

Shin, Geiguen

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## **Direct and indirect impacts of liberal immigration policies on the inflow of multinationals in the U.S.**

*Geiguen Shin*

### **Abstract**

Many studies suggest that stringent labor protection and higher labor costs in host countries can limit foreign direct investment. This implies that foreign firms are sensitive to the flexibility of the labor market in the U.S. The U.S. has experienced increasing immigrants, which have preserved the stable labor supply in the U.S. market. The U.S. is a good case to test the relationship between immigration and FDI because the U.S. is not only the largest host and home country of FDI but also the country that has one of the highest immigrant populations and experiences a significant reduction in labor supply and an increase in the minimum cost of labor. Utilizing a time-series analysis from 1970 to 2016, this study suggests that the expansive immigration policies directly increase FDI inflows in the U.S., and indirectly increase FDI inflows throughout lowering potential labor costs and securing a stable labor supply.

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**Keywords** Foreign direct investment, immigration policy, labor cost

### **Author**

Geiguen Shin, Rutgers University, Newark

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Many countries have traditionally focused on economic development policies based on a locational model, which means that government policies can affect the locational decisions of business and industry. Thus, the government seeks to design economic development policies that would affect the locational decision of firms by lowering the cost for the factors of production and providing various tax incentives (Williams, 1967; Plaut & Pluta, 1983). Studies in this issue have extensively focused on the issue of foreign direct investment (FDI). Especially, scholars of FDI have been interested in exploring what are the major determinants to affect firms' investment and locational decision in one country.

Many empirical studies of FDI have employed a variety of potential countries' marketability, economic size, and institutional capacities as a set of FDI determinants (Chan, 1995; Ancharaz, 2003). Particularly, studies of FDI have reasonably addressed that poor labor market conditions are a critical obstacle that would limit FDI inflows (e.g., Naylor & Santoni, 2003; Owen, 2013). Further, multinational enterprise managers expressed a strong preference to consider their investments in the regions with plentiful labor and relatively low labor costs (Arpan, 1981). For manufacturing, in particular, labor costs are an important factor in determining FDI inflows in the host country (Owen, 2013). While these prior studies have expanded our knowledge of labor market conditions on multinational corporations' location decision, studies have not adequately explored the causal effect between labor costs and FDI. Given to the critical impact of domestic labor supply on labor costs, this study gives specific attention to the impact of international migration, which would potentially increase labor supply, and lower wages.

This case is particularly true in the U.S. market not only because the U.S. has been much less supportive to labor markets than other advanced economies, but because it has received

more immigrants than any other countries. While the U.S. has the most flexible labor market—with lower labor costs, low levels of unionization, and less regulation—among other OECD countries, the U.S. has experienced a steady decline of labor force participation since the mid-1960s. Recently, the White House Council of Economic Advisors (CEA) report that the U.S. has one of the lowest prime-age male labor force participation rates of OECD countries (2016). Further, CEA indicates that the U.S. government spends 0.1 percent of GDP on policies that would encourage active labor markets much less than the OECD average of 0.6 percent of GDP. This causes, in turn, a significant reduction in labor supply and an increase in the minimum cost of labor. However, the U.S. has become a land of net immigration, which has significantly directed a labor supply and thus has helped keep down labor costs in the U.S. market. Using the U.S. as a case study, therefore, it is reasonable to suggest that since the U.S. is not only the largest recipient of FDI but also has one of the highest immigrant populations while suffering from some of the highest labor costs, immigration could lead to potential increase of FDI inflows in the U.S. by improving flexibility of labor markets.

In this study, I suggest that less restrictive immigration policies directly increase FDI inflows in the U.S., and indirectly increase FDI inflows throughout lowering potential labor costs and securing a stable labor supply. The rest of this paper will proceed as follows. The next section will review existing literature on the relationship between immigration and FDI. The following section will suggest the theoretical linkage between immigration and FDI. The next two sections outline the research design and present the result of time-series analysis over the years from 1970 to 2016. Possible implications of the findings are discussed in the conclusion.

### **Previous Literature on the Linkage between Immigration Policy and FDI**

FDI is defined as international capital flows that entail a 10% ownership stake of the business unit in a foreign country and is attained in the form of establishing a new subsidiary/branch, acquiring a control share of an existing firm, or participating in a joint venture (Moosa, 2002). This investment extends the firm's corporate network across national and political boundaries, allowing it to maintain ownership over a package of resources transferred abroad, including capital, equipment, engineering expertise, and managerial and marketing skills (Liu, 1997).

Previous literature on immigration policy has dealt with the effect of immigration on the capital market and economic returns. Borjas (1999, p. 67) argues that “Entrepreneurs thinking about starting up new firms will find it more profitable to open them in immigrant areas.” That is, he suggests that immigration increases the returns to capitalists in the affected cities, and capital will naturally flow to those areas where the returns are highest. Gaston and Nelson (2002) have pointed out that the impact of FDI on the labor market can be explained by the effect of immigration. Kim (2006) argues that labor and FDI move in the same direction, and thus the movement of labor will affect FDI flows.

Some scholars have explored how immigrant communities can influence a foreign firm's investment in a region. Foad (2012) argues that immigrant networks lower the risk of foreign investment through increased information flows within the market. He suggests that relative growth in the presence of an immigrant community leads to new FDI from those immigrants' native countries. As more immigrants from a particular country reside within another, a firm from that same country will invest more in that country due to the increased connections made between immigrants and foreign firms. Gould (1994) also argues that immigrant links to the home country induce the investment of the firms from their birth-country. Javorcik et al. (2011)

suggest that U.S. FDI abroad is positively associated with the presence of migrants from the host country because immigrants serve as a strong social network to connect their origin country. These findings suggest that the U.S. can benefit economically from the ethnic diversity created by immigration.

Focusing on the effects of the composition of migrant flows, Murat and Pistorresi (2006) argue that the networks of Italian emigrants abroad significantly promote both inward and outward bilateral FDI. However, they empirically find that the overall influence of immigrants is, at best, marginal. Baker and Benjamin (1997) find there is no significant relationship between the Asia-Pacific immigrants and FDI inflows in Canada. On the contrary, Gao (2000) argues that Chinese immigrants have positive association on inbound FDI in China. Despite the mixed conclusion about the impact of immigration on FDI inflows, some scholars have identified that different types of immigrants have a different effect on inward capital flows. For instance, Ivlevs (2006) examines how international high-skilled or low-skilled labor influences capital flows. He found that the inflow of high-skilled immigrants always leads to higher FDI inflows in the host countries. Baldwin and Venables (1994) also found that the changes in the stock of high-skilled workers affect the return on FDI since current and expected wage differentials influence the decision of the high-skilled worker to emigrate.

