

Variations in Naturalization Premiums by Country of Origin

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Abstract: This study uses the 2013 American Community Survey to explore differences in the returns to obtaining US citizenship for immigrants from the four largest source countries relative to all other immigrants. We find that Chinese, Mexican, and Filipino immigrants face a wage penalty prior to naturalization, while Indian immigrants experience higher wages than other immigrants. Naturalization more than offsets the wage penalty for Chinese immigrants and partially offsets the wage penalty for Mexican and Filipino immigrants. However, naturalized Indian immigrants earn less than non-naturalized Indian immigrants. Furthermore, we find no evidence of a naturalization premium for immigrants from other countries.

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1. Introduction

Research into the returns to citizenship has largely found a significant economic benefit to immigrants choosing to naturalize. In general, naturalized immigrants tend to have lower rates of unemployment, higher earnings and wage growth, and tend to be employed in occupations with more desirable job characteristics compared to non-naturalized immigrants (Bratsburg et al., 2002; Steinhardt, 2012; Gathman and Keller, 2013; Helgertz et al., 2014; Euwals et al., 2010). While some studies have examined how these labor market differences differ across countries and regions of origin, these differences are mostly explained by differences in initial human capital and the ease of assimilation. While these differences are indeed important, there is another source of variation that has been largely ignored in the literature: differences in the ability to naturalize. Empirical studies examining naturalization in the US (e.g. Bratsburg et al., 2002 and Akbari, 2008) implicitly assume that the naturalization process is the same for all immigrants, regardless of country of origin. However, this is not the case. For immigrants from certain countries, the process of naturalization can take several years longer than average. This can substantially increase the costs of obtaining citizenship, thus altering the composition of the naturalized immigrant population.

According to US Citizen and Immigration Services, in order to qualify for naturalization, an applicant must have been a legal permanent resident (a.k.a. a “green card” holder) for at least five years, or three years if married to a US citizen. After this time, green card holders are eligible to apply for citizenship (USCIS, 2016a). However, not all immigrants to the US have the same access to green cards. With the exception of immediate family members of US citizens, annual green card allocation is restricted by quotas pertaining to

immigrant category and country of origin. In particular, the Department of State issues a maximum of 226,000 family-preference sponsored visas and 140,000 employment-based visas per year. These two broad categories are further subdivided into sub-categories, with each receiving a percentage of the total visa allocation (USCIS, 2016b). Furthermore, no more than 7 percent of the total available visas may be issued to natives of any one independent country (USCIS, 2016c). In practice, this means that a maximum of approximately 25,000 green cards can be issued to applicants from any single source country, while the rest of the applicants are placed on a waiting list. In fiscal year 2017, Mexico has 1.3 million applicants on the waiting list. China, India, and the Philippines each have over 250,000 applicants on the waiting list (US Department of State, 2016). Thus, applicants from the largest immigrant source countries might wait several years to obtain legal permanent residence, making the time to naturalization much longer for some groups than others. Furthermore, since there are additional quantitative limits on classes of visas, wait times can vary widely even for applicants from the same country. For example, while there is no waitlist for workers with advanced degrees from the Philippines, the wait time to get a green card for brothers and sisters of adult US citizens from the Philippines can be longer than 20 years (US Department of State, 2017).

If the returns to naturalization vary across different countries of origin, then this quota system is a potential source of major inefficiencies within the economy. This study represents a first step in understanding how the visa quota system affects immigrants from oversubscribed countries. In particular, we examine differences in earnings between naturalized and non-naturalized immigrants, paying particular attention to immigrants from the four largest source countries for immigrants to the US: China, India, Mexico, and the

Philippines. We compare this naturalization premium to immigrants from the rest of the world to determine whether naturalized immigrants from oversubscribed countries benefit more or less than immigrants from other countries. We find that the premiums are larger than average for Chinese, Mexican, and Filipino immigrants, but smaller than average for Indian immigrants. Furthermore, we find that Chinese, Mexican, and Filipino immigrants face a wage penalty compared to other migrants. We find that naturalization more than offsets this penalty for Chinese immigrants, but only partially offsets the penalty for Mexican and Filipino immigrants. Finally, we find no evidence of a naturalization premium for immigrants from the rest of the world.

2. Economic Assimilation and the Naturalization Premium

A wide body of literature has examined how immigrants fare in the labor market. Much of this literature focuses on immigrants' labor market performance relative to natives, and the role that assimilation and citizenship play in labor market outcomes. Chiswick (1978) was one of the first to investigate the effect of citizenship on earnings. While he initially found evidence that naturalized immigrants earn more than non-naturalized immigrants, after controlling for years since migration, this effect disappeared. Hence, he concluded that naturalized immigrants earn more due to more experience in the US, rather than naturalization itself. The general explanation of this finding is that new immigrants lack the necessary information and skills necessary for labor market success when they first arrive. However, over time they assimilate to local labor market conditions, and their wages catch up to natives' wages. Further, if immigrants are positively selected, eventually their wages will surpass those earned by natives. The findings of this seminal study, that

naturalization was insignificant and immigrants' earnings catch up over time, coupled with a dramatic shift in immigrant demographics that was occurring at the time led the research narrative over the next few decades to focus attention away from the effects of naturalization and toward identifying more precise estimates of the rate of wage growth for various immigrant cohorts and regions of origin.

