of migration patterns. Orrenius (1999) uses border enforcement to instrument for coyote costs to show that coyotes increased migration beyond the level expected due to the U.S.-

[1] In this article I use “immigrants” and “migrants” interchangeably. This is because my study encompasses cyclical migrants and one-time relocating immigrants.

Mexico wage differential. As further evidence of this theory, coyote fees may also explain the persistence of this wage differential, within the theoretical framework of wage convergence.[2]

The share of Mexican migrants in the U.S. foreign-born population grew from 5.9 percent in 1960 to 30.1 percent in 2008. Additionally, an estimated 62 percent of unauthorized U.S. migrants in 2009 were Mexican.[3] Does booming migration explain the rising coyote prices? Recent migration trends call that into question, opening the alternative explanation that U.S. enforcement policies drive coyote prices.

The number of migrants from Mexico fell from 350,000 in 2006 to 150,000 at the end of The Great Recession in 2009.[4,5] The average coyote fee continued to rise during these years despite this drop in market size. Either the supply of coyotes has decreased or a greater proportion of migrants have been hiring a coyote. The Mexican Migration Project (MMP), which forms the majority of my dataset, reveals that a higher percentage of this shrinking migrant pool hired coyotes. I use U.S. border enforcement to explain these apparent shifts in the supply and demand of the market for coyote services.

Increased U.S. border enforcement could cause shifts in both supply and demand in the coyote market. The fee for coyote services fell throughout the mid-20th century, until the early 1990s, when the Clinton administration supported increases to border enforcement. These measures and others in recent years increased the budget and staffing of United States border patrol and targeted popular crossing zones. It is critical to note that coyote fees continued to fall after the Immigration Control and

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[2] Robertson & Halliday (working paper) document a persistent wage gap between the United States and Mexico across Age and education cohorts (Robertson & Halliday, working paper). This is in spite of the high level of integration between the U.S. and Mexican economies, which Robertson (2000) and Cortez and Islas-Carmargo (2009) show using reactions to wage shocks and convergence to an equilibrium differential. Robertson's (2005) follow-up study on NAFTA indicates that border enforcement prevents further integration.

[3] Reported by Migration Information Source. Terrazas, A. 2010. "Mexican Immigrants in the United States." *Migration Information Source.* < http://www.migrationinformation.org/usfocus/display.cfm?ID=767> .

[4] As described in *The New York Times* article Preston (2009, May 14). "Mexican Data Show Migration to U.S. in Decline."

[5] Reported by Migration Information Source.

Reform Act (IRCA) of 1986. The law increased the penalty for hiring undocumented migrants and was the first of many anti-undocumented immigration measures. Donato, Durand, and Massey (1992) found that the IRCA did not change undocumented-migration practices between 1987 and 1989. Following these findings, it appears that the coyote market is only sensitive to enforcement along the border proper. Policies that target enforcement along the border may affect the coyote market more than in-country immigration policies.

Andreas (1996) argues that free trade policies like the North American Free Trade Agreement passed in 1994 contrast with tight border enforcement policies and bolster the coyote market. Several scholars have linked enforcement to migration indicators including migrant skill-levels, location choice, Mexican wages, volatility of remittances, and total welfare.[6] Yet the wider literature shows a weak relationship between enforcement and prices (Gathmann 2008). This paper takes this finding one step further and shows an overall insignificant relationship between enforcement and costs.

It is common in the literature to frame the coyote market as a standard economic market with supply and demand schedules (Gathmann 2008). Most border enforcement policies and operations can be tied to either the demand or supply side of the coyote market. Operations that aim to deter migrants, like *Operation Hold The Line*, shift the demand for coyote services outward. Others, like *Operation Disruption*, target coyotes and shift the supply of their services inward. If effective, all these policies should increase coyote fees, while ineffectual policies would not affect the market. Given the rising

[6] Enforcement also appears to increase the skill levels of Mexican migrants (Orrenius and Zavodny 2005). Likewise, Robertson, Hanson and Spilimbergo (2002) argue that increasing enforcement does not protect U.S. workers, but creates some negative impact on Mexican wages along the border. Mandelman and Zlate (2012) show that increased enforcement has greater welfare losses on unskilled migrant households and increases the volatility of wages and remittances for migrants using macroeconomic indicators from the United States and Mexico. Robertson (2005) showed that enforcement lowered the benefits of NAFTA for Mexican worker wages that were documented in trade flows. Borjas (1999) argued in favor of enforcement estimating that lowering immigration flows causes negligible changes to total surplus in the United States. Borjas (2000) uses a recent estimate by Powell (2010) that immigration causes a 0.2 % change in total surplus, which is negligible given the size of the U.S. economy. Powell (2012) argues that the U.S. economy suffers substantial rent seeking losses from voter-driven increases in enforcement policies (2012).

percentage of coyote use, migrant operations likely dominated. This paper parses out how U.S. border policies concerning enforcement and prison time for unauthorized immigration contribute to the coyote fee. Using sector-specific data for number of agents per mile as a proxy for enforcement, average prison time and dummy variables for types of operations, I find that enforcement and operations are insignificant across almost every specification.

I use Lopez-Castro's (1998) overview of the coyote business model to classify operations that target coyotes. The suppliers of coyote services can be classified into one of three business types: local agents, local and border smugglers, and border-only smuggling businesses. Local agents gather groups of migrants and smuggle them across without taking formal leadership of the group. If the group is deported, they try again until successful. Local and border coyotes work similarly, but often require some connection to their migrants. Border-only smuggling businesses use a network of safe houses and vehicles to offer a superior service to migrants who can pay higher premiums.

Existing literature models coyote use with one of three methods: as debt-financed migration, a Nash equilibrium decision, or within a supply and demand framework. Friebel and Guriev (2006) argue that coyotes facilitate indebted labor agreements, allowing migrants without means to immigrate as indentured servants. Enforcement would increase migration costs and the overall pool of migrants without the means to hire coyotes. Halliday and Paula (2013, forthcoming) create a Nash equilibrium framework and estimate how different enforcement policies and migrant expectations affect the decision to hire a coyote. Both models neglect the supply-side effects of border enforcement.

Gathmann (2008) draws on the supply function of criminals (Becker 1968) and migrant decision models to create a supply and demand model for coyote services. She isolates supply and demand shocks within the market using changes in border enforcement, measured in linewatch hours, and coyote jail time. She estimates the price elasticity of enforcement to be between 17 and 31 percent. My results do not show the same relationship from 1995-2005, as well as through 2011.

Gathmann (2008) also uses an instrumental variable to account for possible endogeneity between enforcement and coyote prices. An increase in undocumented crossers will bolster demand, but also require more enforcement. Bohn and Pugatch (2013) claim that administrative delays within various government departments create two-year lags to enforcement changes. Although this should remove endogeneity, Gathmann (2008) and I find statistical endogeneity. Gathmann (2008) uses the Drug and Enforcement Agency (DEA) budget to instrument for enforcement hours. I do not use the DEA budget, as the data are not sector-specific.

In order to get a sector-specific instrumental variable, I follow Bohn and Pugatch (2013) and create sector-specific weighted averages of unemployment rates. Bohn and Pugatch (2013) use sector-specific weighted averages of migrants' destination cities to determine the effect of enforcement on location choice. Ideally, my instrumental variable would account for herd and network effects[7] from migrant families and their communities (Bauer, Epstein, and Gang 2002). Unfortunately, there are few reliable measures of these effects. Instead, I instrument the choice to migrate with the unemployment rates in Mexican origin cities and U.S. destination cities. I use a sector-weighted average of unemployment rate to instrument for coyote costs. Identification tests reveal that this is a poor instrument, so I discount most of the instrumented results.

Additionally, I deviate from Gathmann (2008) by estimating a reduced form equation instead of a hedonic price equation. She instruments for shifts in supply using data on prison sentences. I include

[7] Herd effects measure likelihood of migrating with those around you. Network effects represent the assistance from previous migrants.

them in a reduced form empirical setup, detailed below. This model reveals that prison time create statistically significant changes in coyote fees because the variable is a primary shifter of coyote supply.

This paper builds on the literature by showing that the relationship between enforcement and coyote fees is not significant for recent years. I accomplish this by categorizing relevant border enforcement operations, which serves as a secondary contribution to the literature. Additionally, I show that the average prison time for unauthorized immigration creates significant changes to coyote fees as a shifter of supply. The rest of this paper is structured as follows. First, I categorize the U.S. border operations into three groups. Following that I outline my theoretical model, which blends models for the decision to migrate and the decision to supply criminal services. Then, I describe the unique factors of my dataset, which is compiled from the MMP and U.S. Department of Homeland Security (DHS). Last, I analyze the results from statistical model and close with concluding remarks.

II. Context and Categorization of Border Operations

During the 1920s, the United States Customs & Border Protection (CBP) divided the U.S.-Mexico border into nine sectors of varying length: Rio Grande Valley (320 miles), Laredo (171 miles), Del Rio (210 miles), Big Bend (510 miles), El Paso (268 miles), Tucson (262 miles), Yuma (126 miles), El Centro (70 miles), and San Diego (60 miles), pictured in *Figure 1*. Despite hiring border personnel as early as 1924, the U.S. government maintained relatively passive immigration policies until 1986 with the passage of the IRCA. There have been three waves of immigration policy: targeting in-country migrants during the 1980s, "catch and release" during the 1990s, and the prosecution of undocumented migrants during the last decade.[8] Each wave featured a unique set of operations aimed at reducing undocumented migration.

[8] Information provided by U.S. Customs and Border Protection. Retrieved from: http://www.cbp.gov/about/history

Most operations focused on apprehending migrants along the border, which I categorize as migrant-specific operations. In response, more migrants hired coyotes to facilitate safer and successful border crossings (Gathmann 2008). Other operations aimed to disrupt coyote networks, making it more difficult for coyotes to smuggle unauthorized migrants. I categorize these as coyote-specific operations. These operations alter the objectives of border patrol agents and possibility the effect of enforcement on the coyote market. Other operations altered the probability that an undocumented migrant or coyote would face prison time, which I label prison operations. I categorize thirty border operations for use in my theoretical and quantitative analysis. A comprehensive list of these categorizations can be found in Table 1.

The Immigration Reform and Control Act (IRCA) of 1986 marked the beginning of the first wave. This legalized over 3 million undocumented migrants within the country and increased the penalties for businesses caught hiring undocumented workers (Donato, Durand, & Massey1992). Migration did not fall, however; it continued to grow despite this supposed decrease in U.S. demand for undocumented labor. Many migrants headed north to gain citizenship with a recently IRCA-documented family member.

In response to this continued growth in migration, the Clinton administration backed operations aiming to stop undocumented migration at the border. These operations included *Hold The Line* in El Paso, *Gatekeeper* in San Diego, *Safeguard* in Tucson and *Rio Grande* in Texas and started in 1993, 1994, 1995, and 1997, respectively. These “catch and release” operations were named because agents deported all migrants caught on the border back to Mexico, regardless of nationality. To improve the probability of apprehension, the CBP invested in additional agents, lighting, and night and lowlight vision goggles.

Given the emphasis on the apprehension of migrants, I categorize these operations as migrant-specific. Migrant-specific operations encourage agents to focus on finding undocumented migrants along the border, decreasing the chance that migrants cross the border successfully. As a result, it is theorized that more migrants would hire a coyote to facilitate the clandestine activities necessary to avoid apprehension. This would imply that migrant-specific operations increase the demand for coyote services.

Yet there were also several operations that targeted coyotes and their supporting organizations during the Clinton years. CBP implemented a *Biometric Identification System*, which aimed to identify criminals and repeat migrants during the apprehension process. This would have improved the probability of sending local coyotes that attempt to blend in with the migrant groups they lead to jail (Lopez-Castro 1998). Therefore, I consider it a prison-specific operation. Additionally, in 1995 the San Diego sector initiated *Operation Disruption*, which had the stated goal to deter and dismantle existing coyote networks. Unfortunately, this operation can only be found as a cursory mention in existing reports and the government does not have reports on this operation publicly available for evaluation.[9]

Last, the Clinton years saw a largely unsuccessful push for a well-maintained border fence. Although most of the San Diego sector had fencing by the end of 2000, the rest of the border did not. A second push found success with the passage of the Secure Border Initiative 2005. Between 2006 and 2014, the DHS built 600 miles of fencing. Fencing creates a shift in both supply and demand, but it is built throughout the year. [10] Therefore, I cannot include it in my quantitative analysis of annual migrant-trips.

[9] A Freedom of Information Act is currently being processed through the CBP for access to documentation on this and several other operations.

[10] Information accessed through CBP Report. Retrieved from: http://nemo.cbp.gov/borderpatrol/2435_southwest.pdf

During the Bush administration, immigration was included into the newly-formed DHS. The DHS took a harsher line to migration and replaced "catch and release" with automatic prosecution of all unauthorized crossers (Lydgate 2010). In 2005, the Del Rio sector introduced *Operation Streamline*, which mandated the prosecution of all undocumented peoples caught within a 100-mile radius of the city of Del Rio. First-time migrants typically face between 15 and 30 days of jail time. Similar operations spread to Tucson, Yuma and throughout Texas by 2008. Since these alter the probability of facing prison time, I interact them with the average prison time in my quantitative analysis. I expect that these operations to increase the demand for coyote services as migrants face a higher likelihood of prison time. This change in prosecution procedure creates an identification issue, which I address in estimation issues.

In recent years the CBP and DHS has also targeted specific hiding locations and methods for coyotes. For example, in 2009 the DHS cleared the Carrizo Cane along the Rio Grande in the Laredo sector.[11] Following that, the DHS filled Smuggler's Gulch – a popular canyon for crossing, two miles from the Pacific Ocean between Tijuana and San Diego – with 2 million cubic yards of dirt (Beaubien 2009). Without hiding places, more migrants hire coyotes, creating an outward shift in demand. Yet coyotes also face increased costs to smuggling, so supply shifts inward. Together these shifts would increase price. Additionally, several blitz operations like the *Human Smuggling Take Down* targeted smuggling safe houses in the United States, where undocumented migrants stay while coyotes arrange accommodations in the states. A reduction in these houses, an input to smuggling, would reduce the supply of coyote services.

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[11] Information provided in CBP report: *Border Construction and Support Facilities.* Retrieved from: http://www.cbp.gov/border-security/along-us-borders/border-construction

The chart shows that Tucson, El Paso and San Diego have experienced the most border operations and several sectors like Yuma and Big Bend do not experiences any sector-specific operations. Likewise, most of the border operations targeted at least migrants. The few that targeted coyotes often also affected migrants, creating an identification issue, which I resolve in section V.