### **Immigration Policy of the Federal Government and FDI Inflows**

Despite the relative breadth of immigration available for foreign firms' investment decisions, studies have paid little attention to the linkage between a government's immigration policy and FDI inflows. That is, while many studies suggest that the number of migrants attracts more FDI, studies do not directly examine whether a country's immigration policy is subject to

the foreign firms' investment decision. In fact, the volume and composition of immigration flows are significantly influenced by restrictive immigration policies (Mayda, 2010; Ortega & Peri, 2013). Rational foreign firms would consider the policy changes that would affect the long-term volume of migration, rather than making their investment decision based on the short-term change of the number of immigrants. Indeed, rational firms prefer deliberate governments because they provide more predictable and steady policies (Jensen, 2003; Li, 2009). It is also important to note that "direct investment generally requires a long-term focus and interactions with a diverse group of economic agents from suppliers, workers and consumers to government officials" (Javorcik et al., 2011, p. 231). In this sense, it is meaningful to see the impact of changing immigration policies on FDI in the long-term expectation. Furthermore, despite the importance of the linkage between labor costs and FDI as well as immigration and FDI, studies have not yet systematically examined a way that the effectiveness of immigration policy affects FDI inflows by influencing the stock of labor in the host country. In addition, studies have focused on the impact of immigration on FDI inflows on a cross-sectional level, but there has been little effort to explore its impact on the U.S., the world largest immigrant destination and host of FDI. Drawing on the gaps of FDI-immigration literature, this research examines whether more expansive immigration policy will motivate foreign firms to invest in the U.S.

A growing body of research on the effectiveness of immigration has demonstrated that increasing immigrants attract more FDI largely because of the positive impact of ethnic network connected to their native country (e.g., Foad, 2012). The presence of ethnic networks is effective to lower political risk and asymmetric information because "immigrants serve as a bridge over which capital may more easily flow between their native and current countries" (Foad, 2012, p. 238). Gould (1994, p. 302) also suggests that "immigrant links to the home country include

knowledge of home-country markets, language, preferences, and business contacts.” Since FDI activities are more sensitive to information asymmetries than international trade transactions, immigrants’ language skills and cultural attachment with their home country can significantly moderate larger information asymmetries by lowering communication costs (Javorcik et al., 2011). As a result, previous scholarship underlying the linkage between immigrant networks and FDI suggest that more expansive immigration policies would signal potential foreign firms the availability of more transparent information. This reduction in information asymmetries, in turn, leads to increased FDI. For all these reasons, I posit a testable hypothesis regarding the direct relationship between immigration policy and FDI.

*Hypothesis 1: More liberal immigration policies by the federal government attract more FDI inflows in the nation.*

Infosys Technologies Ltd., a multinational information technology service company operating in the U.S and headquartered in Bangalore, India, employed more than 8,500 foreign workers who received H-1B visas. The H-1B is a non-immigrant visa in the U.S., under the Immigration & Nationality Act, section 101(a)(15)(H), which is primarily for foreign guest workers who are employed in specialty occupations.<sup>1</sup> Although Infosys Technologies Ltd. said that they need skilled foreign labor to stay competitive and fill jobs for which there are not enough American workers, such as programmers, engineers and chip designers, they essentially intended to increase skilled personnel at cheap salaries by hiring foreign aliens (New York Times, April 1, 2008).

The example shows that there is a trade-off between the expansive immigration law and foreign firms’ utility in terms of labor cost. Major macro-determinants of the firms’ investment decision include market size, low labor costs, and government policies (Ali & Guo, 2005).<sup>2</sup>



Although the U.S. provides the world largest market for foreign firms, it has been unable to attract foreign firms due to lack of highly skilled labor and related costs. As Lucas (1990) points out, labor and capital flow in positive directions as predicted by economic theory. Li and Resnick (2003) argue that large increases in labor cost suppress expected returns, causing FDI investors to shy away. Figure 1 shows that the overall trend over time between labor cost and FDI inflows have moved in negative directions. In both applications, the U.S. experienced the increased FDI inflows against the decreased labor costs during the middle of the 1990s and early 2000s.

**[Figure 1 is about here]**

If the relationship between labor cost and FDI inflows are so vital, what lowers the labor cost in the U.S.? Some scholars suggest that the expansive immigration policy stimulates the entry of immigrants, which preserves the labor supply in the local labor market permanently (e.g., Borjas, 1999; Wong, 2006). Ivlevs (2006) argues that international labor flows are determined by restrictive immigration policies. That is, “Actual international labor flows are determined by changes in national regulation (such as the imposition of immigration quotas), and not solely by wage differential in sending and receiving countries” (Ivlevs, 2006, p. 3). Wong (2006) argues that due to the principal economic beneficiaries of a liberal policy which leads to the expansion of the labor pool with immigrants, employers can hold wages down even when native workers are available. Slaughter (2003) also suggests that government immigration policy play an important role in shaping the composition of the labor supply above their overall level (Slaughter, 2003). Borjas (1999) demonstrates that expansive immigration policy could encourage the admission of very large numbers of less-skilled workers. Hence, an influx of foreign laborers has the effect of lowering the wage of competing domestic workers, with less-skilled laborers impeding the economic opportunities for native laborers (Borjas, 1999).

The Immigration Reform and Control Act of 1986 (IRCA) significantly reduced the number of immigrants by discouraging labor-exporting communities like Mexico because the law's provision made it illegal to knowingly hire or recruit undocumented immigrants. The immigration opportunity, however, has significantly expanded since the Immigration Act of the 1990s (Tichenor, 2002). In 1990, Congress passed a new immigration law, the Immigration Act of 1990, which raised the legal immigration cap from about 500,000 to 700,000 people annually (McConnell & Brue, 1995). Indeed, FDI inflows in the U.S. rapidly increased in the 1990s. As shown in Figure 2, coupled with the liberalized provisions of the 1990 immigration law, the increased flow of legal immigrants suggests that the possible labor pool is elastic in relation to the national immigration policy.

**[Figure 2 is about here]**

The positive linkage between immigration policy and the foreign firm's investment decision can be clarified by understanding that a firm is rational in nature and will pursue activities that will result in profit maximization. Fry (1983) points out that international investors explicitly learn how restrictive immigration policy by executives and legislatures work and how regulations are adopted, modified, and eliminated. Moosa (2002) suggests that firms make a decision to invest based on four major categories: (1) market forces that guide the country's economic activity; (2) the types of investment the government seeks; (3) drafting of laws, policies and regulations; and (4) employing the tools of cost-benefit analysis. Moosa (2002) finds, for example, that the growth of British FDI in the U.S. since the 1980s is due to the relatively non-restrictive immigration policy towards inward FDI, together with the active promotion of FDI by the individual state government. Survey respondents from foreign firms provide critical evidence that cost of labor weighs heavily in both manufacturing and service

companies' decisions to locate overseas, and thus they pay attention to the certain laws or regulations that may affect the labor pool in the market.<sup>3</sup> When foreign firms expect the wage-down effect from increased immigrants, they would pay more attention to the immigration policy change. The expansive immigration laws give a positive incentive because of the potential increase of more foreign laborers in the future. For the rational foreign firms, therefore, the restrictive immigration policy may not only limit the most efficient use of labor but also discourage foreign firms' desire to invest in the U.S.