Perhaps the most important point of contention with Chiswick's (1978) findings was that the data were restricted to white males observed in the 1970 Census. Given that in the 1950's, "approximately two-thirds of all immigrants arrived from Europe, Canada, or Australia" (LaLonde and Topel, 1992), this may have been an appropriate group to study at the time. However, reforms to immigration law in 1965 meant that the typical immigrant in the future may not be well represented by the white male who arrived in the previous 50 years. Prior to the Immigration and Naturalization Act of 1965 the US utilized a country-of-origin quota system that allowed entry based on 1890 population ratios. This system largely favored immigrants from Western Europe, while excluding immigrants from Eastern and Southern Europe, as well as other parts of the world, particularly Asia and Latin America. The removal of the quota system in 1965 dramatically changed the demographic profile of immigrant flows into the US. Between the 1970 and 1980 Census recent arrivals from Europe fell from 30 percent of the new immigrant population to 14 percent, while recent arrivals from Asia, and Central and South America rose from 39 percent to 67 percent (Pew Research Center, 2015, pg. 35). In the 50 years since 1965, only 12 percent of immigrants come from Europe, while 51 percent come from Latin America and 25 percent come from South/East Asia (Pew Research Center, 2015, pg. 19).

Furthermore, the new law put an emphasis on family-based preferences in immigration over employment-based preferences.

These changes in cohort demographics combined with the cross-sectional nature of the data led future research largely to ignore the effects of naturalization and focus mostly on whether the observed effects on immigrant wage growth were due to assimilation effects or changes in cohort quality. That is, if immigrants entering the country in 1970 are more likely to come from countries with lower levels of human capital than immigrants who arrived in 1950, it follows that these later immigrants would have less human capital and therefore not perform as well in the labor market. Thus the observed differences between recent arrivals and previous arrivals is not due to the previous arrivals having been in the country longer, but that they came with more human capital to start with. Thus, research on immigrant performance over the decades to follow was largely focused on identifying the accurate rate of wage growth for various immigrant groups, according to arrival cohorts and places of origin (see, for example, Borjas, 1985, 1995; Chiswick, 1986; Duleep and Regets, 1997; and LaLonde and Topel, 1992).

It wasn't until the turn of the century that economists began looking again at the labor market benefits of naturalization. Bratsberg et al. (2002) revisited the question of returns to naturalization, highlighting the labor market advantages naturalized citizens have over non-naturalized immigrants. First, US citizens have access to certain federal and local government jobs that non-citizens do not. Also, employers may prefer US citizens over non-citizens for a variety of reasons. Employers may have a taste for discrimination or be fearful of running afoul of immigration laws. Additionally, acquiring citizenship may signal to employers an applicant's level of commitment to stay in the US and willingness

to invest in US-specific human capital. Finally, there may be selection effects based on unobservable characteristics. Using both cross-sectional (1990 census and 1994-98 CPS) and longitudinal data (NLSY), they find that naturalized citizens 1) earn higher wages, on average, primarily due to higher rates of wage growth, 2) are more likely to be employed in public-sector, white-collar, and union jobs, and 3) benefits of naturalization are larger for immigrants from less developed countries. A later study by Akbari (2008), using data from the 2000 census, similarly found that the returns to naturalization are substantially higher for immigrants from developing countries. However, he finds the returns to naturalization to be smaller for migrants from developing countries working in professional occupations, perhaps due to lack of recognition of foreign credentials.

Outside of the US, other studies find similar results. DeVoretz and Pivnenko (2005) find that immigrants to Canada from non-OECD countries receive a higher naturalization premium than immigrants from OECD countries. Steinhardt (2012) finds that naturalization benefits Turkish immigrants and “third country nationals”³ more than immigrants from EU, European Economic Area, or OECD countries. Corluy et al. (2011), examining immigrants to Belgium, finds no significant effect of naturalization on wages for immigrants from Western countries of origin. However, there is a positive effect on wages for immigrants from non-Western countries, particularly from North Africa and South America.

Within all of the literature examining the naturalization premium there is the underlying question of whether the increases in wages or wage growth are due to selection bias, or

³ Third country nationals refers to countries outside of the EU that do not have bilateral labor agreements with Germany.

whether it is a causal effect. Many studies are unable to disentangle these effects due to data constraints. Those that do, generally find that the naturalization premium is a combination of both selection and causal effects. As mentioned above, causal impacts may be derived from access to certain jobs only available to citizens, or signaling effects to employers. Selection among immigrants, however, may be positive or negative. Positive selection may occur through successful social integration. As an immigrant assimilates and begins to identify with the culture of the host country, this might lead to both positive labor market outcomes and the desire to obtain citizenship. Further, the desire to obtain citizenship may arise from successful labor market outcomes. That is, if an immigrant secures a successful job in the host country, they may wish to obtain citizenship to ensure their right to remain in the host country (Euwals et al., 2010). On the other hand, negative selection might occur if low earning immigrants choose to naturalize to access welfare state benefits of the host country (Euwals et al., 2010), or successful migrants may decide to return home if their accumulated savings have higher purchasing power in their home country (Wahba, 2015). While selection is generally found to be positive (Bratsburg et al. 2002, Scott 2008), Euwals et al. (2010) find some evidence of negative selection in the case of Germany. However, this negative selection is only with respect to tenured employment probability, which they attribute to immigrants wanting to obtain citizenship before temporary contracts expire.