Having established and categorized the enforcement operations, I can move into my theoretical model. After that I can perform a quantitative analysis and evaluate of the success of these operations.

III. Theory and Empirical Model

My theory simplifies the Gathmann (2008) model. The primary simplification is the assumption that individuals' wage differential is not determined by their border-crossing skill parameter. Instead, wage is specific to a cohort based on age and education, which simplifies the theoretical and empirical analysis.

Migration theories can account for enforcement in two different ways. In the Harris-Todaro model, enforcement decreases the likelihood of reaching and finding a job in the United States (Harris, Todaro 1970). Yet, Sjaastad (1962) would describe enforcement as a cost of crossing the border. Both theories inform my characterization of coyotes. In my model, coyotes increase the expected benefit of migration because they improve the probability of a successful crossing while also increasing the pecuniary costs of crossing the border.

I represent coyote supply with the criminal supply function (Becker 1968). Criminals are willing and able to supply services when compensated for their opportunity costs, which are measured in alternative wages, the expected cost of punishment, and their standard marginal cost. In the case of a coyote, the expected costs and probability of apprehension are functions of enforcement hours.

Following Gathmann (2008), I assume that coyotes act in a perfectly competitive market. This assumption is substantiated by the anecdotal evidence that most border towns are full of several former coyotes of equal skill levels and minimal differentiation of services. In perfect competition, the price of coyote service is set equal to these costs:

$$P^E = MC = altw + prob^E(L)F^E + C(L) \tag{1}$$

Where P^E is the price an expert charges, *L* represents border enforcement, *altw* is the alternative wage that a coyote could earn, $prob^E$ is the probability of being apprehended and receiving fine *F* and *C* is a cost function of *L*. This gives the supply function:

$$Q_s = a + bP(L, altw, prob^E, F, C) \tag{2}$$

Using the implicit function theorem[12], we can rewrite quantity as a function of price and the variables that determine price:

$$Q_s(P, L, altw, prob^E, F, C) \tag{3}$$

The demand side requires a longer derivation. Gathmann (2008) depicts a skill parameter, θ, which determines the human capital specific to crossing the border. This parameter is distributed across the population using a standard distribution function: $g(u)$. The likelihood that a migrant crosses successfully is a function of θ and the enforcement, *L,* along the border. The probability that a migrant is apprehended is always greater than that faced by a coyote as shown in the following equation

$$0 < prob^E(L) < prob(\theta, L) < 1 \tag{4}$$

where the probability of being apprehended is a monotonically increasing S function bounded by $prob^E$ below and one above.

Migrants have the option to cross the border alone or hire a coyote, essentially purchasing a lesser probability of apprehension. If their skill-level is high enough, they may migrate alone if coyotes

[12] Implicit function theorem requires that the partial derivatives can be set equal to some non-zero function.

are too expensive. Lower skill-level migrants may still demand coyote services at a high price level if the benefit of reaching the United States exceeds these traveling costs.

A migrant's decision to hire an expert is modeled by the following comparison of the returns to migration:

$$\left(1 - prob^{E}(L)\right)\left(\Delta w - P^{E}(L)\right) - prob^{E}(L)F \ \geq (1 - prob(\theta, L))\Delta w - prob(\theta, L)F \qquad (5)$$

where Δw is the expected wage differential between the Mexico and U.S. and *F* is the possible repercussion for a migrant which we assume is equal to zero because migrants are usually deported. This assumption is broken after 2005, which I discuss further with other estimation issues. Here I deviate from Gathmann (2008). She assumes that the wage differential is dependent on θ, such that migrants' border-crossing skill transfers into their job-specific human capital. This creates a lower bound θ^* for the decision to migrate to the United States. Instead, I assume that the wage differential is cohort-specific and remove the lower bound on θ^*.

When the inequality shown in (5) holds, a migrant essentially purchases the coyote's probability of apprehension. Equation (6) shows (5) solved for cutoff probability of apprehension at which point a migrant will not choose to hire a coyote.

$$prob(\theta, L) \geq \frac{P^{E}(L) - prob^{E}(L)P^{E}(L)}{\Delta w + F} + prob^{E}(L) \qquad (6)$$

In equation (7), I solve for the cutoff θ* at which point a migrant will not hire a coyote by taking the inverse of the probability function for *L* held constant.[13]

$$\theta \geq prob^{-1}\left(\frac{P^{E} - prob^{E}P^{E}}{\Delta w + F} + prob^{E}\right) \qquad (7)$$

In equation (8) I integrate distribution function from 0 to θ^* to solve for the total migrants that demand a coyote, which can be termed D^E:

[13] The S-shaped probability function is invertible because it is monotically increasing.

$$\int_0^{\theta^*} g(u)du = G(\theta^*) - 0 = D^E \quad (8)$$

where D^E measures the aggregate demand for coyote services and is a function of this skill level. Equation (9) shows quantity demanded as a function of the θ*, itself a function of price, enforcement, punishment the wage differential and a coyote's probability of apprehension.

$$Q_D = D^E(\theta^*(P^E, L, F, \Delta w, prob^E)) \quad (9)$$

using the implicit function theorem I rewrite this as:

$$Q_D = D^E(\theta^*, P^E, L, F, \Delta w, prob^E) \quad (10)$$

Now I take a linear approximation of supply and demand, which are shown in (11) and (12). Due to data restrictions, (12) does not include the alternate wage that a coyote could earn within a border town. I use these linear approximations to solve for a reduced form equation of price.

$$\begin{aligned} Q_{tk}^s = \beta_1 + \beta_2 P_{it} + \beta_3 L_{kt} + \beta_4 F_{jt} + \beta_5 OpCoy_{kt} + \beta_6 OpPris_{kt} + \\ + \beta_7 (L_{kt}) * OpCoy_{kt} + \beta_8 (F_{jt}) * OpPris_{kt} + \varepsilon_{ikjt} \end{aligned} \quad (11)$$

$$\begin{aligned} Q_{tk}^d = \alpha_1 + \alpha_2 P_{it} + \alpha_3 Enf_{kt} + \alpha_4 WgDif_{lt} + \alpha_5 OpMig_{kt} + \\ \alpha_6 Enf_{kt} * OpMig_{kt} + \alpha_7 X_{ijt} + \mu_{ilkt} \end{aligned} \quad (12)$$

where *P* represents price, *F* represents the average prison time for a coyote convicted of an immigration offense, *Enf* is enforcement measured in agents per mile, *WgDif* represents the cohort-specific wage differential and *OpCoy, OpMig* and *OpPris* correspond to the number of operations targeting coyotes, migrants and likelihood of facing prison time. *X* is a vector of individual characteristics of the migrant-trip including age, education, and migration experience of the migrant, and whether the coyote smuggled an individual or a group. I include the latter term to account for differences between the types of coyotes outlined by Lopez-Castro (1998). These variables are regressed over *t* years, *i* individuals trips, *j* federal jurisdiction areas, *k* border patrol sectors and *l* age and education cohorts.

These are then set equal to each other and solved for price.

$$P_{it} = \frac{1}{\beta_2 - \alpha_2}[(\beta_1 - \alpha_1) + (\beta_3 - \alpha_3)Enf_{kt} + \beta_4 F_{jt} - \alpha_4 WgDif_{lt} + \beta_5 OpCoy_{tk} - \alpha_5 OpMig_{tk} + \beta_6 OpPris_{kt} + \beta_7 (Enf_{tk}) * OpCoy_{kt} - \alpha_6 Enf_{kt} * OpMig_{kt} + \beta_8 F_{jt} * OpPris_{kt} + \alpha_7 X_{ijt} + \left(\varepsilon_{ikjt} - \mu_{ilkt}\right)] \tag{13}$$

For simplicity this can be written as:

$$P_{it} = \gamma_1 + \gamma_2 Enf_{kt} + \gamma_3 F_{jt} + \gamma_4 WgDif_{lt} + \gamma_5 OpCoy_{tk} + \gamma_6 OpMig_{tk} + \gamma_7 OpPris_{kt} + \gamma_8 (Enf_{tk}) * OpCoy_{kt} + \gamma_9 Enf_{kt} * OpMig_{kt} + \gamma_{10} F_{jt} * OpPris_{kt} + \gamma_{11} X_{ijt} + \zeta_{iljkt} \tag{14}$$

Enforcement is represented by three variables: agents per mile, the number of coyote-specific operations, and the number of migrant-specific operations. Agents per mile cause shifts in both supply and demand, because I assume additional agents increase the probability of apprehension and cost of crossings. I assume coyote-specific operations only affect coyotes and create exclusively supply-side shifts, while migrant-specific operations are exclusive to migrants demanding additional services. Operations are interacted with agents per mile, because I assume operations alter the stated goal of agents.

Similarly, I represent *F* with average prison sentence length, as a measure of magnitude, and prison-specific operations as a measure of the increased probability of facing prison time. A similar interaction term to enforcement is used here. In this analysis, I assume that migrants are deported instead of face prison time, as this was the norm before 2005. This identification strategy fails after 2005, which I handle in the estimation issues section.

I perform a regression on equation (14) to capture the net effects of each of these variables on price. ζ_{iljkt} is the net error term. I present the regression results below. First, I present results without any operations. Then I include measures of all three operations and their interaction terms.

IV. Summary Statistics

My dataset combines annual data from the CBP, DHS, the United States Sentencing Commission (USSC) and survey data from the MMP. The CBP and the DHS provide the number of agents watching the border and the hours spent watching the border in each sector, respectively. I divide each of these by linear border sector miles to balance enforcement across sectors. The USSC offers the average length of prison terms for immigration offenses[14] in the five federal court jurisdictions: Texas Southern, Texas Western, Arizona, New Mexico and California South, which include the nine sectors.[15]

The MMP database is a joint research initiative run by Princeton University and the University of Guadalajara. MMP uses ethnosurveys to gather sociological and economic data on households in communities that send migrants to the United States. The project surveys households with cyclical migrants and has surveyed 200 households in communities in Mexico from 1987 to 2013, with pilot studies in 1982, 1983 and 1985. The MMP provides sampling weights to account for the portion of the total population accounted for in the 200 households surveyed. Additionally, Massey and Zenteno (2000) show that MMP data are a representative sample of the overall population migrating from Mexico.

Surveys gather information on up to 25 crossings that an individual remembers. This creates a recall bias issue, so I remove all trips that occur more than ten years before the migrant was surveyed, following Gathmann (2008). Migrants report the year of crossing, where they crossed, whether they used a coyote, that coyote's fee, who they crossed with, amount of times they were deported per crossing, and whether they were successful. Also, they record demographic data on education, sex and birth year of the migrant.

[14] These include undocumented migrations, as well as those assisting undocumented migrants.
[15] Texas South includes the Rio Grande Valley and Texas Western includes Laredo, Del Rio and Marfa. New Mexico includes El Paso, while Arizona includes Yuma and Tucson. California Southern includes El Centro and San Diego.

The summary statistics are reported in Table 2. All monetary values are reported in real 2005 dollars. The migrant-specific information is reported in migrant-trips for which data were reported. The wage differential data are cohort-specific by age and education. Average prison time is presented by sector-year, while the enforcement variables are reported annually.

Most of the migrants in my regression are male and between 20 and 40 years old and 1 and 9 years of education. In order to better represent the entire migrating population, MMP adds sampling weights.

On the crossing level, we see that the majority of migrants took between one and eight trips during their time migrating and coyotes supported 75 percent of these trips. Migrants who used a coyote paid between $100 and $1600 on most trips. In a few cases, they paid nothing.

The summary statistics show that there is a substantial gain in wages for most cohorts moving to the United States. This aligns with historical economic differences between these two countries and reveals a major motivation to migrate.

The Crossed Alone variable measures whether migrants traveled alone, 0, or with a group, 1. On 97.7 percent of trips, migrants did not cross alone. Following Gathmann (2008), I include this variable as a control to account for differences in pricing for smuggling multiple individuals.

In Table 3, I present the summary statistics for my specific regression. I regress from 1995 to 2011, which the years of overlap for the prison, enforcement and wage differential data. Enforcement measures and months of prison are broken down by sector.

Table 4 shows the data in my regression by sector. San Diego has the third cheapest average coyote costs, but the most agents and line watch hours per mile. I have more crossings in Yuma than in San Diego, since my regression does not include the years before 1995. This is not representative of historical flows between Mexico and the United States. Instead it shows recent migratory shift in response to increased enforcement in San Diego.

Additionally, these tables illustrate that the available data are highly uneven across sectors. For example Big Bend has only 3 total person-trips in the regression, but Tucson has 446 total person-crossings. This means that I cannot perform a panel regression when regressing for the average sector coyote fee.

Border linewatch hours, or the total time border patrol agents spend monitoring the border, are available from 1960 to 2010, while total agents are available from 1993 to 2013. *Figure 2* shows that the two measures are highly correlated. This figure also shows that enforcement has grown exponentially since the IRCA over the last thirty years. This and other immigration policies and operations drove the changes in enforcement.

Unfortunately, I cannot access data on linewatch hours at the sector-specific level after 1999. Robertson (2005) provides linewatch hours for 1963 and from 1977-1998. The CBP has not yet responded to a request for these data through the Freedom of Information Act. I calculate a measure for linewatch hours using the correlation between agents and hours during the 1992 and 1998 overlap. I extrapolate the missing years' hours per mile by multiplying agents per mile in each year by the ratio of agents to linewatch hours during the overlap.

Table 5 shows the correlation between these two variables during the 1992 to 1998 overlap. Agents and hours are highly correlated for the whole border and most of the sectors, except for Yuma. In Yuma there is little to no correlation. This changes when you restrict observations to just 1992-1997. Then Yuma increases to 0.5006, implying that the lack of correlation stems from changes in 1998. It is unclear why this disparity would exist, so I choose to exclude these data from my primary analysis.

Table 4 includes data on agents and linewatch hours to 2013. San Diego has the greatest density of agents between 1992 and 2013. Rio Grande Valley and Big Bend both received far less enforcement support, while other sectors had relatively equal enforcement.

Next, I include several graphs of trends and relationships of the key variables. *Figure 3* features the annual percentage of migrants using coyotes by the average real coyote fee. It shows an apparent upward sloping demand curve, but it does not control for wage differentials, border enforcement, punishment or other demand and supply shifters. The graph supports the hypothesis that demand for coyote services increased over time, leading to higher annual coyote use and fees.

Figures 4 and *5* show the growth of coyote fees and coyote use over time, respectively. *Figure 4* shows that linewatch hours and coyote fees increased together after the passage of the IRCA and subsequent border operations. Prior to the IRCA, average the average coyote fees was at a local minimum.