In short, the U.S. immigration policy and FDI inflows are important as separate phenomena but are also interconnected. A new immigration policy that intends to increase immigration would produce a flexible labor market, which in turn would work as the potential source to attract foreign investors. Although the Federal government considers other policies impacting FDI, particularly those that are in favor of providing such financial incentives as reduced corporate tax rates, grants, and preferential loans, immigration policy is still one critical factor that firms will use in their decision making process. All else being equal, expansive immigration policy would increase FDI inflows in the U.S. due to the supply of stable laborers in the market. Taken as a whole, then, I posit that:

*Hypothesis 2: More liberal immigration policies of the federal government exert a downward impact on labor costs.*

*Hypothesis 3: More liberal immigration policies by the federal government indirectly increase FDI inflows in the nation, by lowering labor costs.*

Overall, this paper expects that more expansive immigration policies directly attract more FDI due to the positive effects of immigrant networks. In addition to this direct effect, more

expansive immigration policies lead to increased FDI inflows indirectly by putting downward pressure on labor costs as shown in Figure 3.[Figure 3 is about here]

### **Data and Measurement**

The data analysis focuses on the period between 1970 and 2016 in the U.S., which was largely determined by data availability. The data is time series. Most data sources for measuring immigration policies were extracted from *Migration Policy Institute* and *Federation for American Immigration Reform*. Other data including FDI inflows are found in both 2017 *International Financial Statistics* from the International Monetary Fund and 2017 *World Development Indicator* from the World Bank. The descriptive summary statistics for each variable is shown in Table 1.

**[Table 1 is about here]**

#### ***Dependent Variable***

Because the article focuses on total invested foreign capital in the U.S, the dependent variable would be the net inflows of FDI that include the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments, giving a foreign investor's management interest (10 percent or more of voting stock) in an enterprise. Rational firms are not likely to relocate their large plants and capitals in the region where they already invested as long as costs to maintain their production facilities do not exceed benefits. Indeed, most foreign firms are mobile *ex ante*, but relatively immobile *ex post* (Vernon 1971). This suggests that FDI series is not constant across time. Thus, I model the FDI measure as a percentage of the GDP. The FDI data are from the Bureau of Economic Analysis.

#### ***Independent Variables***

Since one country's immigration policy is not supposed to increase or allow illegal immigrants, this study focuses on legal immigration. In order to create more reliable measures of immigration policy, I employ the annual refugee admission ceiling and, alternatively, the year dummy of major immigration reform. First, while the entry of legal immigrants, as well as non-immigrants, must be allowed under immigration laws, the number of immigrant measure does not closely capture the changing immigration policy because the real number of immigrants do not exactly reflect migration flows that targeted policies intend. For example, the number of immigrants in 1930 (14,204,100) under the quota system was much higher than the number of immigrants in 1970 (9,619,300) when the quota system was not effective anymore. Instead of using the number of immigrants, therefore, I choose the annual refugee admission ceiling. Although refugees are admitted on humanitarian grounds, refugee policy is usually presented as general immigration policies that reflect the national interest (Whelan, 1983). Further, the president has exercised substantial screening decisions to determine the number of refugees to be admitted each year since Congress passed the Refugee Act in 1980 (Rodriguez, 2010). These suggest that analyzing the ceiling is a more straightforward way to determine some degree of restrictiveness of immigration policies at the national level. For instance, to measure the effect of policy changes on migration flows, many studies have used the number of asylum applications and asylum laws (e.g., Hatton, 2004; Thielemann, 2004). Thus, I employ the primary measure of immigration policy as the annual refugee admission ceiling as the percentage of a total population in the U.S. I expect that the increased rate of refugee ceiling is positively associated with FDI inflows as a percentage of GDP. The data is from Migration Policy Institute.

In order to ensure that the results from the annual refugee ceiling are not an artifact of data selection, I estimate the year dummy of major immigration reform. Each major immigration

law contains substantial information about the government's attitude toward immigration whether it is more conservative or liberal. Following the suggestion from the existing immigration studies, therefore, I use a binary immigration policy variable to indicate the years in which the government's attempt to restrict the number of immigrants has occurred (e.g., Karemera et al., 2000; Hatton, 2005). A dummy variable is used to identify the effects of the U.S. immigration policy changes of 1976, 1980, 1986, 1994, 1996, 2001, 2002, 2004, 2005, and 2006. These ten periods indicate the specific time points that the U.S. government adopted major reforms of immigration laws, which are more restrictive migration policies than others. The summary of each major immigration law is provided in Appendix 1.

As the mediating variable that explains the indirect effects of immigration policies, the models include unit labor costs. I expect that a change in labor costs should negatively affect FDI inflows into the U.S. As discussed earlier, a large increase in labor costs will discourage potential firms and will shy away from their investment. Thus, I expect that the change in labor cost is negatively associated with the FDI inflows. I measure the labor cost variable with the index of unit labor costs in manufacturing for the U.S., which is defined as the cost of labor input required to produce one unit of output. This data is based on three basic aggregate measures: output, total labor hours, and total compensation. Data are from the Bureau of the Labor Statistics. I expect that the year dummy variable indicating immigration restriction is negatively correlated with FDI inflows.

### ***Control Variables***

In order to control for alternative determinants of FDI, all models include a set of variables including government policies, regulation, and market characteristics. First, it is important to note that both taxes and regulations are particularly important for efficiency-seeking

foreign firms (Kandogan, 2012). To control for government direct incentive policy, I include the measure of the top marginal corporate tax rates. Since multinational corporations are sensitive to the existing tax rates, I expect both corporate tax rates and regulation to correlate negatively with FDI. The national corporate tax rates are from Tax Policy Center. The government regulation variable is measured as the total pages in the code of federal regulation. The data is obtained from the Federal Register. In addition to the government regulation, the models include the union membership rate. Previous studies suggest that higher unionization rate decreases FDI not only because it leads to the increased levels of wages, but because it makes managerial control of the production process harder (e.g., Owen, 2013). The union membership rate is measured as the percentage of wage and salary workers who are members of unions. The data is from Bureau of the Labor Statistics.

Second, the government expenditure variable is the general government's final consumption expenditure, which includes government consumption of goods and services for current use, as a percentage of GDP.<sup>4</sup> While most of neoclassical economics and empirical works on economic growth suggests that government consumption expenditure should have a negative relationship with growth, more recent works on new growth theory has stressed the potentially positive role of the government's consumption on macro-economic performance (Barro, 1990; Lucas, 1988). Thus, I expect a positive correlation between government expenditure and FDI inflows, following the recent findings on this issue.