It should not be surprising that evidence of negative selection is rare in the literature. The naturalization process can be rather costly, in monetary costs as well as time and effort. Under standard utility maximization theory, rational immigrants would not choose to naturalize unless expected future benefits exceed those costs. In the case of naturalizing in

order to get welfare state benefits, it is unlikely that the additional benefits received would exceed the costs associated with the naturalization process. Furthermore, in many countries immigrants must be able to demonstrate economic self-sufficiency before they can become citizens. It is also unlikely that a desire to return to their home country would prevent successful immigrants from naturalizing. Unless the country forbids dual citizenship and has strict regulations governing non-citizens, e.g. preventing foreigners from owning real estate or inheriting wealth, naturalizing in the host country would not impose a significant additional cost in that respect. Thus, the costs associated with naturalization process serve as a screening mechanism which tends toward positive selection.

One glaring hole in the literature on US naturalization is that it assumes the process is the same for all immigrants, and that the decision to naturalize is solely a function of demographic characteristics, such as age and human capital. However, while all immigrants wishing to naturalize must follow the same steps, quantitative limits on visa issuance have created a substantial difference in the time costs associated with the naturalization process depending on the immigrants country of origin. Depending on the category of visa applied for, immigrants from China, India, Mexico, or the Philippines might have to wait as much as 25 years longer than immigrants from other countries to obtain legal permanent resident status, which is an intermediate step in the naturalization process. These substantial differences in wait times are likely to deter many immigrants from undertaking the process of naturalizing, potentially losing many immigrants that would otherwise contribute significantly to the US labor market. If differences in the naturalization premium exist across countries of origin, then allocation of citizenship is potentially inefficient.

To date, we are unaware of any studies that have examined this possibility. While there has been a fairly large amount of attention paid in the literature to differences in immigrant origin, for the most part it ignores naturalization, and primarily highlights the differences in human capital between Western Europe and other parts of the world. As such, much of the immigrant population in the US is lumped into broad groups such as Asia, Latin America, Middle East, or “developing countries.” Very few studies have looked at economic performance of immigrants from specific countries (with Mexico and Cuba being notable exceptions), and those that do are aimed at highlighting underlying human capital differences between countries within a specific region. Lin (2013) examines the labor market performance of ethnic Chinese immigrants to the US from mainland China, Hong Kong, and Taiwan. Aly and Ragan (2010) compare US labor market performance for immigrants from different Arab countries. Wu and Seeborg (2012) analyze differences in wage convergence between immigrants from Mexico and China in the US. All three of these studies ascribe the difference in outcomes between these countries to differences in the human capital immigrants bring with them. None of these studies, however, consider the role of naturalization and the effect it may have on labor market access as a contributing factor to differences in earnings.

In the sections below, we estimate the naturalization premium for immigrants from the four main oversubscribed source countries: China, India, Mexico, and the Philippines. Immigrants from these four countries have the longest wait times to obtain green cards, and, thus, naturalization. Understanding how naturalization affects these immigrants will be critical in developing a more efficient immigration system. We compare the estimates for these four countries to estimates for immigrants from the rest of the world. Our findings

indicate that the arbitrary visa quota system leads to an inefficient distribution of citizenship.

3. Data and Methodology

Our aim in this study is to estimate the “naturalization premium” as described by Euwals, et al. (2010), according to country of origin. To determine the naturalization premium we estimate the following wage equation

$$\ln(Y_i) = \beta_1 N_i + \sum_{j=1}^n \beta_2 C_{ij} + \sum_{j=1}^n \beta_3 (N_i) * (C_{ij}) + \Gamma X_i + \epsilon_i$$

where Y_i is annual income, N_i is a binary variable equal to 1 if the immigrant is naturalized, C_{ij} is also a binary variable equal to 1 if individual i was born in country j , where $j \in \{China, India, Mexico, Philippines\}$, and X is a vector of individual and demographic control variables. Our estimate of the naturalization premium for each country, j , is $\gamma = b_1 + b_3 C_{ij}$. As described by Euwals, et al. (2010), the naturalization premium consists of three components, such that $\gamma = \gamma_c + \gamma_{ps} + \gamma_{ns}$, where γ_c is the causal impact of naturalization, γ_{ps} represents a positive selection effect, and γ_{ns} is a negative selection effect. If the coefficient estimate is positive, this would indicate that the causal impact and positive selection effect outweigh any negative selection effects, and vice-versa for a negative coefficient estimate.

This study uses data from the 2013 American Community Survey. We restrict the sample to include only foreign-born, working-age males with nonzero income. Additionally, we

follow Mazzolari (2009) to restrict the sample to only individuals who were at least 18 years old when they arrived in the US, and have been in the US for at least 5 years in order to eliminate those who gained citizenship through their parents' naturalization and nonimmigrant respondents.

Table 1 reports summary statistics for selected variables. Among all immigrant men who were at least 18 years old when they arrived in the US, had positive wage and salary income in 2012, and have been in the US for at least 5 years, mean annual earnings were just under \$52,000. Naturalized immigrants earned approximately \$20,000 per year more than their non-naturalized counterparts. Indian immigrants have the highest annual earnings with an average of \$103,748, while Mexican immigrants have the lowest at \$29,095. Across all sub-groups, naturalized immigrants have higher earnings.