Figure 5 shows that coyote use increased over time. In 1986, it flat-lined at 80 percent before increasing nearly monotonically after the passage of the Clinton-backed border operations, implying that border enforcement caused dominant shifts in demand. *Figure 6* shows that coyote use grew in each sector. Likewise, sectors with a low density of enforcement operations like El Centro reached 100 percent after those with high densities, like San Diego.

Figure 7 illustrates the relationship between coyote use and linewatch hours. As you can see, coyote use increases dramatically with linewatch hours. After that, the initial rise in demand stops, which explains the correlation between fees and enforcement over time.

In order to explore the relationship between enforcement and coyote costs, it is important to look at separate sectors. *Figure 8* shows changes to staffing per mile and average coyote cost over time since 1992 with lines to denote several border initiatives. Staff increases are most notable in the geographically smallest sector, San Diego, with 60 miles of border to monitor. The other sectors had modest increases, with Tucson facing the most in recent year likely the result of the density of operations in Tucson. The other sectors experience minimal increases to staffing. Big Bend, the least popular sector for crossing and longest (510 miles), experiences just a slight increase over time.

Figure 9 shows that the average coyote fee rose to similar levels in each sector, which indicates that fees may have risen independently of specific operations. Instead, additional agents could foster increases to coyote fees. *Figure 10* provides a visual aid for the increase to real coyote fees by sector and underreporting within the dataset. The bar charts show that average fees increased overall from 1995 to 2013, but several sectors do not have data on fees for several years.

Enforcement is highly correlated with the increase in coyote costs, yet the following analysis does not find evidence that enforcement creates shifts in demand or supply. In fact, the analysis fails to reject spurious correlation between pricing and enforcement.

V. Results

a. Estimation Issues

Before presenting my results, I would like to discuss estimation issues and how I circumvented them. First off, I face limited data availability for the wage differential, agents per mile and average prison sentencing time. As a result, I am limited to studying the years 1995 to 2011.

Another issue is the disparity in reported observations based on the number of migrants in each border sector. For example in Big Bend, there only three recorded migrations between 1995 and 2011, while there are 288 in San Diego during the same time period. As a result, the average price in each sector is not reliable and unreported in several years. I perform regressions against individual trips, which does not account for differences in enforcement within the same year. This lack of sub-annual specification contributes to the low R-squared values of my regressions.

I also face one unique estimation issue for the years after 2005 when sectors in Arizona, New Mexico, and Texas ended “catch and release” in favor prosecuting all migrants. First-time offenders typically receive between 15 and 30 days in prison, with length increasing for each past violation. As a robustness check, I exclude observations following 2005 in my regression. My results prove robust and show that this policy change did not affect the analysis.

My analysis does face several standard regression issues. First, the range in coyote fees is not constant over time, which creates heteroskedasticity. I correct for this using robust standard errors.

I do not find multicollinearity (variance inflation factor < 5) for those regressions not containing dummy variables and interaction terms. Regressions that include dummy and interaction terms can be excluded given because interaction terms have overlapping values with agents per mile.

I expected to find endogeneity between increased coyote demand and U.S. border enforcement as the government responds to increasing migration. Yet, Bohn and Pugatch (2013) argue that bureaucratic processes create a two-year delay between CBP budget outlays and changes to border enforcement, which would remove this endogeneity. I test for endogeneity with a sector-specific regression of the change in agents per mile by the change in undocumented migrants lagged zero, one, and two years. The results, presented in Table 6, show that an increase in undocumented migrants corresponds with a contemporaneous fall in agents per mile. In addition to being atheoretical, this negative relationship is likely spurious because the CBP assigns agents at the beginning of each year. Yet lagging migrants by one year is not statistically significant. Instead, lagging migrants two years is statistically significant and positive, in support of Bohn and Pugatch’s (2013) claim about bureaucratic delays. These show that CBP enforcement policy fails to consider contemporary changes to undocumented migration.

Yet, my results fail the Durbin Wu-Hausman test for endogeneity (F-stat = 5.18). To correct for this, I use an instrumental variable for the United States border enforcement policies. Ideally, this would be the annual CBP budget, but this information is not available by sector. Additionally, the government increases CBP funds in response to increased migration, so their budget is probably. Gathmann (2008) uses the budget for the DEA, with the explanation that coyotes are not involved in drug trafficking. Yet these data are also not available on a sector-specific level.

I instrument for the flow of migration between the United States and Mexico using the annual changes to a differential of sector-weighted averages of the unemployment rates in Mexico and the United States. This follows Bohn and Pugatch's (2013) finding that crossing location partially determines where the migrant chooses to go. Essentially, I construct weighted averages, or indices, of the unemployment rates for the destination city and origin Mexican state for each migrant trip. Then I subtract the Mexican average from the United States and calculate the annual change in this differential. Unemployment rates are provided by the United States Bureau of Labor Services (BLS) and the Encuesta Nacional de Ocupación y Empleo (ENOE). BLS data are provided by city from 1995 to 2011, while the ENOE data are state-specific from 1995 to 2004 and by major city from 2005 to 2011. Table 4 reveals that the U.S. unemployment rates exceed that of Mexico for each sector. I do not expect this relationship and it is likely due to the poor specification of Mexican unemployment, which neglects agricultural unemployment.

This instrumental variable follows the identification strategy that more migrants will move north when there are more opportunities for employment in the United States. In the data, movement occurs when the difference between U.S. and Mexican unemployment falls. As more migrants head north, the CBP will respond by increasing the number of agents along the border. Therefore, I expect a negative relationship between this instrumental variable and agents per mile. While this instrumental variable is exogenous, the increase in migration flows from unemployment may not pass the exclusion restriction. If unemployment rates increase traffic along the border, this could also increase the demand for coyote services.

Table 7 shows my first stage results for the first two of my instrumental variable regressions and several tests of instrument quality. These results reveal that the annual change in the differential has a statistically insignificant relationship with agents per mile. Several tests reject the legitimacy of these instruments. The Angrist-Pischke F-stat confirms that the instrument is insignificant, and the Cragg-Donald and Kleibergen-Paap Wald tests show that it is a weak instrument. Likewise, the Kleibergen-Paap Chi-squared statistic indicates that the regression is underidentified. Additionally, the Anderson-Rubin Wald and Stock-Wright tests show that the instrument is not orthogonal at the 10 percent level. Given these results, I choose to ignore the instrumented results in Table 8.

b. Results

I present the results from my guiding equation (14) for individual crossing trips regressed by sector, cohort and trip-specific data in Table 8. The odd-numbered regressions are ordinary least squares and the even-numbered regressions use an instrumental variable. None of the instrumented regressions show statistical significance on agents per mile at the five percent level. I exclude the instrumental variable from subsequent specifications. Regressions (1) and (2) do not include operations, (3) and (4) include a binary dummy variable for U.S. border operations, and (5) and (6) show these operation dummies interacted with their relevant explanatory variable. Prison-specific operations are omitted for collinearity. Regressions (7) – (10) show the same regressions, but the dummy variables are equal to the total number of operations by sector.

In Table 8, the agents per mile are statistically insignificant as a determinant of coyote fees in nearly every regression. Agents per mile are statistically significant and positive in regression (3) while the migrant operation dummy variable is statistically significant and negative. When interacted with agents per mile in regression (5), having a migrant-specific operation decreases the effect of agents per mile on the coyote fee at a statistically significant level. These unusual results are likely because migrant operations often involved increases to the number of agents, so the two parameters double count the effect of border enforcement.

In regression (7), each additional coyote operation increased coyote fees at the five percent significance level. I expect this is because there were fewer coyote operations in most sectors and they rarely involved increases to the number of agents. Therefore, these are not coupled with border enforcement. This implies that coyote operations were effective at shifting the supply of coyote services within the market. These operations may also have increased demand among migrants, but further qualitative information is needed to explore that claim.

Instead, average prison time and wage differential are statistically significant determinants of coyote costs across all specifications. In the OLS regressions, one more month of average prison time boosts coyote costs by $25 on average, while a one-dollar increase to the wage differential adds $0.50. Additionally, the existence of prison operations boost the average coyote cost, though the interaction term with prison time is insignificant. This reveals that coyotes increased their fees to account for their increased opportunity cost.

Education exhibits significant negative relationships, following the theoretical notion of a crossing-specific skill parameter, θ. Migration experience is largely insignificant, which implies that migrants do not accumulate crossing-specific human capital through the years. If education determines θ, then Gathmann's (2008) assumption that crossing-specific skill determines wages in the United States may not be unfounded.

Table 9 excludes migrant-specific operations under the assumption that agents are always aiming to catch migrants. The agents per mile do not gain statistical significance with this new specification, but coyote operations do keep significance. In regression (3), the equivalent of regression (5) in Table 8, coyote operations increase coyote fees by $257.7 at a statistically significant level. Neither the binary dummy variable nor interaction terms for coyote operations are statistically significant in this regression. It appears the effect on the market compounds with each additional coyote operation. Otherwise, the results in Table 9 are very similar to those in Table 8.

These main results show that excluding coyote operations, U.S. border operations and agents per mile are not statistically significant determinants of coyote fees. The significance of coyote operations requires further qualitative research to inform this quantitative analysis. The null result for the other enforcement parameters implies that the U.S. enforcement policies have a null effect on the human smuggling market and undocumented migration flows. Instead, the U.S. threat of increasing the penalty for an immigration offense leads coyotes to increase their fees. It is unclear how or whether this changes the overall migration flow, as increased coyote fees may just price migrants out instead of discouraging migration.

c. Robustness Checks

I test the robustness of the above findings through several new specifications. First, I exclude cases following 2005 to see whether the shift in prosecution policy after *Operation Streamline* affects the significance of the prison term. Next, I use the sector averages of coyote fees in my guiding equation excluding the vector for individual trip characteristics. After that, I use the hours per mile extrapolated from the data for agents as a second specification for enforcement. Then, I lag agents per mile one and two years to account for budgetary delays to U.S. border policy. Following that, I replace agents with a calculated measure of the annual probability of apprehension for each sector, to check the validity of the overarching theory. Last, I use fixed, random and between effects with the imperfect panel of sector-specific coyote fees.

Tables 10 and 11 exclude the all years after 2005 from my regression, removing the effects of the operations that led to the direct prosecution of any apprehended migrant outside of California. These regressions follow the same ordering as Tables 10 and 11 and show that average prison time is robust as a determinant of coyote prices. In this regression, the prison, wage differential, and education terms stay statistically significant in most regressions. Table 11 indicates statistical significance for agents per mile in OLS regressions (2) and (4), which I interpret as enforcement having some effect on coyote fees prior to 2005, which is consistent with Gathmann (2008). Regression (1) is the closest to Gathmann's (2008) analysis, but my results do not show statistical significance. These results further weaken the relationship found in Gathmann (2008) unless further parameters are added to the analysis.

Tables 12 and 13 regress sector averages of coyote fees against sector-wide average variables, excluding the trip-specific variables.[16] Since the number of trips varies by year and sector from one to more than 100, these averages are less than completely reliable. Additionally, observations fall to 112

[16] I also have results for these two tables excluding years after 2005, but these are not included to save space. These results maintain the findings reported in Tables 10 and 11 and are available upon request.

due to low reporting in sectors like Big Bend. Table 13 excludes migrant operations. The insignificance of agents per mile proves robust to this specification, but the significance average prison time may not. Average prison time is significant in regressions (2), (3) and (5) of Table 12 and (4) of Table 13. Rather then question robustness, I argue that the lack of observations severely limits the power of the significance tests and I can ignore the lack of complete consistency.

Tables 14 and 15 report the results using an estimate of the linewatch hours per mile, which confirm the insignificance of enforcement. In these specifications, hours per mile offers very similar output to the agents per mile. Additionally, the average prison time, wage differential, education and experience terms are significant across nearly every specification.

Following this specification, I lag the agents per mile one and two years to see whether the two-year delay between CBP planning and actual staffing changes (Bohn and Pugatch 2013) alters statistical significance. Tables 16 and 17 show agents lagged one and two periods for individual coyote fees.

These results show that agents per mile have statistically significant relationship with coyotes, confirming Bohn and Pugatch (2013). When agents are lagged one or two years, the coyote fee increased \$7-\$8 and \$10-\$12, respectively. The significance of lagging implies that coyotes and migrants decide to supply and demand services based on recent years' instead of contemporaneous enforcement. Policymakers should expect a delay between the change in border security and analyzable output. These regressions do prove the robustness that the average prison term is significant, while borders operations remain negligible.

Migrants likely use information from past years to determine the likelihood of apprehension. To account for that, I calculate the probability of apprehension using the MMP dataset. I append the mig143 and migother143 dataset, to maximize survey reports. I calculated the annual sector probability of apprehension using migrant-reported deportations for each crossing.

Table 18 shows that the probability of apprehension is a statistically and economically significant determinant of coyote fees. With 100 percent probability of apprehension coyote fees increase by $5,500 for each individual trip. Migrants perceive the probability of apprehension and will demand coyote services accordingly. This result shows that current enforcement does not appear to affect migrants' perceptions.

Finally, I report the results of sector fixed effects, annual random effects and annual-sector between effects regressions in Tables 19-21, respectively. These panels are strongly balanced, but not complete, so the effects are not perfect. My results prove robust to random and between effects, however; fixed effects add significance to agents per mile, the coyote operation dummy variable and interaction term. In regressions (1)-(4), agents per mile significantly increase average coyote prices, but when an operation targeting a coyote is in effect, this effect drops about $800.

This shows that my initial regression does not account for sector-specific qualities that alter the costs and supply of smuggling for coyotes. For example, Yuma is largely filled with the Sonora Desert, meaning that there are fewer crossing areas. As a result, additional agents can create choke points more easily and boost the price of coyote fees.

Likewise, average prison time and the wage differential lose their significance in a few regressions. I expect that average prison time lost significance because of this is a fixed effects model for nine sectors, but it is representative of five regions that include all nine sectors. Therefore, several sectors have the same average prison time and would lose some significance in a fixed effects model.

Additionally, it appears that certain sectors lead migrants to better wage differentials. If crossing location determines location choice as Bohn and Pugatch (2013) show, then migrants crossing in the same sector are likely experience similar wage differentials. In example, those crossing in San Diego are more likely to find greater wage differentials than those in Big Bend. Therefore, the fixed effects model might be capturing this variation in wage differentials. Yet, the panel is not balanced, so I do not discount my results.