In addition, the models control for national economic and market conditions. The economic growth variable is the annual percentage of change in the GDP at market prices. Economic growth rates have an effect on the domestic market. Thus, I expect its positive impact on FDI inflows. The size of the market should affect FDI inflows. Scholars suggest that investors

pay more attention to bigger and wealthier countries because of higher expected returns. The market size variable is measured as the logged population, which accounts for the market volume and potential. The models also include real Interest Rate. This is computed as the difference between the prime rate charged by banks and the rate of inflation measured by the growth of the GDP deflator. Firms are more likely to invest in the regions with the higher interest rate because they can expect to earn more benefits. Thus, I expect the real interest rate to be positively associated with FDI inflows. The inflation variable is an annual percentage of change in the GDP deflator. This is also measured as percent change in the price deflator. Ahlquist (2006, p. 692) argues that “the price deflator measure has marginally better time series coverage and international investors are arguably interested in overall price stability in the economy, not just prices for final consumption goods.” Thus, I assume that the inflation variable is negatively associated with FDI inflows. Lastly, trade openness is measured as imports and exports of goods and services divided by GDP. Trade is the traditional measure of studies investigating the effect of economic openness. The variable is expected to have a positive effect on FDI inflows.

### ***Statistical Method***

This study suggests that more expansive immigration policies directly attract more FDI due to the positive effects of immigrant networks. In addition to this direct effect, this paper argues that more expansive immigration policies lead to increased FDI inflows indirectly by putting downward pressure on labor costs. To explain both direct and indirect effect, I utilize path analysis to examine the causal mechanisms among immigration, labor costs, and FDI. Given the nature of traditional regression analysis of time series data, there exist a set of spurious regression problems including the presence of unit root, the existence of co-integration, and endogeneity. Therefore, I conduct a set of diagnostic tests.



First, running Augmented Dickey-Fuller (ADF) test, I detect that many of the variables are nonstationary except for three variables, the refugee ceiling per capita, the economic growth, and the market size. The results from ADF are shown in Table 2. Second, since all variables but those three variables are integrated of order one, I perform the Johansen co-integration test to see if any possible co-integration between those explanatory variables and the outcome variables. The results of the Johansen co-integration test with co-integrating ranks ( $r$ ) are presented in Table 3. The adjusted trace statistics indicate that the null hypothesis of no co-integration relationship between variables is rejected and that there exist at least four co-integration relationships between variables at 5%. Therefore, we can expect that there exists a long-term relationship between the variables in the model. The results are reported as follow.

[Table 2 is about here]

[Table 3 is about here]

Overall, the results from the diagnostic tests suggest that single equation error correction models (ECM) are most appropriate for dealing with the presence of non-stationarity and co-integration present in time series data (Beck & Katz, 1996; De Boef & Keele, 2008). The ECM allows us to see the immediate short-term impact of the independent variables by using differenced values, and their long-term impact by using the lagged levels. Naturally, the ECM models remove the existence of trends on all variables including the FDI measure. Intuitively, it is unrealistic to expect that a change in immigration policies would only cause a change in FDI inflows in the following year. Indeed, potential immigrants would want to take a time to make a decision if they will be able to migrate when the immigration laws change. It might also take a little longer to see the results of immigration reforms, and thus foreign firms would want to see

the results over time. Traditional linear regression methods, therefore, would not capture the possible long-run impact of changing immigration policies.

Following the traditional mediation literature and the merits of the ECM, both direct and indirect effects of immigration policies are estimated using the following set of linear equations that model single-level simple mediation analysis with the ECM.

$$\Delta FDI_t = \beta_0 + \beta_1 FDI_{t-1} + \beta_2 \Delta IMMIGRATION_t + \beta_3 IMMIGRATION_{t-1} + \beta_4 \Delta LABOR_t + \beta_4 LABOR_{t-1} + \beta_k \Delta X_t + \beta_k X_{t-1} + \varepsilon_t \dots\dots\dots (1)$$

$$\Delta LABOR_t = \beta_0 + \beta_1 LABOR_{t-1} + \beta_2 \Delta IMMIGRATION_t + \beta_3 IMMIGRATION_{t-1} + \beta_k \Delta X_t + \beta_k X_{t-1} + \varepsilon_t \dots\dots\dots (2)$$

Where subscripts  $t$  denotes time, and  $\varepsilon$  denotes a stochastic error term. Specifically,  $\Delta$  denotes the first difference operator. I model each equation by operating that the change in the dependent variables from the year  $t-1$  to year  $t$  is a function of both the differenced and the lagged major independent variables with the lagged dependent variable.  $\Delta X_t$  denotes the set of the differenced control variables, and the  $\Delta X_{t-1}$  represents their lagged values. The equation (1) estimates the direct effect of immigration policies on FDI inflows by including the mediating variable—labor costs—as the predictor in the model. The equation (2) estimates the indirect effect of immigration policies on FDI inflows using the mediating variable from equation (1) as the dependent variable. The usual structural equation models are limited to situations where linear regression models are appropriate for both the mediator and the outcome (Keele, 2015). Thus, I include the control variables that would explain both the mediating variable (unit labor cost) and the outcome variable (FDI) in the models. While the differenced FDI and labor costs variables should ameliorate the endogeneity problem, it is necessary to make sure that at least weak exogeneity exists in the models. To detect the presence of the endogeneity problem, I

performed the Granger causality tests. The results show that we cannot reject the null hypotheses that FDI does not Granger-cause immigration policy, and that FDI does not Granger-cause labor costs.

### **Empirical Results**

Table 4 shows the results from the estimations of ECM that investigate the direct impact of the national immigration policies on FDI inflows in the U.S. The overall results support the first hypothesis that more expansive immigration policies attract more FDI. Model 1 reports the result from the model that includes the annual ceiling of refugees as the percentage of the total population with all control variables. As shown in the results, the coefficient estimates of the differenced value of annual refugee admission per capita are positively and statistically significant at the 0.05 level in the short-term effect. This indicates that holding all else being equal, as the annual refugee ceiling by total population increases one percent, FDI growth rate immediately increases by 34.2%. The lagged measure of the annual refugee ceiling by total population, which indicates the long-term relationship to FDI, is also significant at the 0.01 level and positive. The actual magnitude, the so-called “long-term multiplier,” suggests that FDI growth rate will continue to change a total of 196% following a one percent increase in the annual refugee ceiling. Based on the error correction rate (-0.55), FDI growth rate will change 107.8% after one year, another 59.3% after two years, 32.6% after three years, and so on until the two series come back to equilibrium. These results suggest that when the federal government implements more expansive immigration laws, the U.S. will receive more FDI. Model 2 shows the result from the alternative model that tests the impact of reforms of U.S. immigration laws on FDI inflows. The coefficient of the differenced term of immigration laws is negative and

significant, suggesting that immigration restrictions lead to 0.4% immediate decrease in FDI growth rate. Furthermore, the coefficient of its lagged level is also negative and statistically significant at the 0.01 level. This suggests that immigration restrictions lead to a 1.2% decrease in predicted FDI growth rate in the long term. Although two different measures of immigration policies show significantly different amounts of FDI growth rate, these results together indicate a strong positive impact of expansive immigration policies to attract more FDI.