[Table 1 Here]

In the full sample, 46.8 percent of immigrants are naturalized. Filipino immigrants have the highest rate of naturalization at 73.4 percent, while Mexican immigrants have the lowest rate at 23.1 percent. Slightly more than half of Indian and Chinese immigrants are naturalized.

In addition to naturalization status, we include several control variables similar to those proposed by Lin (2013) that might influence an immigrant's earning potential. We include age, and its square, to proxy for potential work experience. The average age in our sample is approximately 45 years old, and naturalized immigrants are, on average, 7.41 years older. Across all sub-groups, the average age is between 42 and 49 years, and naturalized immigrants are older, on average. The largest age difference between naturalized and non-

naturalized immigrants is among Indian immigrants at 11.37 years. The smallest difference, 4 years, is found among Filipino immigrants. We also include the number of years, and its square, the immigrant has been in the US to control for assimilation effects. The average immigrant has been in the US for 17.6 years. Naturalized immigrants have been in the US approximately 7 years longer than non-naturalized immigrants. Indian immigrants have the least average experience in the US, 15.21 years, but the largest gap between naturalized and non-naturalized immigrants, 10 years. Additionally, as a proxy for immigrant networks we include the share of the immigrant population in the immigrant's place of residence. We expect areas with larger immigrant populations will provide better labor market opportunities for immigrants in general. Immigrants who speak English will also likely have access to more and better jobs, so we include a variable for English fluency. Mexican immigrants have the lowest rate of English fluency, but also the largest gap between naturalized and non-naturalized immigrants. Over 70 percent of naturalized Mexican immigrants are fluent in English, compared to only 42 percent among non-naturalized immigrants. As a final control for human capital, we include education levels. Across the entire sample, 31 percent have a college degree. However, this number varies widely across country of origin. Approximately half of Chinese and Filipino immigrants have college degrees. However, 85 percent of Indian immigrants have college degrees, but only 5 percent of Mexican immigrants have degrees. Interestingly, Indian immigrants are the only sub-group for which the share of college graduates is smaller for naturalized citizens. We also control for whether an individual is currently in school. We expect current students to earn less as they are less likely to be fully engaged in the labor market. Similarly, we include the number of weekly hours worked, as those who work more are

likely to earn more. We also include household characteristics. Naturalized immigrants are more likely to be married, with highest marriage rates among Indian immigrants. Mexican immigrants tend to have more children than other immigrant groups. Across all sub-groups, naturalized immigrants are more likely to be married and have more children. Finally, since earnings can fluctuate across geographic locations, we include a set of regional controls and whether the household is in a metropolitan area.

4. Results

Table 2 presents our results for the estimates of the model presented above. The baseline model, which does not control for country of origin, in Column 1 shows that on average naturalized immigrants earn 6.2 percent more than non-naturalized immigrants. These results are consistent with previous findings by Bratsburg et al. (2002), who find naturalized immigrants earn between 5 and 11 percent more than non-naturalized immigrants. Columns 2-5 introduce controls for country of origin for the US' four largest immigrant source countries, allowing for a comparison of the outcomes immigrants from each country face relative to immigrants from all other countries. Column 2 shows that immigrants from Mainland China face a wage penalty when compared to other immigrants, with non-naturalized immigrants earning 7.25 percent less than non-naturalized immigrants from the rest of the world. However, the naturalization premium for immigrants from Mainland China is approximately 19.6 percent. This more than offsets the initial wage penalty, and suggests naturalized Chinese immigrants would earn 12.4 percent more than non-naturalized immigrants from the rest of the world, and 6.7 percent more than naturalized immigrants from the rest of the world.

[Table 2 Here]

Mexican immigrants also face a larger wage penalty than Chinese immigrants. Column 3 shows that Mexican immigrants earn 12 percent less than other immigrant groups. In the case of Mexican immigrants, though, naturalization does not completely offset that loss. Although naturalized Mexican immigrants earn 8 percent more than non-naturalized Mexican immigrants, after accounting for the wage penalty, a naturalized Mexican earns 7.1 percent less than naturalized immigrants from other countries, and 3.7 percent less than non-naturalized immigrants from other countries.

The largest wage penalty is faced by Filipino migrants. In Column 4 we see that Filipino immigrants earn 20 percent less than immigrants from other countries. Despite a substantial naturalization premium, 17.5 percent, naturalized Filipino immigrants still earn 9 percent less than naturalized immigrants from other countries, and 2.8 percent less than non-naturalized immigrants from other countries.

Interestingly, in Column 5 we see that Indian immigrants earn substantially higher wages than other immigrant groups. Non-naturalized Indian immigrants earn 42 percent more than immigrants from other groups. However, the coefficients for naturalization and the interaction term suggest that naturalized Indian immigrants earn 12.2 percent less than non-naturalized Indian immigrants, after controlling for other factors. That is, the wage premium is negative. As mentioned above, a negative wage premium implies that negative selection effects outweigh all causal wage effects and any positive selection effects.

Column 6 includes all four nationalities and produce largely the same results as found in Columns 2-5. We find that the average wage for a naturalized immigrant from any country

other than the four largest is 4.7 percent. Naturalized Chinese immigrants earn 8 percent more than naturalized immigrants from the baseline group, and 18.6 percent more than non-naturalized Chinese immigrants. Naturalized Mexican immigrants earn 7.9 percent more than non-naturalized Mexican immigrants, but 7 percent less than naturalized immigrants in the baseline group, and 2.3 percent less than non-naturalized immigrants in the baseline group. Similarly, naturalized Filipino immigrants earn 17 percent more than their non-naturalized countrymen, but still earn substantially less than immigrants in the baseline group, regardless of naturalization. Finally, we find that although naturalized Indian immigrants earn significantly more than naturalized immigrants in the baseline group, they earn less than non-naturalized Indian immigrants after controlling for other characteristics.