Table 22 is a robustness check for neighboring enforcement measured in the average of agents per mile in the two neighboring sectors. This variable measures the average of agents per mile in San Diego and Yuma, for the middle sector El Centro. For sectors that border an ocean, San Diego and Rio Grande, only the one neighboring sector's agents per mile are included.

This specification shows the somewhat unexpected result that neighboring enforcement is both significant and highly positive in determining coyote fees in a sector. Essentially, it appears that migrants consider enforcement in neighboring sectors when choosing a crossing location along the border. The parameter estimates show that as the average across these sectors increases by one agent, the coyote price increases by about $50. Adding this variable does not notably alter the significance of the other parameters, but it implies that U.S. enforcement may act as a determinant of migrant location choice.

The robustness of my results furthers the finding that enforcement does not affect coyote fees, weakening the minimal relationship in Gathmann (2008). Fixed effects alter this result substantially, but with an imperfect panel, so I maintain that agents do not significantly alter coyote fees.

VI. Conclusion

This study set out to test whether U.S. enforcement policies create demand-dominant or supply-dominant shifts in the coyote market. My findings show a near null relationship between enforcement and coyote prices, differing from a literature that finds a weak relationship. This lack of significance is notable because of the correlation and straightforward theoretical relationship between enforcement and prices. Additionally, my results prove robust to all specifications, except for a sector fixed effects model. Since this panel is not perfectly balanced, this is likely the result of a poor specification more than an improvement on the model. Instead, my results show that enforcement may affect where a migrant chooses to cross, in support of Bohn and Pugatch's (2013) location-based argument. Enforcement influences where migrants crossing, but do not appear to affect the choice to hire a coyote.

This paper does not disprove the market theory of coyote services. Instead, it shows that current U.S. policy may not affect market dynamics for coyote services.

My analysis also confirmed that as the crossing-skill parameter, θ, increases coyote prices fall. Oddly, years of education instead of past migration experience measured in trips appears to determine this parameter. This relationship implies that the migrants in this study did not accumulate crossing-specific human capital during past crossings. The connection between education and this parameter supports Gathmann's (2008) claim that crossing skill is a determinant of a migrant's wage differential, which I removed from my simplified model.

The relationship between average prison time and coyote fees directly supports the market hypothesis. The fact that this relationship is upheld before 2005 confirms that prison shifts the supply of coyote services inward. After 2005 imprisoning migrants may have led more migrants to demand coyote services, but parsing this out is beyond the scope of this paper. Future studies should confirm this finding once the MMP gathers more responses on trips after 2005. These studies will prove critical in evaluating the *Streamline* operations.

Additionally, other studies should explore economies of scale and returns to scale for the supply of coyote services, given the statistical significance on whether or not a coyote smuggle a single migrant or many. This would require a significant amount of coyote-specific data, but the significance of the Crossed Alone variable indicate that it is a relevant market dynamic. Also, further studies should consider the transactions between migrants and coyotes. Economic models like the one in this paper could benefit from the findings of ethnographic studies in these areas.

I also encourage future studies on this topic with access to more data to explore whether the overall effect of enforcement changed after the anti-immigrant policies of the early 1990s. This is beyond the access to data in this study, but it is a critical part of future studies.

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Tables

Table 1: Border Operations Since the 1980s

Program	Start	End	Sector/State	Description	Category
Operation Disruption 1	1985	1985	California, Arizona	Apprehended 7,200 immigrants and 232 smugglers in 30-day "crack down"	Migrant & Coyote
Immigration Reform & Control Act (IRCA)	1986	2013	Whole Border	Established penalties for firms that hire undocumented migrants in U.S.	Migrant
Operation Hold The Line (HTL)	1993	2005	El Paso	Place agents along the border to "catch and release" undocumented migrants	Migrant
Operation Gatekeeper	1994	2005	San Diego	Place agents along the border to "catch and release" undocumented migrants	Migrant
Automated Biometric Identification	1995	2013	San Diego	A fingerprint and photography-based tracking system to catch criminal migrants and repeat offenders	Prison
Operation Disruption 2	1995	2013	San Diego	Aimed to capture coyotes along the border	Coyote
Operation Safeguard	1995	2005	Tucson	Place agents along the border to "catch and release" undocumented migrants	Migrant
Automated Biometric Identification	1996	2013	Whole Border	IDENT expanded everywhere	Prison
January 1996 Spring Plan	1996	1997	San Diego	Added 200 agents to address high numbers of migrants	Migrant & Coyote
Operation Rio Grande	1997	2013	Texas	Deployed more agents and high-tech equipment to track migrants	Migrant
Border Safety Initiative	1998	2013	Whole Border	Tell migrants of the dangers of illegal migration by sending PSAs around Mexican border communities, established search and rescue teams	Migrant
Department of Homeland Security	2003	2013	Whole Border	This new department followed 9/11 and treated border security as a matter of homeland security	Migrant & Coyotes
Operation Desert Safeguard	2003	2013	Arizona	Reduce deaths by increasing emergency response staff	Migrant

				along the border	
Operation ICE Storm	2003	2008	Arizona	Immigration Control & Enforcement joined to counter human smuggling	Coyote
Arizona Border Control Initiative (ABC)	2004	2008	Arizona	Added agents and tripwires along border	Coyote
Operation Against Smugglers (and Traffickers) Initiative on Safety and Security (OASISS)	2005	2013	Central, El Paso, Eagle Pass Texas	Mexico and U.S. police officers and agents work together to stop smugglers by sharing information for prosecution	Coyote
Operation Streamline	2005	2013	Del Rio, Texas	Criminal prosecution for unauthorized crossings, harsher sentences for repeat offenders. Area of effect: 210 miles around Del Rio	Prison
Operation Streamline	2007	2013	Rio Grande, Texas	Spread to Rio Grande Valley. Area of effect: Not reported	Prison
Operation Streamline	2008	2013	Laredo, Texas	Spread to Laredo. Area of effect: 171 miles around	Prison
Operation No Pass	2005	2013	El Paso, Texas	El Paso's equivalent of Streamline, area of effect not given	Prison
Smuggling interdiction Group (SIG)	2005	2013	San Diego	United several special-purpose enforcement units to catch smugglers	Coyote
Secure Border Initiative	2005	2013	Whole Border	A bill passed to improve the fencing along the border. There are 600 miles to date.	Migrant
Operation Rio Grande Texas (RGT)	2006	2008	Texas	Pure assistance basis	Migrant & Coyote
Operation Jump Start	2006	2008	Whole Border	National Guard observed and reported	Coyote
Illegal Immigration Prevention and Apprehension Co-op (IIMPACT)	2007	2013	Arizona	Attempted to dismantle criminal organizations that support undocumented migration along the border	Coyote
Operation Lifeguard	2007	2010	El Paso, Texas	Aimed at stopping smugglers that work along canals, part of OASISS	Coyote
Operation Border Star	2007	2010	Texas	Border surge operations of	Migrant

				local, state and federal agents	
Texas Hold 'Em	2008	2011	Texas	Took away the Commercial Drivers' License of Whole Border tractor trailer drivers that smuggle migrants	Coyote
Operation Arizona Denial	2008	2013	Arizona	Equivalent of Operation Streamline in Arizona. Targets those with previous criminal records and gives them jail time. Area of effect: 120 miles around Yuma and 15 miles around Tucson	Migrant
Operation En Fuego	2008	2008	Arizona	7-month operation that targeted a smuggling ring	Coyote
Operation River Walker	2008	2008	Tucson	Caught migrants and coyotes sneaking along the San Pedro River	Migrant & Coyote
Alien Transfer Exit Program	2008	2013	San Diego, Yuma, El Centro	This program deported male migrants without families to another part of the border away from their coyote to disrupt the market	Migrant
Alien Transfer Exit Program	2009	2013	Tucson and El Paso	Expansion to Tucson and El Paso	Migrant
Operation In Plain Sight	2010	2010	Tucson and Phoenix, Arizona	ICE sent 800 agents to Arizona, caught 54 suspects	Coyote
Mexico interior Repatriation Program	2010	2013	Yuma	Deport unauthorized migrants back to their home communities	Migrant
Alliance to Combat Transnational Threats	2010	2013	New Mexico/West Texas	This increased collaboration between border enforcement groups on either side of the border	Migrant
Arizona Border Surveillance Technology Plan	2012	2013	Arizona	This was an attempt to improve border enforcement by creating a video surveillance system with a live feed in regional offices.	Migrant & Coyote

Source: U.S. Customs & Border Protection, U.S. Department of Justice, Congressional Research Service, National Immigration Forum, Migration Policy Institute

Table 2: Summary Statistics					
Variable	Obs	Mean	Std. Dev.	Min	Max
Sex	192532	0.0465	0.211	0	1
Age	13911	29.600	10.017	1	83
Education	192257	5.387	3.996	0	28
U.S. Trips	192332	3.537	4.747	1	44
Crossed Alone	193094	0.977	0.149	0	1
Coyote Use	12973	0.752	0.432	0	1
# Deportations	12445	0.541	1.565	0	60
Successful?	14095	0.99	0.098	0	1
Real Coyote Fee	6538	828.960	754.131	0	17182.130
Wage Differential	2658	1574.402	802.306	708.106	5890.727
Prison	890	21.134	4.818	5	33.500
Total Agents	21	9979.714	5004.65	3444	18447
Linewatch Hours	70	181104.5	61774.92	75691.5	367606.7

Note: This presents summary statistics for the Mexican Migration Project. Observations are person-trips for demographic and crossing variables. Other variables are by sector-rear. The wage differential is cohort specific. All monetary values are measured in 2005 real U.S. Dollars. The coyote use variable reports what percent hire a coyote. They Agents variable is available from 1992 to 2013. Linewatch hours are available from 1960. Prison data are available from 1995 to 2013.

Table 3: Regression Specific Summary Statistics					
Variable	Obs	Mean	Std. Dev.	Min	Max
Coyote Fee	1054	1486.180	891.882	0	17182.130
Agents Per Mile	144	8.531	10.349	0.212	44.483
Hours Per Mile	253	165.723	351.831	0.004	2906.461
Prison Time	119	21.558	4.820	8.700	33.500
Wage Differential	1054	1393.195	407.752	912.579	4469.318
Age	1054	32.155	9.080	15	64
Sex	1054	0.028	0.164	0	1
Education (yrs)	1054	6.794	3.251	0	17
Experience	1054	1.595	2.469	0	20
Crossed Alone?	1054	0.854	0.353	0	1
Used Coyote	1052	1	0	1	1
Average Deportations	992	0.498	1.128	0	15
Average U.S. Trips	1054	3.057	2.907	1	24
Origin Community Unemployment Rate Index	1054	2.940	0.894	1.136	6.523
Destination Unemployment Rate Index	1049	5.609	1.352	3.060	11.700

Note: This shows regression summary statistics. Observations are in person-trips for demographic and crossing variables. Other variables are by sector-year. The wage differential is cohort specific. All monetary values are measured in 2005 real U.S. Dollars. The coyote use variable reports what percent hire a coyote. They Agents variable is available from 1992 to 2013. Linewatch hours are available from 1960. Prison data are available from 1995 to 2013.

Table 4: Sector-specific Summary Statistics

Variable	Big Bend					Del Rio					El Centro				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Coyote Fee	3	1910.024	1973.816	608.347	4181.102	62	1670.68	832.6281	117.578	4574.565	47	1602.583	675.639	109.613	3353.829
Agents Per Mile	3	0.263	0.002	0.261	0.265	14	4.057	1.713	1.900	7.857	13	7.772	3.676	2.662	15.211
Hours Per Mile	3	9.334	1.935	7.937	11.543	14	266.214	112.026	117.385	515.340	13	520.300	228.604	159.297	974.116
Prison Time	3	19.567	1.405	18.1	20.9	14	24.879	6.0507	14.6	33.5	13	20.469	2.878	15.7	24.9
Wage Differential	3	1013.587	79.217	922.180	1062.247	62	1448.757	338.816	922.18	2967.183	47	1305.46	240.706	922.1797	1843.203
Age	3	26.667	4.509	22	31	62	34.419	9.123	16	55	47	31.66	9.246	19	59
Sex	3	0	0	0	0	62	0	0	0	0	47	0.0213	0.146	0	1
Education (yrs)	3	5	1.732	3	6	62	7.065	2.56	0	13	47	5.851	2.797	0	12
Experience	3	0.333	0.577	0	1	62	1.048	1.372	0	7	47	1.447	2.561	0	13
Crossed Alone?	3	0.667	0.577	0	1	62	0.935	0.248	0	1	47	0.872	0.337	0	1
Used Coyote	3	1	0	1	1	62	1	0	1	1	47	1	0	1	1
Average Deportations	3	0	0	0	0	60	0.417	0.869	0	4	45	0.756	1.384	0	6
Average U.S. Trips	3	1.667	1.155	1	3	62	2.565	1.564	1	8	47	2.66	2.681	1	14
Origin Unemployment Index	3	3.853	0.586	3.359	4.5	62	2.869	0.944	1.887	6.523	47	2.564	1.11	1.484	5.563
Destination Unemployment Index	2	4.199	0.282	4	4.398	62	5.891	2.098	3.8	11.659	47	6.285	1.339	4.286	8.515

Variable	El Paso					Laredo					Rio Grande				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Coyote Fee	80	1273.814	765.133	57.274	3455.084	44	1304.12	585.935	119.46	2476.047	50	1641.72	852.597	121.669	5480.653
Agents Per Mile	14	5.240	2.377	2.784	10.119	14	5.015	1.943	2.427	9.567	16	4.461	1.798	1.481	7.628
Hours Per Mile	14	373.473	166.234	213.451	716.578	14	387.843	147.463	174.028	735.891	16	256.031	103.219	83.659	437.419
Prison Time	14	14.82857	3.24	8.7	21.4	14	22.421	4.996	13.7	30.8	16	22	4.793	13.7	30.8
Wage Differential	80	1349.351	305.313	912.579	2147.235	44	1413.364	223.151	1037.156	1952.910	50	1357.239	301.204	912.5793	2106.157
Age	80	31.3375	8.382	17	58	44	38.045	9.435	18	63	50	30.34	7.311	16	49
Sex	80	0.075	0.265	0	1	44	0.023	0.151	0	1	50	0	0	0	0