As expected, Columns 1 and 2 show that the moderating variable, unit labor costs, are negative, and statistically significant (at the 0.10 and the 0.01 levels, respectively) particularly in the long term. In the ECM model that includes the annual refugee ceiling, a one percent increase of unit labor costs will lead to a 0.2% decrease in predicted FDI growth rate in the long term. Similarly, in the ECM model that includes the years of restrictive immigration laws, a one percent increase of unit labor costs will cause to a 0.1% decrease in FDI growth rate in the long term. As a result, the results indicate a strong negative relationship between labor costs and FDI, particularly in the long run.

Turning to the other key control variables, the results from both models in Table 4 show that most of the control variables perform largely as expected. Of the statistically significant control variables in two models, the coefficients of the corporate tax variable are negative and statistically significant in the short term. The government expenditure variable is positively and significantly correlated with FDI, suggesting that government consumption of goods and services attract more FDI in the short term. As expected, the economic growth variable is positive and significant both in the short- and long-term expectations. The inflation rate is negative and significant only in long term. However, these three variables are only statistically distinguishable only in the ECM model that includes the annual refugee ceiling per capita. Lastly, the

coefficients of union membership indicate the negative and statistically significant long-run effect on FDI growth rate. These results provide partial evidence that the adoption of Right to Work laws has been the more frequent trend to undermine union membership—seeing high unionization signaling a less friendly business climate.

**[Table 4 is about here]**

Table 5 reports findings from the ECMs that investigate the linkage between immigration policies and the mediating variable—labor costs. As shown in Columns 1 and 2, the lagged values of both indicators of the federal immigration policy are statistically significantly correlated with unit labor costs. Specifically, Column 1 indicates that unit labor costs will continue to change a total of 196% following a one percent increase in the annual refugee admission ceiling by total population. In the ECM model that includes the years of restrictive immigration laws (Column 2), a year of restrictive immigration reform will lead to a 13.4% increase in unit labor costs in the long term. These results indicate that less restrictive immigration policies will significantly reduce unit labor costs.

Briefly explaining the effects of control variables, five variables—the differenced corporate tax and regulation variables, and the lagged government expenditure, market size, and trade openness variables—are statistically significant in two models. The differenced corporate tax variable is positively correlated with labor costs, suggesting that higher corporate tax rates and more regulation decrease the businesses and industrial activities, which in turn increase labor costs. As expected, the estimated long-term coefficient for government expenditures is negatively and significantly correlated with labor costs. This suggests that increased government expenditures are transferred to the increase of economic resources, which lower labor costs. Contrary to the expectation, market size measured as the logged population is negatively

associated with labor costs. This result provides partial evidence that an increase in market size would not always lead to an increase of labor supply. Lastly, the long-term positive effect of trade openness on labor costs suggests that trade openness increases labor costs by raising employee incomes and increasing consumption.

### **Conclusions and Discussion**

A volume of studies examining FDI have focused on exploring how the economic and political incentives are associated with foreign firms' location decisions. Many studies have found major potential determinants including some cost-related factors such as labor costs, financial incentives such as exchange rates, macro-economic factors such as the size of the current and potential market, the level of a country's wealth, and trade liberalization (e.g., Kandogan, 2012). However, there is little evidence what political and/or economic rewards are effective in attracting more foreign firms' investment in one country. One should expect, however, that foreign firms are strong rational actors that seek to maximize profits when the benefit from all deliberated determinants does not exceed its cost. As a result, there is no single most important determinant that would influence foreign firms' location decisions. In this sense, I suggest that another potential factor that may attract FDI is the U.S. government's change in preference on immigration policy. The results support the central implication of the indirect effect of immigration policies that more expansive national immigration policies will attract more FDI inflows in the U.S. by lowering labor costs. The findings have significant implications for the study of immigration policy and economic growth in the U.S. First, the empirical results strongly support my assertion that more expansive immigration policy is a window of opportunity for those of foreign firms that plan to invest or to expand their existing plants in the

U.S. This is particularly true for those of foreign manufacturing firms because the liberal immigration policy of the national government can improve the investment climate in the U.S. by lowering the unit labor costs. Second, the results indicate that the national policymakers can directly increase more foreign manufacturing firms by manipulating immigration policy and thereby improving the nation's economic condition. Taking these findings into account, this study suggests that the national-level immigration reforms that have been successful in increasing legal immigrants and non-immigrants have stabilized the labor market and have attracted more foreign firms. As such, more liberal immigration policy directed at increasing immigrant population can be viewed as one of the important determinants for the potential foreign firms that wish to increase their capital and to build more plants in America.

Despite these potentially significant implications, this article has some shortcomings. First, the measures immigration policies that this study used, which were measured by the annual refugee admission ceiling and the year dummy of major immigration reform, may produce misleading results into the analyses. As suggested in growing studies of the immigration policies-industries linkage, a focus on a single immigration policy may produce misleading results by losing the effect of using an aggregate measure because immigrants seem to be influenced by multiple policy levels (e.g., Nicholson-Crotty & Nicholson-Crotty, 2011). Future research needs to develop more concrete measures of the immigration policy climate that would affect the migrant flows. Second, the findings could be different in the current era of devolution. Since the increased discretionary authority for state governments may often increase the opposition to the federal immigration policy and thereby developing and implementing states' own immigration policy due to the preferences of their citizens, foreign firms would not make their investment decision based solely on the consequence of the federal immigration policies.

As a result, the positive impact of immigration policy on FDI inflows would be conditional according to the federal and state-level government interaction. There is an important topic, which is vital for a comprehensive understanding of FDI in the U.S., exploring how the policy levers available to state governments can make a particular state more attractive to foreign firms.

Despite some limitations of this research, the findings have potentially significant implications in advising national policymakers regarding immigration policy. Countries have been competitive to attract more foreign firms not only because FDI adds to economic resources and capital formation, but also because it serves as a means of transferring high-production technology and skills, innovative performance, and organizational and managerial practices from home countries to host countries. If the U.S. would adopt a more liberal immigration policy, it would benefit from the potential increase of FDI in a way that lowers potential labor costs and secures a stable labor supply.