We next estimate the wage equation for each group separately, in order to examine the variation in the effects of other control variables. These results are reported in Table 3. Relaxing the constraint that all the additional covariates affect all immigrants the same causes the estimates of the naturalization premium to change slightly for each of the subgroups, but the basic results hold. Chinese, Mexican, and Filipino immigrants receive a naturalization premium of 10.7 percent, 16.6 percent, and 16.7 percent, respectively, while Indian immigrants receive a negative naturalization premium of -8 percent.

[Table 3 Here]

Examining the other covariates reveals interesting variation in earnings determinants as well. We see that fluency in English yields much higher returns to Chinese immigrants than other immigrant groups, and is one of the largest contributors to income of Chinese immigrants, increasing income by 50 percent. Indian immigrants have the highest returns

to experience in the US among all groups, increasing earnings by 2.6 percent for each additional year in the US, a rate 2-4 times higher than other immigrant groups. Regional wage variation appears not to be a very important factor for immigrants from China and the Philippines. Indians tend to earn more in Western states, and Mexicans earn more in the Midwest. Chinese and Indian immigrants also appear to have higher returns to education than other groups, with coefficients for college graduates twice that of their Mexican and Filipino counterparts.

Interestingly, in Column 6 we see that the coefficient for naturalization for immigrants from other countries is now insignificant. That is, the observed difference in earnings between naturalized and non-naturalized immigrants from countries other than the four major source countries, stems entirely from differences in other factors, such as education and experience. Thus, for these immigrants, it appears that either there are no causal benefit to naturalization nor positive selection occurring, or the negative selection effects are sufficient to neutralize any positive benefits.

5. Discussion

The results presented above highlight stark differences in the naturalization premium among immigrants in the US. In general, naturalized immigrants earn more than non-naturalized immigrants. However, the differences in earnings that can be associated with naturalization depend largely on the country of origin. We find that the wage differential between naturalized and non-naturalized immigrants from Mainland China, Mexico, and the Philippines is substantially larger than that of the immigrant population as a whole.

Further, we find that after allowing for covariates to also differ by country of origin, the wage differential for immigrants from countries not in the US' top four immigrant source countries is not significantly different from zero. Finally, and perhaps most interestingly, we find that Indian immigrants who naturalize earn *less* than those who do not.

These findings highlight a potentially important source of inefficiencies in the US immigration system, primarily driven by the method used for visa (Green Card) allocation. Several previous studies have discussed and shown the labor market benefits associated with citizenship. However, the current immigration law has created a substantial backlog of visa applications from the four largest immigrant source countries, preventing many who may benefit from naturalizing from doing so. While this study is unable to disentangle how much the naturalization premium is due to causal effects versus selection bias, from a policy perspective, this is somewhat irrelevant. If the effects are causal, not allowing immigrants to naturalize prevents them from realizing their true earnings potential. Optimal policy, therefore, would allow more immigrants from countries with positive naturalization premiums to become citizens. By extension, this would imply issuing more legal permanent resident visas to immigrants from these countries. If, however, the observed differences are due to positive selection into naturalization, then the policy prescription is the same. Making naturalization difficult undoubtedly aids in ensuring positive selection. If naturalization is costly, it follows that only those who stand to benefit most will undertake the process. However, making naturalization too costly might dissuade otherwise high performing immigrants from naturalizing. In cases where we observe positive naturalization premiums, it is also likely that high earning immigrants at the margin would like to naturalize, but are prevented from doing so due to quota limits. In the

long-run, these immigrants may ultimately decide to return to their home countries, and these high performing immigrants will be removed from the US labor pool, thus lowering overall productivity. Making it easier for these individuals to naturalize will make it more likely to attract and retain higher skilled workers. Thus, the results above suggest that optimal policy would allocate more legal permanent resident visas to immigrants from China, Mexico, and the Philippines in order to encourage higher rates of naturalization.

The policy implications for India, however, are somewhat less clear. If the observed effect is due to negative selection, it would follow that optimal policy would want to discourage naturalization from India. Indeed, negative selection is a possibility. As mentioned above, one of the potential reasons high earners might prefer not to naturalize is the desire to return home with their accumulated savings. India, however, does not recognize dual citizenship. Therefore, in order to become US citizens, they would be required to renounce their Indian citizenship. Further, there are restrictions on the types of property non-citizens may own. For example, non-citizens of Indian origin may acquire “immovable property,” i.e. real estate, with the exception of “agricultural land/farm house/plantation property” (Reserve Bank of India, 2017). Such restriction increase the inherent cost of naturalization and might dissuade high earning Indians from naturalizing. Thus, it is possible that negative selection is occurring if high earning Indian immigrants intend to return home at some point, but low earning Indians do not.