Education (yrs)	80	6.3875	3.192	1	13	44	5.591	3.301	0	12	50	7.4	2.748	0	12
Experience	80	1.1375	1.589	0	7	44	2.727	4.014	0	15	50	1.48	1.887	0	7
Crossed Alone?	80	0.7625	0.428	0	1	44	0.864	0.347	0	1	50	0.84	0.37	0	1
Used Coyote	80	1	0	1	1	44	1	0	1	1	50	1	0	1	1
Average Deportations	71	0.859155	2.065	0	15	42	0.452	0.916	0	5	48	0.3125	0.719	0	3
Average U.S. Trips	80	2.1375	1.636	1	8	44	4.091	4.203	1	16	50	2.86	2.232	1	9
Origin Unemployment Index	80	2.998057	1.244	1.802	6.253	44	2.89	0.923	1.85	4.335	50	3.287	1.276	1.972	6.116
Destination Unemployment Index	79	4.781649	1.191	3.762	9.662	42	5.2	1.196	3.7	7.753	49	4.849	1.75	3.06	11.7

Variable	San Diego					Tucson					Yuma				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Coyote Fee	288	1395.403	1155.764	0	17182.13	446	1520.327	762.243	47.031	8943.543	34	1779.001	618.135	632.778	3691.204
Agents Per Mile	17	34.303	6.086	23.883	44.483	17	7.816	4.065	1.553	16.179	10	2.856	1.404	1.389	6.143
Hours Per Mile	17	2276.940	400.687	1698.437	2906.461	17	492.472	251.325	94.512	1010.498	10	236.230	118.771	121.928	512.234
Prison Time	17	20.541	2.631	15.7	24.9	18	23.372	3.321	17	27.8	34	24.426	1.85	21.2	26.7
Wage Differential	288	1329.47	351.783	912.579	4250.049	446	1449.173	497.976	912.579	4469.318	34	1382.071	232.345	1060.808	2147.235
Age	288	31.889	9.327	15	60	446	32.061	9.041	16	64	34	29.647	7.843	18	53
Sex	288	0.042	0.2	0	1	446	0.018	0.133	0	1	34	0.029	0.171	0	1
Education (yrs)	288	6.646	3.137	0	17	446	7.123	3.509	0	17	34	6.324	2.495	0	13
Experience	288	1.42	2.415	0	14	446	1.809	2.614	0	20	34	1.353	1.649	0	6
Crossed Alone?	288	0.802	0.399	0	1	446	0.895	0.307	0	1	34	0.824	0.387	0	1
Used Coyote	286	1	0	1	1	446	1	0	1	1	34	1	0	1	1
Average Deportations	271	0.432	0.952	0	7	420	0.481	0.99	0	8	32	0.656	1.825	0	9
Average U.S. Trips	288	2.767	2.751	1	16	446	3.487	3.242	1	24	34	2.559	1.673	1	7
Origin Unemployment Index	288	3.035	0.796	1.846	4.774	446	2.913	0.777	1.998	5.14	34	2.475	0.657	1.136	3.966
Destination Unemployment Index	288	5.962	1.088	3.868	10	446	5.454	1.154	4.054	10.273	34	6.796	1.761	3.75	9.883

Note: This table shows summary statistics by border sector. Observations are in terms of person-trips for demographic and crossing variables. Other variables are measures by sectors that occur each crossing year. The family crossing variables measure how many family members had taken a trip before the crossing in question. The wage differential is cohort specific. All monetary values are measured in 2005 real U.S. Dollars. The coyote use variable reports what percent hire a coyote. They Agents variable is available from 1992 to 2013. Prison data are available from 1995 to 2013.

Table 5: Correlations of Agents and Hours Per Mile		
Sector	1992-1998	1992-1997
Whole Border	0.9897	0.992
Big Bend	0.8819	0.6804
Del Rio	0.9629	0.9537
El Centro	0.9877	0.8581
El Paso	0.8082	0.7042
Laredo	0.9022	0.7343
Rio Grande	0.9925	0.9764
San Diego	0.9515	0.9467
Tucson	0.9455	0.9293
Yuma	0.0022	0.5006

Note: Correlation of Agents per Mile and Hours per mile in each border sector. The correlations are shown over the full 1992-1999 and lower 1992-1998 overlap. Yuma is uncharacteristically low. The increase points to 1999 as an anomaly year.

Table 6: Change in Agents by Change in Migration			
	(1)	(2)	(3)
VARIABLES	Simultaneous	One-year lag	Two-year lag
Change in undocumented migrants	-0.0560***	-0.00606	0.0204**
	(0.0162)	(0.00834)	(0.00821)
Constant	0.451***	0.518***	0.516***
	(0.0990)	(0.100)	(0.0986)
Observations	179	179	179
R-squared	0.063	0.003	0.034

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Change in agents per mile regressed by the change in amount of migrants crossing the U.S.-Mexico border by sector from 1992 to 2013. The first regression uses a simultaneous change in undocumented migrants. The second lags this variable one year. Agents per mile are reported by Customs & Border Protection, while the number of undocumented migrants comes is reported by the Mexican Migration Project.

Table 7: First-stage results of instrumental variables		
	(1)	(2)
VARIABLES	Agents per mile	Agents per mile
Average Prison Term	-0.728***	-0.864***
	(0.140)	(0.145)
Wage Differential	-0.00354**	-0.00456***
	(0.00166)	(0.00164)
Age	0.117	0.124*
	(0.0728)	(0.0686)
Sex	1.115	2.926
	(3.269)	(2.856)
Education (yrs)	0.257	0.209
	(0.236)	(0.227)
Migration Experience	-0.691***	-0.647***
	(0.188)	(0.182)
Crossed Alone?	-2.720	-1.882
	(2.214)	(2.190)
Migrant Operation Dummy		10.38***
		(0.999)
Coyote Operation Dummy		14.16***
		(1.748)
U.S.-Mexico Unemployment Differential	4.929	20.15
	(19.72)	(17.54)
Constant	26.77***	0.649
	(5.877)	(7.083)
Angrist-Pischke F-stat	0.06	1.32
Cragg-Donald Wald F-stat	0.32	5.71**
Kleibergen-Paap Wald rk F-stat	0.06	1.32
Anderson-Rubin Wald F-stat	2.24*	2.96*
Kleibergen-Paap Wald chi-quared	0.06	1.22
Anderson-Rubin Wald Chi-squared	2.27*	2.96*
Stock-Wright LM S statistic	1.76*	2.99*
Observations	926	926
R-squared	0.103	0.205

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This table shows the first stage regression results for the first two IV regressions in Table 8. The excluded instruments are the Mexican Unemployment and U.S. Unemployment indices. I include the Angrist-Pischke F-test for excluded instruments, the Cragg-Donald Wald and Kleibergen-Paap Wald rk F statistics for weak identification, the Kleibergen-Paap Wald chi-squared value tests for underidentification, and the Anderson-Rubin Wald F statistic and Chi-squared statistic, and Stock-Right LM S statistic to test for orthogonality.

Table 8: Individual Trip Coyote Fees

VARIABLES	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV	(9) OLS	(10) IV
Agents Per Mile	5.731*	235.4	6.820**	67.80	238.4	23,641	-3.324	44.20*	-14.42	-4,610
	(3.064)	(1,025)	(3.132)	(87.03)	(146.8)	(44,350)	(5.193)	(25.44)	(15.39)	(3,936)
Prison Time	28.77***	191.7	28.48***	78.26	-5.798	2,529	23.09***	27.77***	-24.36	-487.6
	(8.035)	(749.2)	(7.883)	(75.85)	(44.27)	(4,677)	(8.241)	(9.536)	(40.74)	(387.8)
Wage Differential	0.563***	1.466	0.536***	0.919**	0.506***	0.232	0.514***	0.751***	0.504***	1.300*
	(0.165)	(3.595)	(0.162)	(0.432)	(0.160)	(0.705)	(0.168)	(0.136)	(0.160)	(0.719)
Age	-4.299	-33.49	-3.180	-13.79	-2.407	4.351	-3.819	-8.820*	-3.558	-14.61
	(5.244)	(119.7)	(5.116)	(11.97)	(5.031)	(24.78)	(5.220)	(4.722)	(5.075)	(18.20)
Sex	-112.2	-494.9	-104.9	-417.9	-95.68	-1,236	-122.6	-215.2	-117.0	-75.43
	(173.6)	(1,400)	(176.2)	(366.6)	(177.1)	(1,313)	(172.1)	(135.2)	(167.0)	(728.8)
Education (yrs)	-47.82***	-98.74	-43.05***	-50.85*	-40.18***	6.012	-46.15***	-41.90***	-44.40***	-28.50
	(13.96)	(268.5)	(13.12)	(25.97)	(12.35)	(74.83)	(13.30)	(13.15)	(13.57)	(33.63)
Experience	-16.22	146.3	-13.46	28.67	-11.00	-14.45	-16.28	-8.099	-17.20*	-47.92
	(10.34)	(707.7)	(10.34)	(59.72)	(10.35)	(64.42)	(10.26)	(10.67)	(9.802)	(48.48)
Crossed Alone?	189.4**	876.2	189.5**	362.3*	201.0**	250.6	181.1**	253.7***	176.1**	372.4
	(83.21)	(2,769)	(82.20)	(216.7)	(81.59)	(184.4)	(81.61)	(86.51)	(80.54)	(238.9)
Migrant Operation			-332.8***	-821.5	127.8	4,808				
Dummy			(88.73)	(912.5)	(131.6)	(9,173)				
Coyote Operation			219.4*	-701.5	-186.3	92,332				
Dummy			(117.5)	(1,160)	(1,003)	(172,397)				
Migrant Operation					-82.86***	-770.4				
Dummy					(22.80)	(1,392)				
Interaction										
Coyote Operation					-149.4	-22,884				
Dummy					(146.1)	(43,015)				
Interaction										
Prison Operations					33.07	-2,529			47.58	423.4

Interaction					(44.80)	(4,725)			(40.98)	(329.0)
Prison Operation							210.0*	21.58	-626.1	-4,512
							(113.1)	(140.8)	(786.2)	(3,469)
Migrant							-100.5	-176.0**	-137.1	-17,616
Operations							(71.59)	(70.40)	(96.39)	(14,562)
Coyote Operations							240.7**	-954.2	77.23	-2,154
							(112.9)	(594.5)	(155.7)	(2,150)
Migrant Operation									-0.328	4,448
Interaction									(15.71)	(3,715)
Coyote Operation									13.69	193.2
Interaction									(9.631)	(256.6)
Constant	297.0*	-7,148	340.1*	-604.4	303.9	-95,957	380.0*	61.81	1,315*	24,670
	(179.3)	(32,711)	(205.0)	(1,218)	(1,002)	(179,510)	(213.5)	(267.5)	(797.5)	(19,745)
Observations	1,054	926	1,054	926	1,054	926	1,054	926	1,054	926
R-squared	0.121		0.136		0.149		0.136	0.019	0.141	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of individual crossing coyote fees against sector Agents, Prison, wage differentials and enforcement operations and crossing demographics from 1995 to 2011. The instrumental variable is an index of U.S. and Mexican unemployment. (3)-(6) use a dummy variable for operations and (7)-(10) sum total operations. R-squared's are omitted when negative when IV's give negative model sum of squares.

Table 9: Individual Trip Coyote Fees Excluding Migrant Operations				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	OLS	OLS	OLS
Agents per mile	5.156	236.8	-3.754	-12.54
	(3.133)	(147.2)	(5.172)	(9.237)
Average Prison Term	27.38***	11.56	25.90***	-14.02
	(8.097)	(43.48)	(7.885)	(40.58)
Wage Differential	0.556***	0.550***	0.507***	0.496***
	(0.166)	(0.166)	(0.165)	(0.155)
Age	-4.182	-3.909	-3.910	-3.702
	(5.255)	(5.261)	(5.214)	(5.064)
Sex	-102.8	-111.5	-128.6	-125.9
	(174.9)	(175.7)	(171.1)	(166.5)
Education (yrs)	-47.75***	-46.46***	-46.53***	-45.19***
	(13.99)	(14.02)	(13.49)	(13.62)
Migration Experience	-15.94	-14.93	-16.65	-17.36*
	(10.44)	(10.51)	(10.25)	(9.841)
Crossed Alone?	191.8**	189.7**	186.4**	184.2**
	(83.25)	(83.59)	(81.50)	(80.85)
Coyote Operation Dummy	169.1	312.5		
	(107.0)	(994.1)		
Coyote Operation Dummy Interaction		-231.7		
		(147.5)		
Prison Operations			168.5	-567.9
			(106.7)	(788.5)
Coyote Operations			257.5**	138.4
			(111.3)	(156.8)
Prison Operation Interaction		16.33		40.91
		(43.98)		(41.01)
Coyote Operations Interaction				10.37
				(9.388)
Constant	176.4	15.13	270.1	1,037
	(191.2)	(975.9)	(195.1)	(785.4)
Observations	1,054	1,054	1,054	1,054
R-squared	0.122	0.124	0.134	0.137

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of individual crossing coyote fees against sector agents, prison terms, wage differentials, enforcement operations that affect coyotes, and migration-specific demographics and details from 1995 to 2011. All regressions are Ordinary Least Squares. Regressions (1) and (2) feature a dummy variable for coyotes. (3) and (4) show summations of these operations. Prison operations omitted for multicollinearity in regressions (1) and (2).

Table 10: Individual Trip Coyote Fees before 2005					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Agents Per Mile	4.535	5.003	227.3	5.857	42.74
	(3.092)	(3.164)	(144.4)	(5.236)	(30.44)
Prison Time	23.04***	23.69***	-8.835	19.42**	-23.37
	(7.392)	(7.413)	(43.02)	(7.712)	(38.70)
Wage Differential	0.655***	0.644***	0.628***	0.654***	0.552***
	(0.132)	(0.133)	(0.132)	(0.133)	(0.130)
Age	-6.533	-6.150	-5.669	-6.358	-4.241
	(4.387)	(4.383)	(4.362)	(4.323)	(4.088)
Sex	-250.1*	-251.9*	-261.3*	-240.0	-256.8*
	(150.3)	(152.0)	(152.7)	(150.5)	(151.0)
Education (yrs)	-40.14***	-38.71***	-36.95***	-39.88***	-34.91***
	(11.65)	(11.80)	(11.70)	(11.71)	(11.48)
Experience	-13.47	-12.42	-10.75	-13.44	-14.45
	(9.755)	(9.849)	(9.906)	(9.825)	(10.27)
Crossed Alone?	258.5***	253.6***	249.3***	245.2***	244.0***
	(80.14)	(80.20)	(80.69)	(80.52)	(79.06)
Migrant Operation Dummy		-171.5**	-23.03		
		(81.56)	(139.2)		
Coyote Operation Dummy		133.4	-175.8		
		(108.2)	(979.4)		
Migrant Operation Dummy Interaction			-40.41		
			(30.40)		
Coyote Operation Dummy Interaction			-181.9		
			(143.6)		
Prison Interaction Term			33.98		34.04
			(43.44)		(38.98)
Prison Operation				166.1	-632.3
				(109.1)	(746.1)
Migration Operations				-141.0**	-399.2**
				(58.51)	(177.1)
Coyote Operations				-64.96	478.2**
				(129.4)	(212.9)
Migration Operation Interaction					69.98
					(43.00)
Coyote Operation Interaction					-110.8***
					(33.84)
Constant	229.9	234.6	357.3	301.6	1,144
	(174.6)	(191.6)	(978.7)	(201.9)	(764.6)
Observations	928	928	928	928	928
R-squared	0.103	0.107	0.111	0.108	0.122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of individual crossing coyote fees against sector Agents, Prison, wage differentials and enforcement operations and crossing demographics from 1995 to 2005. All regressions are Ordinary Least Squares. Regressions (1) and (2) feature a dummy variable for coyotes. (3) and (4) show summations of these operations. Prison operations omitted for multicollinearity in regressions (1) and (2).