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**Table 1. Descriptive Statistics**

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
FDI Inflows	47	1.083	0.852	0.075	3.404
Refugee ceiling per capita	37	0.036	0.018	0.022	0.102
Immigration law	47	0.191	0.398	0	1
Labor cost	47	90.677	17.118	51.1	111.2
Corporate tax	47	0.394	0.060	0.34	0.492
Regulation	47	124858.6	35234.66	54834	185053
Government expenditures	47	15.745	1.051	13.996	18.069
Economic growth	47	1.795	1.981	-3.624	6.334
Market size	47	19.375	0.141	19.139	19.594
Interest rate	47	4.106	2.365	0.585	8.720
Inflation	47	4.133	2.926	0.119	13.509.
Trade openness	47	21.220	5.383	13.730	30.885
Union membership	47	16.681	4.786	10.7	27.4

**Table 2. The Results of Dickey-Fuller Unit Root Test**

Variables	On level series	On first difference series
FDI Inflows	-2.006	-7.019***
Refugee ceiling per capita	-4.882***	-
Labor cost	-2.755	-4.559***
Corporate tax	-1.496	-4.158***
Regulation	-1.203	-6.119***
Government expenditures	-1.994	-4.568***
Economic growth	-4.962***	-
Market size	-2.813**	-
Interest rate	-1.980	-6.642***
Inflation	-2.066	-5.498***
Trade openness	-1.740	-6.863***
Union membership	-2.595	--6.571***

*Note:* Null hypothesis is that each variable contains unit root. The asterisks \*\*\* and \*\* denote the significance level at 1% and 5%, respectively.

**Table 3. The Results of Johansen Cointegration Test**

Null Hypothesis	Alternative Hypothesis	Trace Statistics	Max –Eigen Statistics
$r = 0$	$r \geq 1$	293.349***	81.159***
$r \leq 1$	$r \geq 2$	212.190***	64.156***
$r \leq 2$	$r \geq 3$	148.034***	46.222**
$r \leq 3$	$r \geq 4$	101.812**	43.242**
$r \leq 4$	$r \geq 5$	58.571	24.877
$r \leq 5$	$r \geq 6$	33.394	18.223
$r \leq 6$	$r \geq 7$	15.471	10.478
$r \leq 7$	$r \geq 8$	4.993	4.920
$r \leq 8$	$r \geq 9$	0.073	0.073

*Note:* The asterisks \*\*\* and \*\* denote the significance level at 1% and 5%, respectively.

**Table 4. The Impact of Immigration Policy on FDI Inflows in the U.S.**

Variables	Refugee ceiling per capita	Restrictive immigration law
FDI <sub><i>t-1</i></sub>	-0.545*** (0.206)	-0.759*** (0.259)
ΔImmigration policy <sub><i>t</i></sub>	34.224** (13.02)	-0.351** (0.184)
Immigration policy <sub><i>t-1</i></sub>	107.913*** (28.785)	-0.935*** (0.271)
ΔLabor cost <sub><i>t</i></sub>	0.006 (0.087)	-0.005 (0.037)
Labor cost <sub><i>t-1</i></sub>	-0.114* (0.087)	-0.039*** (0.009)
ΔCorporate tax <sub><i>t</i></sub>	-15.761** (8.842)	-8.831** (4.628)
Corporate tax <sub><i>t-1</i></sub>	6.235 (9.646)	4.903** (2.616)
ΔRegulation <sub><i>t</i></sub>	-0.00001 (0.00004)	0.0001** (0.00002)
Regulation <sub><i>t-1</i></sub>	-0.00002 (0.00003)	-3.72e-06 (0.00002)
ΔGovernment expenditures <sub><i>t</i></sub>	1.607* (0.956)	-0.062 (0.303)
Government expenditures <sub><i>t-1</i></sub>	0.277 (0.605)	-0.456*** (0.154)
ΔEconomic growth <sub><i>t</i></sub>	0.541* (0.322)	0.032 (0.062)
Economic growth <sub><i>t-1</i></sub>	0.570* (0.339)	0.016 (0.060)
ΔMarket size <sub><i>t</i></sub>	76.748 (169.010)	88.302** (49.208)
Market size <sub><i>t-1</i></sub>	-8.273 (11.660)	9.075 (9.709)
ΔInterest rate <sub><i>t</i></sub>	0.094 (0.220)	0.161*** (0.063)
Interest rate <sub><i>t-1</i></sub>	0.188 (0.241)	0.160** (0.093)
ΔInflation <sub><i>t</i></sub>	-0.190 (0.215)	-0.148** (0.083)
Inflation <sub><i>t-1</i></sub>	-0.507* (0.297)	0.045 (0.079)
ΔTrade openness <sub><i>t</i></sub>	-0.052 (0.176)	0.178** (0.101)
Trade openness <sub><i>t-1</i></sub>	0.022 (0.142)	-0.137** (0.080)
ΔUnion membership <sub><i>t</i></sub>	-0.514 (0.534)	-0.059 (0.146)
Union membership <sub><i>t-1</i></sub>	-0.946* (0.649)	-0.149*** (0.044)
Constant	178.046 (227.875)	-162.086 (185.431)



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R-Squared	0.929	0.831
Durbin-Watson	2.811	2.488