There is, however, another channel through which the observed negative effect might be occurring. As mentioned above, positive selection implies that high earners are more likely to naturalize. However, when countries are bound by the visa limit, then some high earners who wish to naturalize are unable to. If this is the case, then the naturalization premium is

likely to be underestimated. That is, high earners stuck in the non-citizen pool will drive up average earnings of non-citizens. Thus, allowing these immigrants to naturalize would widen the gap between the two groups by raising the average income among naturalized citizens and lowering average income among non-citizens. If the high-earning talent pool were sufficiently large, it is possible that the estimated negative naturalization premium is not due to a preference for low earners to naturalize, but due to the inability of high earners to naturalize. This might indeed be the case for Indian immigrants. Indian Immigrants have the longest wait times for employment based visas among the four countries analyzed in this study. Depending on category, wait times for Indian immigrants can be 5 to 12 years longer than immigrants from other countries (US Department of State, 2017). Therefore, it is possible that high earning Indian immigrants are not naturalizing due to visa quota limits, rather than negative selection.

Unfortunately, with the current data, it is not possible to determine whether the observed negative effect is due to negative selection or visa quotas. Since the data only differentiate between naturalized immigrants and non-naturalized immigrants, we are unable to determine the legal status of non-naturalized immigrants. Non-naturalized immigrants can fall into several categories: legal permanent residents, legal temporary immigrants, non-immigrants, undocumented immigrants. Of those four groups, high earners are most likely to be either legal permanent residents or temporary immigrants. In addition to being one of the largest recipient countries of legal permanent resident visas, India is also one of the largest recipients of H-1B visas, a temporary work visa for high-skilled workers in specialty occupations. In fiscal years 2011 and 2012, the two years prior to our data set, Indians received 58 and 64 percent of all H-1B visas, respectively. One potential method

of identifying negative selection would be to examine the rate at which high earning legal permanent residents naturalize. Since they would be legally eligible to naturalize five years after obtaining legal permanent resident status, if high earning immigrants choose not to naturalize after eligibility, this would provide evidence to support the negative selection hypothesis. If, on the other hand, legal permanent residents do tend to naturalize, this would suggest that the negative earnings differential is an artifact of the immigration quota system. However, since this information is unavailable in the current data, we leave this to future research.

6. Conclusion

In this study, we examine the naturalization premium for immigrants from the US' four largest immigrant source countries and compare them to immigrants from the rest of the world. We find that naturalization is associated with higher earnings for immigrants from China, Mexico, and the Philippines, and lower earnings for Indian immigrants. Furthermore, after allowing covariate effects to differ by country of origin, we find no evidence of a naturalization premium for immigrants from the rest of the world.

Our findings suggest an inefficient allocation of citizenship, likely stemming from visa quota limits. Several previous studies have discussed and shown the labor market benefits associated with citizenship. However, the current immigration law has created a substantial backlog of visa applications from the four largest immigrant source countries, preventing many who may benefit from naturalizing from doing so. While we acknowledge that this study does not control for selection into naturalization, we believe that selection effects are

at least partially driving our observed results. However, based on the current system of visa allocation, selection into naturalization, or at least the timing of naturalization is not entirely up to the immigrant. This increased wait time increases the cost of naturalization, possibly preventing otherwise high performing immigrants from naturalizing. In fact, our findings regarding Indian immigrants suggest that the current immigration system may be leading to negative selection into naturalization.

Our aim in this paper was to take a first step in examining an otherwise ignored source of inefficiency in access to US citizenship. Though we find that immigrants from the four oversubscribed countries face different naturalization premiums, data limitations prevent us from identifying the true cost of the visa quota system. Excessive wait times can prevent immigrants from entering the US in prime earning-growth years of their lives. This can put new immigrants at a disadvantage in terms of earnings assimilation. Further, immigrants who enter on temporary visas lack the same labor mobility as permanent resident and citizens. This, too, can limit earnings growth, as well as lead to a general skills mismatch in the labor market. Finally, excessive wait times can prevent high performing immigrants from coming all together, preventing US employers access to a talented labor pool. All of these lead to inefficiencies in the US labor market, and can be prevented by removing artificial barriers to obtaining citizenship. We believe that more research on this area is necessary in order to inform effective immigration policy.

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Tables

Table 1: Selected Summary Statistics, Immigrant Men Aged 16-65

	Panel A								
	Full Sample			Mainland Chinese			Mexican		
	All	Naturalized	Not Naturalized	All	Naturalized	Not Naturalized	All	Naturalized	Not Naturalized
Annual Wage	51,943	64,746	42,748	67,316	79,338	54,766	29,095	38,469	26,771
Age	44.77	49.08	41.67	46.34	50.00	42.53	42.76	49.23	41.16
Years Since Migration	17.60	21.81	14.57	16.88	21.55	12.01	17.85	24.84	16.11
English Fluency	0.69	0.85	0.58	0.65	0.69	0.60	0.48	0.71	0.42
Married	0.65	0.75	0.57	0.78	0.81	0.76	0.60	0.75	0.56
Number of Children	1.18	1.22	1.14	1.03	1.05	1.01	1.41	1.53	1.38
High School Dropouts	0.31	0.17	0.41	0.20	0.16	0.24	0.60	0.50	0.62
High School Graduates	0.22	0.21	0.23	0.19	0.20	0.18	0.25	0.25	0.25
Some College	0.16	0.21	0.13	0.07	0.09	0.05	0.10	0.15	0.09
College Graduates	0.31	0.41	0.23	0.54	0.55	0.53	0.05	0.10	0.04
In School	0.04	0.04	0.03	0.04	0.02	0.06	0.01	0.02	0.01
Observations	61,609	28,858	32,751	2,820	1,481	1,339	17,198	3,965	13,233
		(46.8%)	(53.2%)		(52.5%)	(47.5%)		(23.1%)	(76.9%)