Table 11: Individual Trip Coyote Fees before 2005 excluding migrant operations				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	OLS	OLS	OLS
Agents Per Mile	4.111	281.2**	5.387	88.40***
	(3.153)	(131.7)	(5.293)	(24.29)
Prison Time	22.11***	22.46***	22.15***	-9.624
	(7.482)	(7.483)	(7.496)	(38.67)
Wage Differential	0.645***	0.638***	0.647***	0.560***
	(0.133)	(0.133)	(0.132)	(0.130)
Age	-6.331	-6.031	-6.372	-4.572
	(4.391)	(4.373)	(4.369)	(4.170)
Sex	-242.1	-255.1*	-240.0	-255.6*
	(152.7)	(152.4)	(150.5)	(151.9)
Education (yrs)	-39.93***	-38.65***	-39.88***	-36.14***
	(11.71)	(11.64)	(11.70)	(11.40)
Experience	-13.36	-12.61	-13.42	-13.81
	(9.855)	(9.860)	(9.848)	(10.19)
Crossed Alone?	259.5***	256.6***	259.1***	254.2***
	(80.23)	(80.61)	(80.29)	(79.48)
Coyote Operation Dummy	109.1	648.2***		
	(104.6)	(251.1)		
Prison Operations			109.3	-531.8
			(104.5)	(753.2)
Coyote Dummy Interaction		-277.1**		
		(132.0)		
Prison Interaction				25.78
				(39.30)
Coyote Operations			-40.06	412.5**
			(131.1)	(195.6)
Coyote Interaction				-86.95***
				(25.94)
Constant	156.0	-394.4	151.8	614.0
	(187.5)	(282.5)	(189.0)	(752.6)
Observations	928	928	928	928
R-squared	0.104	0.106	0.104	0.117

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of individual crossing coyote fees against sector Agents, Prison, wage differentials and enforcement operations that affect coyotes and crossing demographics from 1995 to 2005. All regressions are Ordinary Least Squares. Regressions (1) and (2) feature a dummy variable for coyotes. (3) and (4) show summations of these operations. Prison operations omitted for multicollinearity in regressions (1) and (2).

Table 12: Average Sector Coyote Fees					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Agents Per Mile	4.146	8.494	399.0	3.153	-14.65
	(5.778)	(5.879)	(268.1)	(8.677)	(22.43)
Prison Time	19.13	27.40**	77.40***	17.64	73.64***
	(11.93)	(12.76)	(26.04)	(12.93)	(27.03)
Wage Differential	0.377***	0.321**	0.408***	0.302**	0.397**
	(0.130)	(0.142)	(0.145)	(0.145)	(0.156)
Migrant Operation Dummy		-368.9***	-179.8		
		(131.7)	(206.8)		
Coyote Operation Dummy		-22.25	811.4		
		(287.0)	(600.4)		
Prison Operations		233.8*	858.9***	205.2	1,029***
		(136.1)	(315.4)	(141.4)	(358.4)
Migrant Operation Dummy Interaction			-34.36		
			(27.55)		
Coyote Operation Dummy Interaction			-358.5		
			(270.0)		
Prison Operations Interaction			-46.49**		-49.45**
			(21.14)		(21.68)
Migrant Operation				-163.2	-180.6
				(98.98)	(132.2)
Coyote Operation				78.62	-32.10
				(140.9)	(225.7)
Migrant Operation Interaction					-9.710
					(16.28)
Coyote Operation Interaction					13.85
					(15.81)
Constant	690.0**	580.4*	-1,233	660.3*	-278.1
	(324.9)	(347.5)	(801.9)	(344.9)	(586.1)
Observations	112	112	112	112	112
R-squared	0.115	0.192	0.248	0.158	0.209

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of average sector coyote fees against sector Agents, Prison, wage differentials and enforcement operations from 1995 to 2011. The instrumental variable is an index of U.S. and Mexican unemployment. All regressions are Ordinary Least Squares. Regressions (1) and (2) feature a dummy variable for coyotes. (3) and (4) show summations of these operations. Prison operations omitted for multicollinearity in regressions (1) and (2).

Table 13: Average Sector Coyote Fees excluding Migrant Operations				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	OLS	OLS	OLS
Agents Per Mile	5.466	319.7	0.128	-1.666
	(5.963)	(281.0)	(8.549)	(21.67)
Prison Time	25.06*	25.60*	20.94	67.82**
	(13.14)	(13.13)	(12.87)	(26.94)
Wage Differential	0.281*	0.280*	0.277*	0.350**
	(0.146)	(0.146)	(0.145)	(0.153)
Coyote Operation Dummy	-83.29	502.6		
	(295.3)	(601.1)		
Prison Operation	186.3	188.6	116.8	712.2**
	(139.4)	(139.2)	(131.9)	(324.6)
Coyote Operation Dummy Interaction		-314.3		
		(281.0)		
Prison Operations Interaction				-41.50*
				(21.41)
Coyote Operation			111.2	158.3
			(140.6)	(187.1)
Coyote Operation Interaction				-0.152
				(10.09)
Constant	569.7	-28.20	568.5	-292.8
	(358.5)	(643.4)	(343.1)	(583.8)
Observations	112	112	112	112
R-squared	0.131	0.142	0.136	0.168

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of average sector coyote fees against sector Agents, Prison, wage differentials and enforcement operations that target coyotes from 1995 to 2011. All regressions are Ordinary Least Squares. Regressions (1) and (2) feature a dummy variable for coyotes. (3) and (4) show summations of these operations. Prison operations omitted for multicollinearity in (1) and (2).

Table 14: Individual Coyote Fees by Hours Per Mile excluding Migrant Operations

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) OLS
Hours Per Mile	-0.00749	-0.328	0.430***	0.0665
	(0.0355)	(0.301)	(0.121)	(0.257)
Prison Time	19.58*	22.34**	27.82**	-31.45
	(11.06)	(11.26)	(10.93)	(39.77)
Wage Differential	0.433*	0.471*	0.175	0.208
	(0.249)	(0.258)	(0.210)	(0.219)
Age	-6.411	-6.860	-1.101	-0.920
	(6.312)	(6.472)	(5.837)	(5.815)
Sex	-257.8*	-241.2	-242.5**	-209.5*
	(155.4)	(151.0)	(113.4)	(109.3)
Education (yrs)	-26.16**	-29.73**	-13.83	-14.33
	(13.24)	(13.61)	(13.36)	(12.83)
Experience	14.97	13.59	14.29	15.35*
	(9.197)	(9.179)	(9.056)	(8.947)
Crossed Alone?	224.0***	210.9***	207.5**	194.9**
	(79.15)	(78.95)	(84.36)	(82.84)
Coyote Operation Dummy	-18.25	-57.06		
	(108.9)	(114.9)		
Prison Operations			-20.41	-1,277
			(109.5)	(792.8)
Coyote Operation Dummy Interaction		22.29		
		(21.18)		
Prison Operations Interaction				68.93*
				(41.29)
Coyote Operation			-964.6***	-1,119***
			(265.7)	(258.1)
Coyote Operation Interaction				27.11
				(17.55)
Constant	355.1	348.4	212.3	1,336*
	(305.0)	(309.4)	(300.8)	(789.7)
Observations	444	444	444	444
R-squared	0.079	0.084	0.121	0.137

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This table shows fees of individual crossings against a simulated measure of hours per mile for the years following 1999, excluding Yuma. Prison is time period specific, while wage differential (2005 Real USD) is cohort-specific. Other variables are crossing and demographic specific. Only operations that affect coyotes directly are included.

Table 15: Average Sector Coyote by Hours per Mile excluding Migrant Operations				
	(1)	(2)	(3)	(4)
VARIABLES	OLS	OLS	OLS	OLS
Hours Per Mile	0.0435	3.489	-0.115	0.0572
	(0.0945)	(3.816)	(0.145)	(0.362)
Prison Time	15.63	16.35	14.87	58.61
	(13.06)	(13.09)	(12.71)	(41.17)
Wage Differential	0.424**	0.423**	0.393**	0.422**
	(0.161)	(0.162)	(0.155)	(0.164)
Coyote Operation Dummy	255.0	670.3		
	(360.6)	(584.6)		
Prison Operation	-138.5	-136.3	-202.7	495.0
	(242.7)	(242.9)	(209.6)	(749.0)
Coyote Operation Dummy Interaction		-3.447		
		(3.816)		
Prison Operations Interaction				-40.03
				(35.51)
Coyote Operation			259.5	329.9
			(166.8)	(246.6)
Coyote Operations Interaction				-0.0868
				(0.180)
Constant	596.6	165.0	735.5**	-180.4
	(377.7)	(609.2)	(347.5)	(839.2)
Observations	103	103	103	103
R-squared	0.120	0.128	0.137	0.151

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This table shows average sector coyote fees regressed with hours per mile as a measure of enforcement. All other variables are the same as in other regressions of sector level average prices. This regression excludes non-coyote specific polices. Unreported hours are calculated using the Agents per mile and correlation value for overlapping years. Sector Yuma is excluded due to poor correlation between hours and agents.

Table 16: Individual Coyote Fees Regressed by Agents per Mile Lagged One Period					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Lagged Agents Per Mile	7.664**	8.966***	218.2	1.227	-11.33
	(3.336)	(3.423)	(165.6)	(5.608)	(16.21)
Prison Time	30.34***	30.37***	-14.03	24.88***	-24.52
	(8.096)	(7.955)	(44.15)	(8.395)	(40.69)
Wage Differential	0.558***	0.531***	0.501***	0.529***	0.516***
	(0.163)	(0.159)	(0.157)	(0.166)	(0.160)
Age	-4.422	-3.288	-2.608	-3.972	-3.748
	(5.203)	(5.068)	(4.974)	(5.174)	(5.071)
Sex	-114.7	-108.9	-87.02	-118.3	-115.3
	(173.6)	(176.2)	(176.3)	(173.6)	(167.2)
Education (yrs)	-47.72***	-42.72***	-39.77***	-46.60***	-44.98***
	(13.94)	(13.06)	(12.26)	(13.38)	(13.75)
Experience	-15.37	-12.53	-10.19	-15.21	-16.41*
	(10.25)	(10.24)	(10.23)	(10.20)	(9.717)
Crossed Alone?	192.8**	192.3**	206.1**	185.9**	180.1**
	(82.84)	(81.79)	(80.97)	(82.06)	(80.69)
Migrant Operation Dummy		-347.6***	103.8		
		(88.40)	(129.3)		
Coyote Operation Dummy		197.0*	-507.7		
		(118.5)	(980.3)		
Lagged Migrant Operation Dummy Interaction			-93.52***		
			(25.44)		
Lagged Coyote Dummy Interaction			-116.2		
			(162.9)		
Prison Operations*Term			43.27		49.92
			(44.62)		(40.95)
Migrant Operation				-107.4	-139.5
				(72.52)	(94.40)
Coyote Operation				163.9	-17.13
				(112.5)	(156.3)
Prison Operation				185.7	-690.4
				(113.6)	(785.9)
Lagged Migration Operations Interaction					-1.460
					(16.89)
Lagged Coyote Dummy Interaction					16.73
					(10.22)
Constant	249.7	317.9	585.4	327.4	1,301
	(179.5)	(205.1)	(988.9)	(214.5)	(795.6)
Observations	1,054	1,054	1,054	1,054	1,054
R-squared	0.125	0.141	0.155	0.135	0.142

Robust standard errors in parentheses
*** p<0.01, ** p< 0.05, * p<0.1
Note: This table shows the coyote fees for individual crossings regressed against the staffing per mile lagged one period. All other variables reflect other regressions in paper.

Table 17: Individual Coyote Fees Regressed by Agents per Mile Lagged Two Periods

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Twice Lagged Agents Per Mile	10.88***	12.41***	188.3	8.165	-7.632
	(3.535)	(3.627)	(161.7)	(6.059)	(16.29)
Prison Time	32.97***	33.38***	-24.50	28.20***	-24.69
	(8.172)	(8.037)	(42.32)	(8.609)	(40.54)
Wage Differential	0.546***	0.518***	0.487***	0.539***	0.522***
	(0.159)	(0.155)	(0.153)	(0.163)	(0.156)
Age	-4.544	-3.376	-2.654	-4.254	-4.037
	(5.136)	(4.987)	(4.888)	(5.111)	(4.988)
Sex	-115.9	-111.7	-87.84	-111.3	-112.5
	(170.0)	(172.0)	(172.4)	(171.9)	(162.7)
Education (yrs)	-47.47***	-42.13***	-38.85***	-46.80***	-45.40***
	(13.90)	(12.98)	(12.15)	(13.51)	(13.86)
Experience	-14.25	-11.37	-8.731	-13.78	-15.88
	(10.16)	(10.13)	(10.11)	(10.20)	(9.653)
Crossed Alone?	195.2**	193.6**	209.1***	190.2**	180.8**
	(81.10)	(79.85)	(79.07)	(81.37)	(79.33)
Migrant Operation Dummy		-367.6***	64.57		
		(88.00)	(123.1)		
Coyote Operation Dummy		168.8	-841.5		
		(119.5)	(929.8)		
Twice Lagged Migrant Operation Dummy			-101.6***		
Interaction			(27.80)		
			-74.79		
Twice Lagged Coyote Operation Dummy			(159.6)		
Interaction					
Prison Operations Interaction			56.76		52.95
			(42.80)		(40.80)
Migrant Operation				-114.9	-152.8*
				(74.14)	(89.80)
Coyote Operation				59.01	-123.7
				(115.4)	(141.4)
Prison Operations				155.0	-773.2
				(113.5)	(783.6)
Twice Lagged Migration Operations					-0.648
Interaction					(16.33)
Twice Lagged Coyote Operations Interaction					18.75**
					(8.565)
Constant	178.2	280.8	867.5	250.7	1,310*
	(178.5)	(205.2)	(934.2)	(215.5)	(791.3)
Observations	1,054	1,054	1,054	1,054	1,054
R-squared	0.136	0.153	0.167	0.140	0.150

Robust standard errors in parentheses

*** p<0.01, ** p< 0.05, * p<0.1

Note: This table shows the coyote fees for individual crossings regressed against the staffing per mile lagged two periods. All other variables reflect other regressions in paper.