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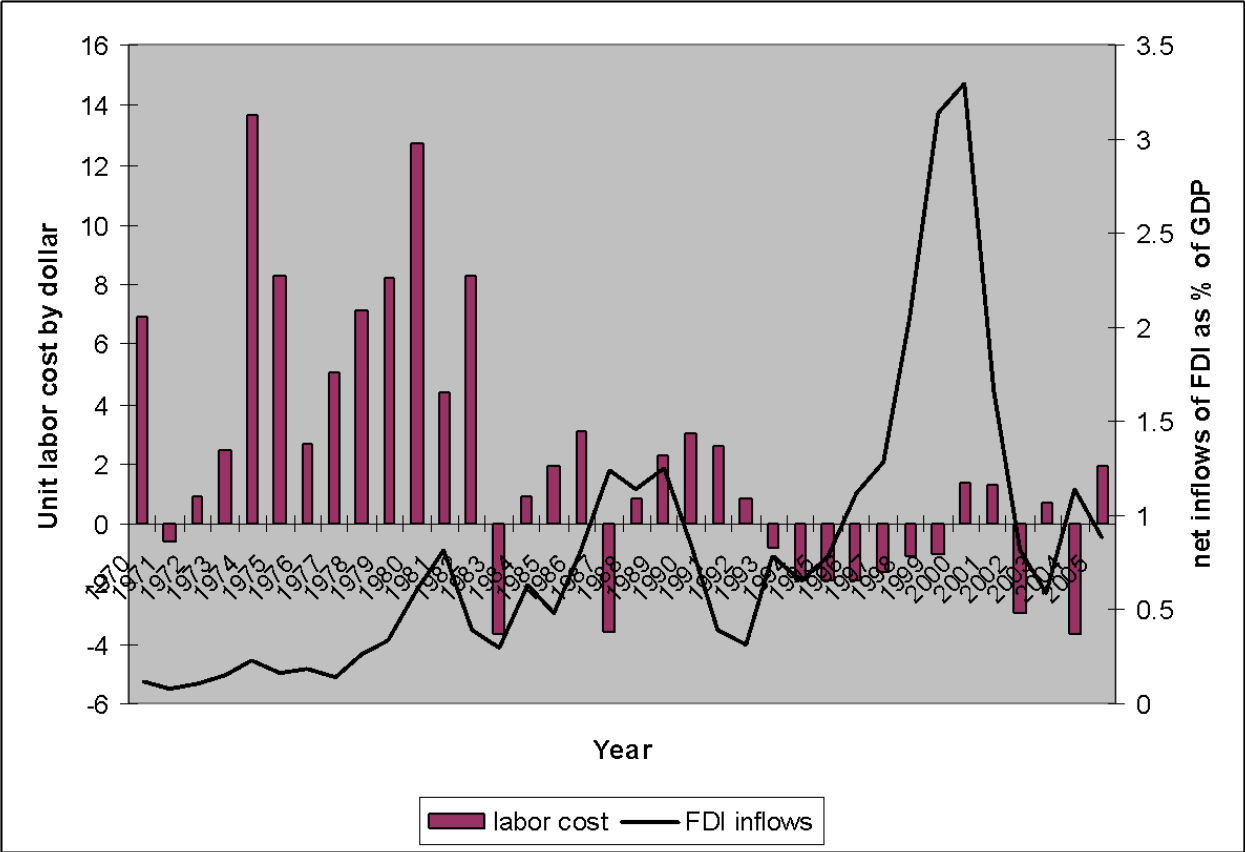
*Note:* Prais-Winsten (PW) estimation is used here. \* $p < .10$ , \*\* $p < .05$ , \*\*\* $p < .01$ ; one-tailed test. Semirobust standard errors are in parenthesis.

**Table 5. The Impact of Immigration Policy on Labor Costs in the U.S.**

Variables	Refugee ceiling per capita	Restrictive immigration law
Labor cost $_{t-1}$	-0.536*** (0.140)	-0.105** (0.059)
$\Delta$ Immigration policy $_t$	81.100 (60.722)	-0.709 (0.873)
Immigration policy $_{t-1}$	-139.450** (77.176)	1.411** (0.809)
$\Delta$ Corporate tax $_t$	38.964* (24.047)	23.407** (12.325)
Corporate tax $_{t-1}$	-47.676*** (16.911)	1.383 (8.976)
$\Delta$ Regulation $_t$	0.0002** (0.0001)	0.0002* (0.0001)
Regulation $_{t-1}$	7.67e-06 (0.0001)	0.0002*** (0.0001)
$\Delta$ Government expenditures $_t$	-4.017* (2.620)	2.214* (1.364)
Government expenditures $_{t-1}$	-4.414*** (1.132)	-1.161** (0.648)
$\Delta$ Economic growth $_t$	-2.095*** (0.761)	-0.161 (0.265)
Economic growth $_{t-1}$	-1.815** (0.917)	0.345 (0.309)
$\Delta$ Market size $_t$	1146.537*** (326.771)	205.278 (285.112)
Market size $_{t-1}$	-38.269* (27.327)	-95.973*** (26.975)
$\Delta$ Interest rate $_t$	-1.592*** (0.335)	-0.454 (0.374)
Interest rate $_{t-1}$	-1.161*** (0.353)	-0.342 (0.330)
$\Delta$ Inflation $_t$	-0.883* (0.515)	-0.054 (0.382)
Inflation $_{t-1}$	-1.233** (0.503)	0.202 (0.338)
$\Delta$ Trade openness $_t$	0.938** (0.396)	0.296 (0.473)
Trade openness $_{t-1}$	0.831*** (0.232)	0.816*** (0.327)
$\Delta$ Union membership $_t$	-0.562 (1.428)	-0.805* (0.610)
Union membership $_{t-1}$	3.884*** (1.312)	-0.416 (0.321)
Constant	809.675* (522.687)	1850.829*** (520.054)
R-Squared	0.975	0.952
Durbin-Watson	2.858	3.030

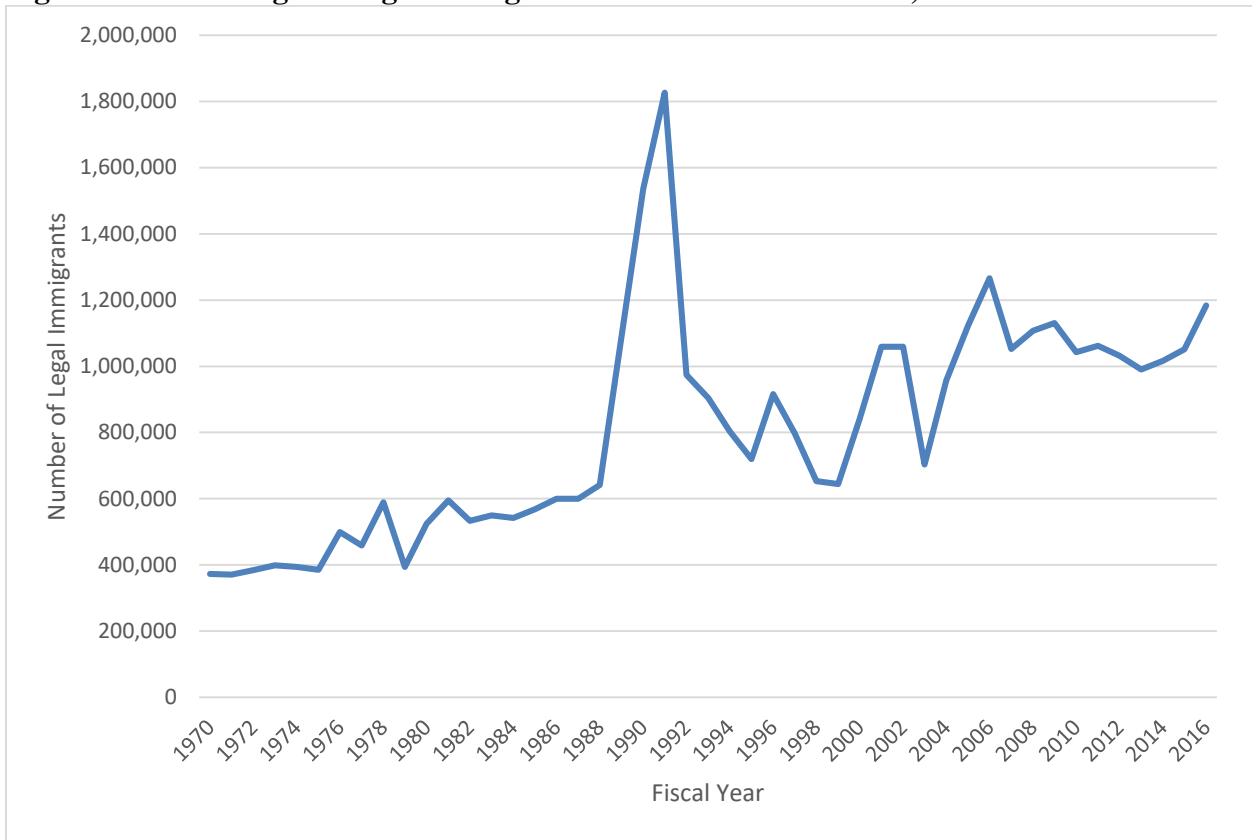
Note: Prais-Winsten (PW) estimation is used here. \* $p < .10$ , \*\* $p < .05$ , \*\*\* $p < .01$ ; one-tailed test. Semirobust standard errors are in parenthesis.