	Panel B								
	Indian			Filipino			Other		
	All	Naturalized	Not Naturalized	All	Naturalized	Not Naturalized	All	Naturalized	Not Naturalized
Annual Wage	103,748	111,923	95,855	54,698	58,535	45,024	57,101	64,214	49,702
Age	42.52	48.30	36.93	48.82	49.97	45.91	45.85	48.99	42.58
Years Since Migration	15.21	20.31	10.28	19.16	21.55	13.15	17.72	21.35	13.93
English Fluency	0.97	0.96	0.98	0.94	0.96	0.90	0.77	0.87	0.66
Married	0.84	0.89	0.78	0.71	0.75	0.62	0.64	0.73	0.54
Number of Children	1.08	1.24	0.92	1.13	1.14	1.10	1.06	1.17	0.95
High School Dropouts	0.03	0.04	0.02	0.05	0.04	0.06	0.20	0.12	0.29
High School Graduates	0.05	0.06	0.03	0.13	0.13	0.14	0.24	0.23	0.24
Some College	0.07	0.10	0.04	0.31	0.31	0.29	0.21	0.24	0.18
College Graduates	0.85	0.79	0.91	0.52	0.52	0.51	0.35	0.42	0.29
In School	0.04	0.03	0.05	0.04	0.03	0.04	0.05	0.05	0.04
Observations	4,819	2,532	2,287	2,688	1,973	715	34,084	18,907	15,177
		(52.5%)	(47.5%)		(73.4%)	(26.6%)		(55.5%)	(44.5%)

Table 2: OLS Estimates, Dependent Variable: ln(Annual Wage)

	(1)	(2)	(3)	(4)	(5)	(6)
Naturalized	0.0619*** (0.0093)	0.0561*** (0.0095)	0.0344** (0.0107)	0.0615*** (0.0094)	0.0791*** (0.0095)	0.0471*** (0.0117)
Chinese		-0.0725** (0.0275)				-0.0583* (0.0284)
Chinese*Naturalized		0.1399*** (0.0391)				0.1386*** (0.0402)
Mexican			-0.1169*** (0.0112)			-0.1019*** (0.0115)
Mexican*Naturalized			0.0458* (0.0181)			0.0318 (0.0187)
Filipino				-0.2032*** (0.0397)		-0.1886*** (0.0400)
Filipino*Naturalized				0.1136* (0.0456)		0.1225** (0.0460)
Indian					0.4189*** (0.0190)	0.3874*** (0.0197)
Indian*Naturalized					-0.2013*** (0.0295)	-0.1723*** (0.0303)
Usual hours worked per week	0.0268*** (0.0006)	0.0268*** (0.0006)	0.0269*** (0.0006)	0.0268*** (0.0006)	0.0269*** (0.0006)	0.0268*** (0.0006)
Immigrant share in community of residence	0.1691*** (0.0440)	0.1699*** (0.0440)	0.1270** (0.0443)	0.1710*** (0.0441)	0.1827*** (0.0437)	0.1473*** (0.0440)
Married	0.1902*** (0.0100)	0.1910*** (0.0100)	0.1864*** (0.0100)	0.1892*** (0.0100)	0.1697*** (0.0100)	0.1673*** (0.0100)
Fluent English-Speaker	0.2182*** (0.0096)	0.2189*** (0.0096)	0.2062*** (0.0096)	0.2216*** (0.0096)	0.2061*** (0.0096)	0.2008*** (0.0097)
Age	0.0454*** (0.0038)	0.0457*** (0.0038)	0.0436*** (0.0038)	0.0455*** (0.0038)	0.0475*** (0.0038)	0.0464*** (0.0038)
Age ²	-0.0005*** (0.0000)	-0.0005*** (0.0000)	-0.0005*** (0.0000)	-0.0005*** (0.0000)	-0.0005*** (0.0000)	-0.0005*** (0.0000)
Years in US	0.0087*** (0.0021)	0.0083*** (0.0021)	0.0109*** (0.0021)	0.0083*** (0.0021)	0.0105*** (0.0021)	0.0115*** (0.0021)
(Years in US) ²	0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)
# of Children	-0.0112** (0.0037)	-0.0113** (0.0037)	-0.0075* (0.0037)	-0.0110** (0.0037)	-0.0074* (0.0036)	-0.0041 (0.0036)
West	0.0363*** (0.0095)	0.0361*** (0.0095)	0.0501*** (0.0096)	0.0422*** (0.0096)	0.0325*** (0.0095)	0.0497*** (0.0097)
Northeast	0.0823*** (0.0110)	0.0829*** (0.0110)	0.0659*** (0.0110)	0.0820*** (0.0110)	0.0742*** (0.0109)	0.0601*** (0.0110)
Midwest	0.0449** (0.0142)	0.0451** (0.0142)	0.0461** (0.0141)	0.0458** (0.0142)	0.0354* (0.0141)	0.0379** (0.0141)
High school	0.1179*** (0.0104)	0.1180*** (0.0104)	0.1029*** (0.0105)	0.1194*** (0.0104)	0.1179*** (0.0104)	0.1060*** (0.0105)
Some college	0.2633***	0.2638***	0.2356***	0.2695***	0.2571***	0.2387***