Table 18: Individual Coyote Fees with Sector-specific Probability of Apprehension			
	(1)	(2)	(3)
VARIABLES	OLS	OLS	OLS
Probability of Apprehension	5,293***	5,419***	5,418***
	(1,161)	(1,151)	(1,152)
Prison Time	25.84***	24.08***	-13.47
	(7.544)	(7.571)	(40.82)
Wage Differential	0.503***	0.485***	0.480***
	(0.144)	(0.143)	(0.143)
Age	-3.410	-3.138	-2.945
	(4.604)	(4.575)	(4.565)
Sex	-150.3	-135.0	-133.9
	(157.6)	(159.0)	(158.8)
Education (yrs)	-40.66***	-40.33***	-39.50***
	(11.99)	(11.97)	(11.96)
Experience	-25.84**	-24.92**	-24.05**
	(10.30)	(10.39)	(10.46)
Crossed Alone?	178.4**	184.2**	184.5**
	(77.79)	(77.96)	(77.99)
Prison Operation		305.2***	-410.9
		(107.2)	(801.0)
Prison Operations*Term			38.08
			(41.39)
Constant	-666.2**	-940.4***	-243.2
	(301.3)	(312.1)	(825.2)
Observations	1,118	1,118	1,118
R-squared	0.144	0.149	0.149

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This uses the probability of apprehension calculated as the average number of apprehensions in each sector, in each year as a regressor for individual coyote fees. Other variables match other regressions.

Table 19: Average Sector Coyote Fees with Sector Fixed Effects					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Agents Per Mile	54.39**	50.85**	897.4***	50.62**	0.00416
	(23.51)	(24.18)	(304.5)	(24.29)	(23.43)
Prison Time	24.71	27.53*	94.87**	22.23	65.92
	(15.17)	(16.39)	(39.76)	(15.61)	(41.94)
Wage Differential	0.250	0.347*	0.440**	0.287	0.426***
	(0.170)	(0.179)	(0.176)	(0.175)	(0.161)
Migrant Operation Dummy		-462.5**	-177.8		
		(231.6)	(301.5)		
Coyote Operation Dummy		439.9	1,859***		
		(356.5)	(689.2)		
Prison Operation		-198.1	1,085	-291.0	803.6
		(239.5)	(693.1)	(213.1)	(807.2)
Migrant Operation Dummy Interaction			-73.81*		
			(39.32)		
Coyote Operation Dummy Interaction			-796.3***		
			(301.5)		
Prison Operations*Term			-66.39**		-50.29
			(33.43)		(37.43)
Migrant Operation				-158.3	-141.3
				(183.2)	(134.3)
Coyote Operation				330.4**	252.1
				(158.2)	(243.2)
Migrant Operation Interaction					2.376
					(16.59)
Coyote Operation Interaction					-3.423
					(16.46)
Constant	295.7	237.9	-2,723**	339.0	-235.3
	(395.6)	(412.1)	(1,050)	(400.2)	(846.6)
Observations	112	112	112	112	112
R-squared	0.188	0.227	0.314	0.232	0
Number of Sector	9	9	9	9	9

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This table shows regressions for average sector-specific coyote fees using the strongly balanced panel of sectors from 1995-2011. The regression also includes sector fixed effects to account for unaccounted for variations in each sector.

Table 20: Average Sector Coyote Fees with Random Effects					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Agents Per Mile	4.151	5.498	406.3	-5.538	0.00416
	(5.777)	(5.943)	(274.3)	(8.691)	(23.43)
Prison Time	19.13	17.45	81.61**	11.69	65.92
	(11.93)	(12.11)	(38.87)	(12.58)	(41.94)
Wage Differential	0.377***	0.461***	0.453***	0.413***	0.426***
	(0.130)	(0.153)	(0.151)	(0.152)	(0.161)
Migrant Operation Dummy		-336.7**	-137.2		
		(132.6)	(210.1)		
Coyote Operation Dummy		350.1	917.7		
		(338.0)	(621.5)		
Prison Operation		-112.5	1,019	-157.4	803.6
		(228.3)	(694.4)	(198.8)	(807.2)
Migrant Operation Dummy Interaction			-37.19		
			(28.18)		
Coyote Operation Dummy Interaction			-364.5		
			(276.1)		
Prison Operations*Term			-58.75*		-50.29
			(33.66)		(37.43)
Migrant Operation				-97.96	-141.3
				(93.24)	(134.3)
Coyote Operation				236.7	252.1
				(146.4)	(243.2)
Migrant Operation Interaction					2.376
					(16.59)
Coyote Operation Interaction					-3.423
					(16.46)
Constant	690.0**	612.7*	-1,387	827.7**	-235.3
	(324.9)	(352.8)	(984.5)	(343.2)	(846.6)
Observations	112	112	112	112	112
Number of Sector	9	9	9	9	9

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This table shows regressions for average sector-specific coyote fees using the strongly balanced panel of sectors from 1995-2011. The regression also includes random effects to account for variations across the border over time.

Table 21: Average Sector Coyote Fees with Sector Between Effects					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Agents Per Mile	6.022	15.04	-1,527	-5.267	0.00416
	(4.833)	(18.89)	(0)	(12.59)	(23.43)
Prison Time	13.83	7.845	-244.0	-1.911	65.92
	(13.07)	(19.53)	(0)	(23.37)	(41.94)
Wage Differential	-0.435*	-0.771	-2.572	-0.890	0.426***
	(0.210)	(1.428)	(0)	(1.012)	(0.161)
Migrant Operation Dummy		-234.4	-178.7		
		(267.8)	(0)		
Coyote Operation Dummy		-1,152	-1,282		
		(1,941)	(0)		
Migrant Operation Dummy Interaction			-1.751		
			(0)		
Coyote Operation Dummy Interaction			1,551		
			(0)		
Prison Operations Interaction			210.8		-50.29
			(0)		(37.43)
Prison Operation		1,404		522.5	803.6
		(2,898)		(1,415)	(807.2)
Migrant Operation				-46.61	-141.3
				(127.7)	(134.3)
Coyote Operation				348.4	252.1
				(257.9)	(243.2)
Migrant Operation Interaction					2.376
					(16.59)
Coyote Operation Interaction					-3.423
					(16.46)
Constant	2,028***	2,377*	7,510	2,212**	-235.3
	(358.5)	(812.7)	(0)	(419.3)	(846.6)
Observations	112	112	112	112	112
R-squared	0.481	0.626	1.000	0.752	0
Number of Sector	9	9	9	9	9

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: This table shows regressions for average sector-specific coyote fees using the strongly balanced panel of sectors from 1995-2011. The regression also includes between effects to account for different responses to border-wide variations in each sector.

Table 22: Coyote fees regressed with enforcement in neighboring sectors					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	OLS	OLS	OLS	OLS	OLS
Agents Per Mile	2.338	2.036	188.1	-5.149	-4.961
	(3.103)	(3.363)	(152.9)	(4.929)	(15.83)
Average Agents Per Mile in Neighboring Sectors	47.39***	46.56***	43.97***	50.52***	50.94***
	(9.375)	(12.01)	(11.98)	(11.25)	(10.42)
Average Prison Term	32.78***	31.76***	-18.71	34.04***	-41.07
	(7.712)	(7.738)	(45.19)	(8.563)	(39.22)
Wage Differential	0.434***	0.431***	0.409***	0.378**	0.375**
	(0.158)	(0.161)	(0.157)	(0.159)	(0.162)
Age	-1.848	-1.785	-1.086	-1.509	-1.289
	(5.014)	(5.025)	(4.918)	(5.021)	(5.056)
Sex	-125.9	-119.1	-109.4	-145.5	-143.1
	(165.8)	(167.7)	(169.5)	(161.5)	(160.1)
Education (yrs)	-38.18***	-38.18***	-35.48***	-37.03***	-35.30**
	(13.77)	(13.68)	(12.79)	(13.82)	(13.99)
Migration Experience	-17.84*	-17.56*	-14.69	-18.67*	-17.25*
	(10.05)	(9.954)	(9.937)	(9.946)	(9.801)
Crossed Alone?	160.1**	162.3**	174.1**	161.7**	162.8**
	(77.32)	(77.60)	(77.59)	(75.75)	(75.45)
Migrant Operation Dummy		-8.333	362.6***		
		(131.3)	(138.1)		
Coyote Operation Dummy		119.9	-645.9		
		(118.3)	(1,035)		
Migrant Operation Dummy			-71.02***		
			(27.48)		
Coyote Operation Dummy			-115.2		
			(150.7)		
Prison Operations				69.47	-1,351*
				(122.3)	(758.1)
Prison Operations Interaction			49.58		76.15*
			(45.77)		(39.60)
Migrant Operations				107.7	118.3
				(89.53)	(103.6)
Coyote Operations				203.4*	144.2
				(107.3)	(140.4)
Migrant Operations Interaction					-4.112
					(15.76)
Coyote Operations Interaction					4.998
					(8.677)
Constant	91.89	14.95	417.6	-53.51	1,335*
	(175.8)	(218.0)	(1,037)	(245.2)	(760.2)
Observations	1,054	1,054	1,054	1,054	1,054
R-squared	0.157	0.157	0.168	0.166	0.168

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: This is a regression of average sector coyote fees against sector agents, prison, wage differentials and enforcement operations that target coyotes from 1995 to 2011. Regressions (1) and (2) feature a dummy variable for coyotes. (3) and (4) show summations of these operations. Prison operations omitted for multicollinearity in regressions (1) and (2). The average of agents per mile in neighboring sectors is the average across both the two sectors to the east and west of each sector. Only one sector used for sectors next to oceans.

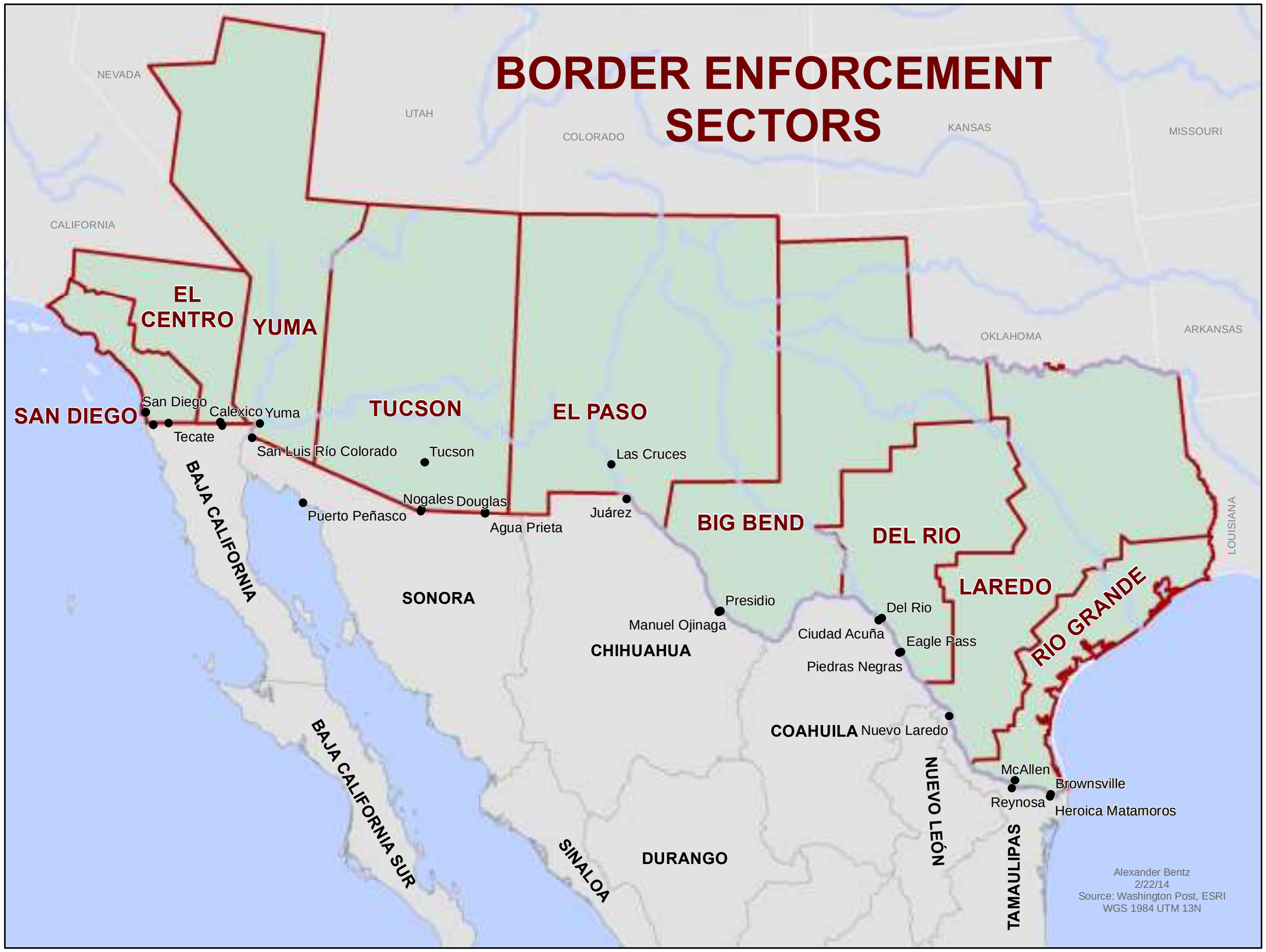


Figure 1: Border Enforcement Sectors

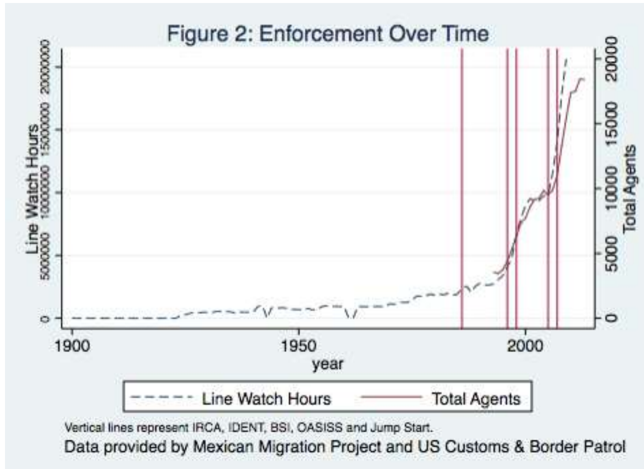


Figure 2: Enforcement Over Time
Line Watch Hours
0
5000000
10000000
15000000
20000000
Total Agents
0
5000
10000
15000
20000
1900
1950
2000
year
Line Watch Hours
Total Agents
Vertical lines represent IRCA, IDENT, BSI, OASISS and Jump Start.
Data provided by Mexican Migration Project and US Customs & Border Patrol