**Figure 1. The Change of Labor Cost and FDI Net Inflows: 1970-2005**



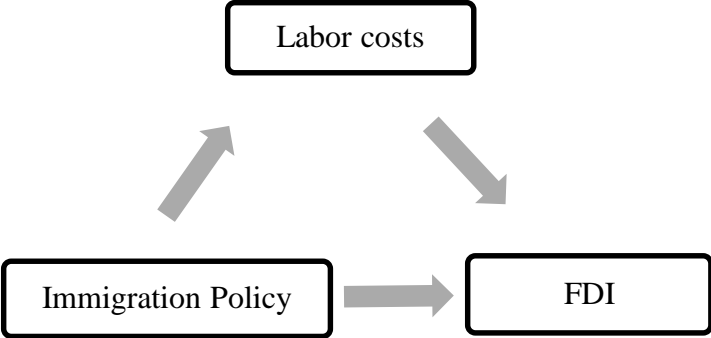
Source: Bureau of Economic Analysis and Bureau of the Labor Statistics

**Figure 2. The Change of Legal Immigration to the U.S. over Years, 1970-2016**



Source: Migration Policy Institute Data Hub.

Figure 3. Conceptual Linkage between Immigration Policy and FDI Inflows



## Appendix 1. Summary of Major U.S. Immigration Laws

Year	Major highlights
1976	The Immigration and Nationality Act Amendments of 1976 (90 Stat. 2703) adopts the 1965 Immigration and Nationality Act’s system of immigration “preference categories” for immigrants from Western Hemisphere countries.
1980	The Refugee Act of 1980 (94 Stat. 102) establishes a new statutory system for processing and admitting refugees from overseas as well as asylum seekers physically present at US borders or in the country. The law defines a “refugee” as any person outside the person’s country of nationality who is unable or unwilling to return to that country because of persecution or a well-founded fear of persecution on account of race, religion, nationality, membership in a particular social group, or particular opinion.
1986	The Immigration Reform and Control Act (IRCA) (100 Stat. 3359) provides for a 50 percent increase in border patrol staffing, and imposes sanctions on employers who knowingly hire or recruit unauthorized immigrants. The law also creates two legalization programs. One allows unauthorized aliens who have lived in the United States since 1982 to regularize their status; the other permits people who have worked for at least 90 days in certain agricultural jobs to apply for permanent resident status. Under these programs, roughly 2.7 million people who were then illegally residing in the United States eventually become lawful permanent residents.
1994	The Violent Crime Control and Law Enforcement Act (VCCLEA) (108 Stat. 1791) gives the US Attorney General the option to bypass deportation proceedings for certain alien aggravated felons, enhances penalties for alien smuggling and reentry after deportation, and increases appropriations for the Border Patrol.
1996	The Antiterrorism and Effective Death Penalty Act (AEDPA) (110 Stat. 1214) adds new crimes to the definition of aggravated felony. AEDPA also establishes the “expedited removal” procedure for arriving noncitizens who border official’s suspect of lacking proper entry documents or being engaged in fraud; the procedure is amended later that year by the Illegal Immigration Reform and Immigrant Responsibility Act.
2001	The USA Patriot Act (115 Stat. 272) broadens the terrorism grounds for excluding aliens from entering the United States and increases monitoring of foreign students.
2002	<ul style="list-style-type: none"> <li>• The Enhanced Border Security and Visa Entry Reform Act (116 Stat. 543) requires the development of an interoperable electronic data system to be used to share information relevant to alien admissibility and removability. It also requires the implementation of an integrated entry-exit data system: the US-VISIT program is established to implement this system.</li> <li>• The Homeland Security Act (116 Stat. 2135) creates the Department of Homeland Security (DHS). In 2003, nearly all of the functions of the US Immigration and Naturalization Service (INS) — the Department of Justice agency responsible for provision of immigration services, border enforcement, and border inspection — are transferred to DHS and restructured to become three new agencies: US Customs and</li> </ul>

	Border Protection (CBP), US Immigration and Customs Enforcement (ICE), and US Citizenship and Immigration Services (USCIS).
2004	L-1 Visa Reform Act of 2004 added new penalties for abuse of the L-1 intra-company transfer visa.
2005	The REAL ID Act (119 Stat. 302) establishes statutory guidelines for removal cases, expands the terrorism-related grounds for inadmissibility and deportation, includes measures to improve border infrastructure, and requires states to verify an applicant's legal status before issuing a driver's license or personal identification card that may be accepted for any federal purpose. (States' protests persuade Congress to delay implementation of the drivers' license provisions of the law.) It also bars the use of habeas corpus as a vehicle for challenging removal orders, thus virtually completing the concentration of judicial review in the courts of appeals.
2006	Congress enacts the Secure Fence Act after the Senate fails to adopt immigration reform legislation that had passed the House in 2005. The law mandates the construction of more than 700 miles of double-reinforced fence to be built along the border with Mexico, through the US states of California, Arizona, New Mexico, and Texas in areas that experience illegal drug trafficking and illegal immigration. It authorizes more lighting, vehicle barriers, and border checkpoints and requires the installation of more advanced equipment, such as sensors, cameras, satellites, and unmanned aerial vehicles, in an attempt to increase control of illegal immigration into the United States.

Source: Migration Policy Institute (<https://www.migrationpolicy.org/research/timeline-1790>)

## Notes

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<sup>1</sup> The detail definitions are available at the website of U.S. Citizenship and Immigration Services (<http://www.uscis.gov/eir/visa-guide/h-1b-specialty-occupation/h-1b-visa>).

<sup>2</sup> Ali and Guo (2005, 24) point out that the determinants of FDI inflows can be classified into three categories, Micor-, Macro, and strategic determinants.

<sup>3</sup> The World Bank. 2002. *Foreign Direct Investment Survey*. Washington, DC: The World Bank Group

<sup>4</sup> All control variables are from the World Bank's World Development Indicator 2015 unless otherwise noted.



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