	(0.0125)	(0.0125)	(0.0129)	(0.0126)	(0.0125)	(0.0129)
College graduate	0.8835*** (0.0118)	0.8843*** (0.0119)	0.8453*** (0.0125)	0.8888*** (0.0119)	0.8257*** (0.0122)	0.7996*** (0.0130)
Metro	0.0110 (0.0158)	0.0111 (0.0158)	-0.0007 (0.0159)	0.0104 (0.0159)	0.0022 (0.0158)	-0.0084 (0.0158)
Currently in school	-0.2890*** (0.0222)	-0.2877*** (0.0222)	-0.2933*** (0.0222)	-0.2912*** (0.0222)	-0.2729*** (0.0220)	-0.2781*** (0.0220)
Constant	7.5267*** (0.0811)	7.5241*** (0.0810)	7.6415*** (0.0815)	7.5236*** (0.0811)	7.4594*** (0.0806)	7.5584*** (0.0811)
<i>N</i>	61609	61609	61609	61609	61609	61609
<i>F</i>	1094.2394	992.9374	999.6643	986.8795	1072.3217	838.6890

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: OLS Estimates by country of origin, Dependent Variable: ln(Annual Wage)

	(1) All	(2) Chinese	(3) Mexican	(4) Filipino	(5) Indian	(6) Other
Naturalized	0.0619*** (0.0093)	0.1073* (0.0487)	0.1658*** (0.0174)	0.1667** (0.0511)	-0.0803* (0.0392)	0.0215 (0.0126)
Usual hours worked per week	0.0268*** (0.0006)	0.0272*** (0.0023)	0.0239*** (0.0011)	0.0355*** (0.0036)	0.0179*** (0.0021)	0.0285*** (0.0007)
Immigrant share in community of residence	0.1691*** (0.0440)	0.0659 (0.2295)	0.1042 (0.0790)	0.8094** (0.2593)	0.5248** (0.1650)	0.1103 (0.0588)
Married	0.1902*** (0.0100)	0.1779** (0.0633)	0.1203*** (0.0163)	0.2329*** (0.0547)	0.1794*** (0.0444)	0.1775*** (0.0137)
Fluent English-Speaker	0.2182*** (0.0096)	0.4519*** (0.0593)	0.1286*** (0.0132)	0.1934 (0.1051)	0.1971* (0.0939)	0.2307*** (0.0143)
Age	0.0454*** (0.0038)	0.0330 (0.0249)	0.0407*** (0.0065)	0.0537** (0.0193)	0.0705*** (0.0176)	0.0530*** (0.0052)
Age ²	-0.0005*** (0.0000)	-0.0003 (0.0003)	-0.0005*** (0.0001)	-0.0007*** (0.0002)	-0.0010*** (0.0002)	-0.0006*** (0.0001)
Years in US	0.0087*** (0.0021)	0.0197 (0.0111)	0.0056 (0.0037)	0.0013 (0.0098)	0.0259** (0.0087)	0.0108*** (0.0029)
(Years in US) ²	0.0000 (0.0000)	-0.0003 (0.0003)	0.0000 (0.0001)	0.0003 (0.0002)	0.0000 (0.0002)	-0.0000 (0.0001)
# of Children	-0.0112** (0.0037)	0.0383 (0.0204)	0.0021 (0.0057)	-0.0012 (0.0217)	0.0062 (0.0169)	-0.0067 (0.0051)
West	0.0363*** (0.0095)	0.0997 (0.0540)	-0.0005 (0.0153)	-0.0499 (0.0648)	0.1144** (0.0396)	0.0805*** (0.0142)
Northeast	0.0823*** (0.0110)	0.0453 (0.0484)	0.0133 (0.0293)	0.1283 (0.0688)	0.0170 (0.0361)	0.0871*** (0.0134)
Midwest	0.0449** (0.0142)	0.0877 (0.0575)	0.0580* (0.0233)	0.0138 (0.0966)	-0.0505 (0.0462)	0.0368 (0.0202)
High school	0.1179*** (0.0104)	0.1258 (0.0715)	0.0826*** (0.0146)	-0.0309 (0.1109)	-0.0197 (0.1029)	0.1489*** (0.0157)
Some college	0.2633*** (0.0125)	0.3149*** (0.0839)	0.1585*** (0.0225)	0.1945* (0.0985)	0.2444** (0.0896)	0.2776*** (0.0176)
College graduate	0.8835*** (0.0118)	1.1099*** (0.0741)	0.4705*** (0.0339)	0.5644*** (0.1005)	1.1374*** (0.0803)	0.7989*** (0.0170)
Metro	0.0110 (0.0158)	0.0102 (0.0724)	-0.0037 (0.0213)	-0.3217*** (0.0895)	0.0727 (0.1038)	0.0110 (0.0263)
Currently in school	-0.2890*** (0.0222)	-0.4322*** (0.0874)	-0.1007 (0.0519)	-0.0959 (0.0950)	-0.3732*** (0.0701)	-0.2741*** (0.0272)
Constant	7.5267*** (0.0811)	7.2448*** (0.4948)	7.8677*** (0.1329)	7.3587*** (0.4497)	7.4476*** (0.3561)	7.2226*** (0.1147)
N	61609	2820	17198	2688	4819	34084
F	1094.2394	103.6990	94.9799	31.4481	79.7587	536.0015

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$