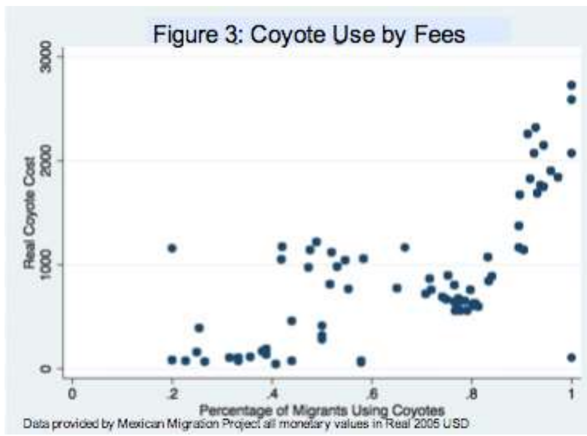


Figure 3: Coyote Use by Fees
Real Coyote Cost
0
1000
2000
3000
0
.2
.4
.6
.8
1
Percentage of Migrants Using Coyotes
Data provided by Mexican Migration Project all monetary values in Real 2005 USD

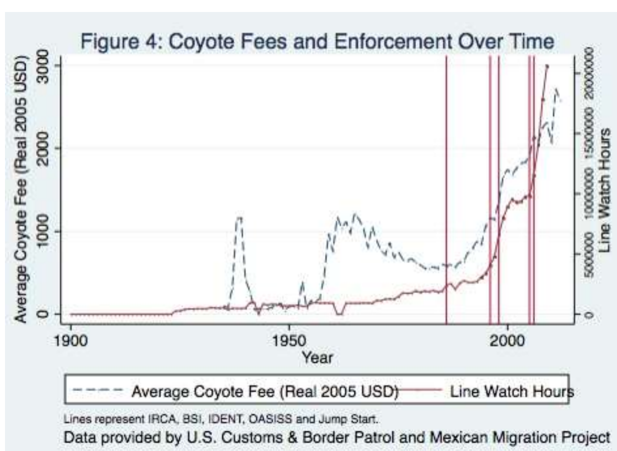


Figure 4: Coyote Fees and Enforcement Over Time
Average Coyote Fee (Real 2005 USD)
0
1000
2000
3000
Line Watch Hours
0
5000000
10000000
15000000
20000000
1900
1950
2000
Year
Average Coyote Fee (Real 2005 USD)
Line Watch Hours
Lines represent IRCA, BSI, IDENT, OASISS and Jump Start.
Data provided by U.S. Customs & Border Patrol and Mexican Migration Project

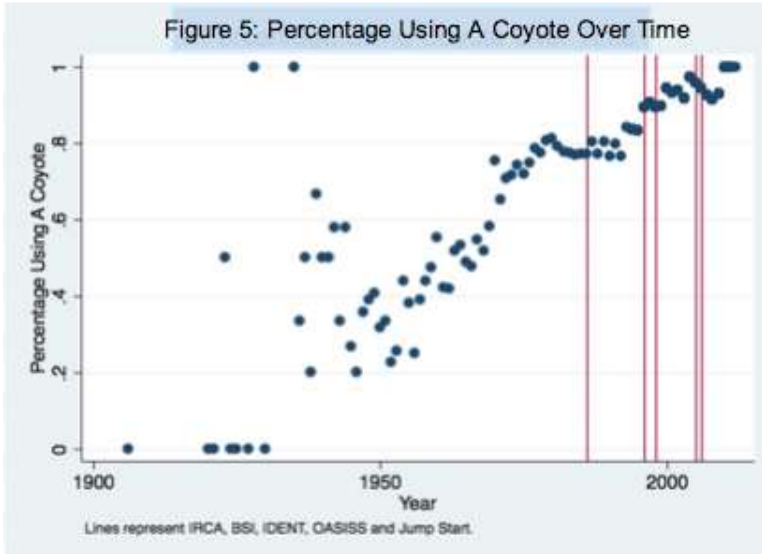


Figure 5: Percentage Using A Coyote Over Time
Percentage Using A Coyote
Year
1900
1950
2000
Lines represent IRCA, BSI, IDENT, OASISS and Jump Start.

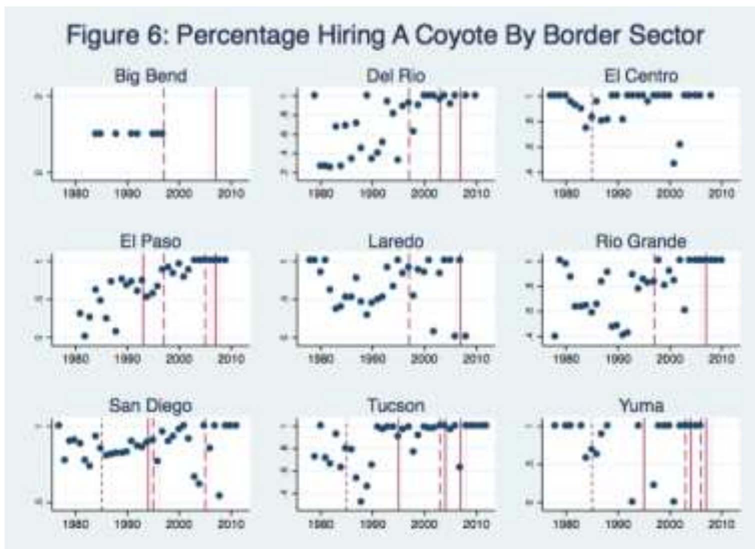


Figure 6: Percentage Hiring A Coyote By Border Sector
Big Bend
Del Rio
El Centro
El Paso
Laredo
Rio Grande
San Diego
Tucson
Yuma

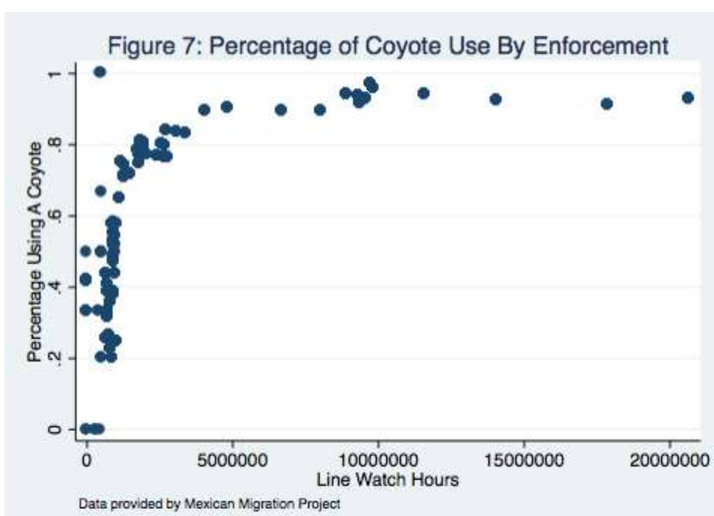
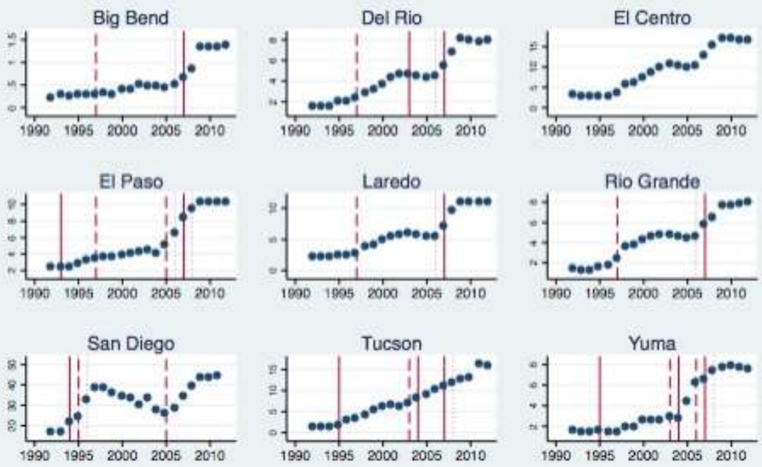


Figure 7: Percentage of Coyote Use By Enforcement
Percentage Using A Coyote
Line Watch Hours
0
5000000
10000000
15000000
20000000
Data provided by Mexican Migration Project

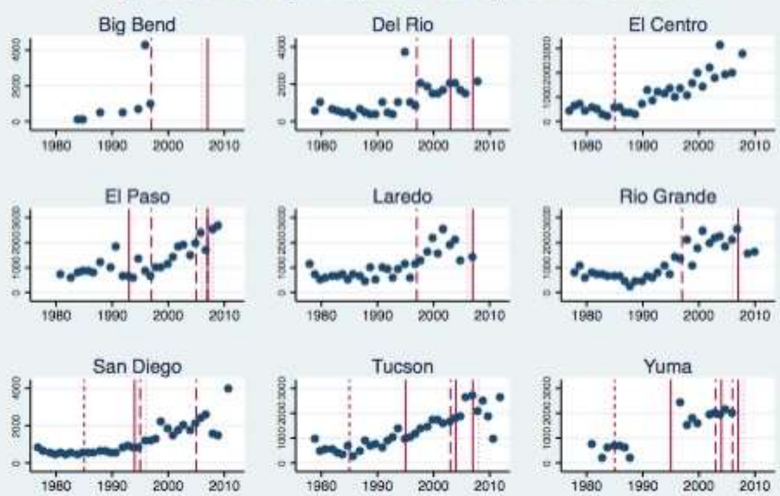
Figure 8: Agents per Mile By Border Sector



Data provided by Customs & Border Patrol

Dash lines denote migrant coyote operations, solid lines denote migrant operations and dotted lines denote operations targeting both

Figure 9: Average Coyote Fee By Border Sector



Fees in Real 2005 USD, data provided by Mexican Migration Project

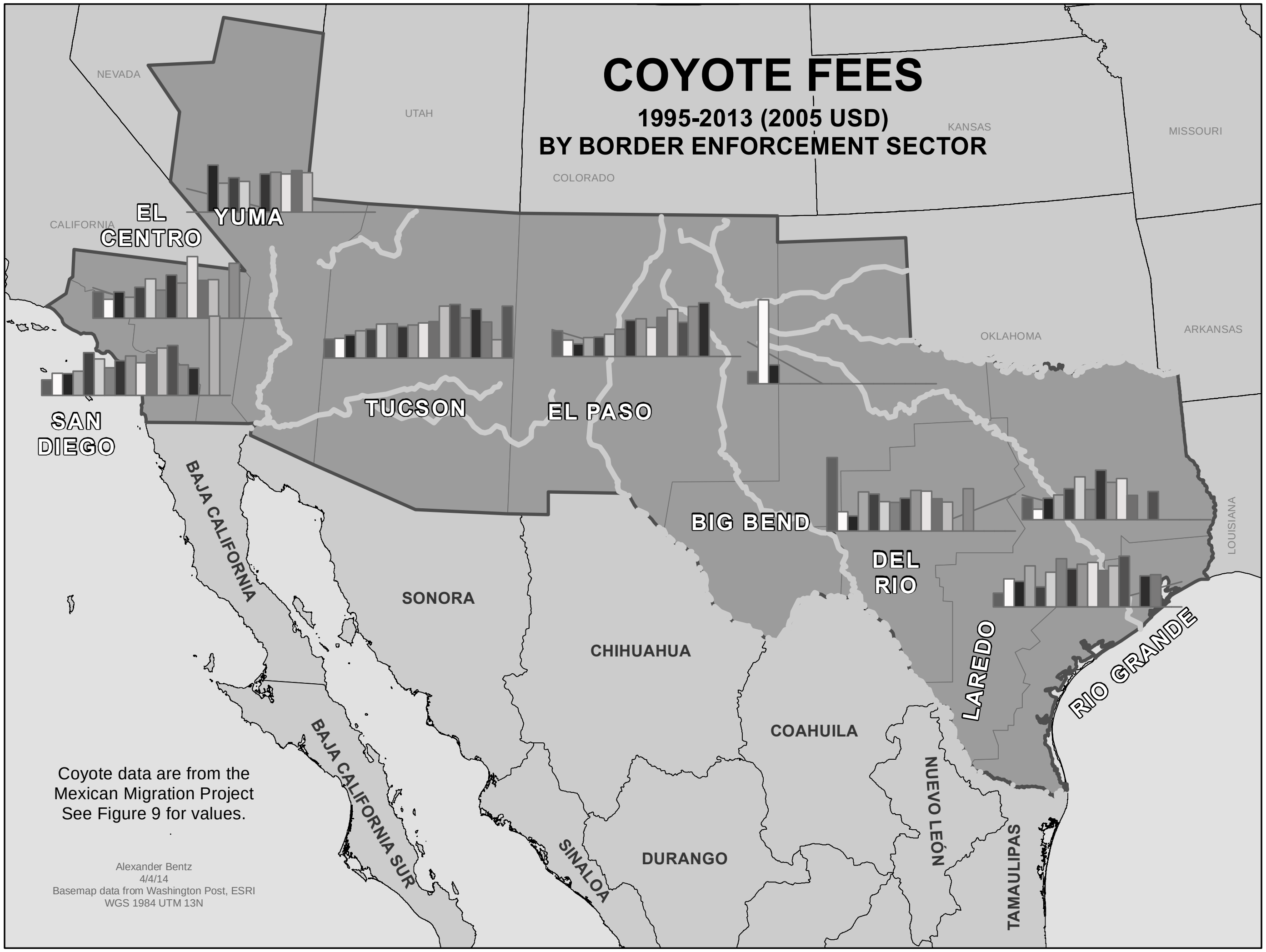


Figure 10: Real Coyote Fees by Border Enforcement Sector