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# Wait time for permanent residency and the retention of immigrant doctoral recipients in the U.S.☆

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ABSTRACT

More than 65% of foreign doctoral recipients remain and work in the U.S. after graduation. Using data from the Survey of Earned Doctorates, the Survey of Doctoral Recipients, and the U.S. Citizenship and Immigration Services (USCIS), this paper estimates the impact of wait time for permanent residency (Green Card status) on the migration decisions of foreign doctoral recipients graduating from U.S. universities. Results indicate that for a recent immigrant doctoral recipient, an additional year of wait time decreases the probability that he or she will remain in the U.S. by 5.5 percentage points. I also find that the negative impact of wait time on immigrant retention in the U.S. is temporary: Five years after graduation, there is no difference in retention between foreign doctoral recipients who faced long Green Card wait times and those who faced none.



## 1. Introduction

Illegal immigration dominates most discussions of immigration in the U.S., and legal, high-skilled immigration is often overlooked. The proposed immigration reform of 2016 would prioritize reducing barriers for immigrant high-skill workers to remain in the U.S. If approved, this bill would resolve the massive backlog of Green Card applications; it would also allow temporary visa holders to switch jobs more easily while awaiting permanent residency. Delays in receiving permanent residency and restrictions attached to temporary work visas may affect an immigrant's intentions to stay in the U.S., and therefore the proposed reforms could improve the retention of immigrant scholars, scientists, and researchers graduating from U.S universities. Notably, recent studies show no negative impact of immigration on wages and unemployment. Using two types of multilevel models – a cross-sectional model and a lagged model dependent on U.S. population – Birgeir (2017) found that in most years, the increase in immigrants' occupational share is not related to a decline in native wages. Fromentin (2013) used a system of equations for unemployment, immigration, wage, and gross domestic product in France, and observed no increase in the long run in aggregate unemployment due to immigration. Maskus et al. (2010) found that both U.S. and international students contribute significantly to the production of knowledge in scientific laboratories, and their contributions are statistically comparable; as a result, visa restrictions that limit the entry of high-quality students are particularly costly for academic innovation.

☆ Note: The use of NSF data does not imply NSF endorsement of the research, research methods, or conclusion contained in this report.

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This study uses data from the Survey of Earned Doctorates (SED), the Survey of Doctoral Recipients (SDR), and the U.S. Citizenship and Immigration Services (USCIS) to evaluate the impact of wait times for permanent residency (Green Card status) on the migration decisions of foreign-born doctoral recipients graduating from U.S. universities. Ph.D. recipients from some countries, such as China and India, must wait 5 to 10 years to acquire permanent residency status in the U.S., in addition to the time already spent as graduate students. My econometric analysis uses a country and year fixed-effects regression specification, taking advantage of the exogenous variation in wait time that depends on the immigrant's country of origin and year of graduation. I focus on three questions: First, does wait time for permanent residency affect an immigrant's plans to stay in the U.S. immediately after graduating from a U.S. university? Second, what is the impact of wait time on actual retention of these foreign-born doctoral recipients? And third, is the impact, if any, of wait time on the retention of immigrant doctoral recipients in the U.S. persistent or temporary?

The SED annually surveys individuals receiving doctoral degrees from U.S institutions in a given calendar year, and the data are used to analyze immigrant doctoral recipients' plans to stay in the U.S. immediately after graduation. The SDR collects biennial longitudinal data, drawn from a sample of the SED, that yield a 7% sample of persons obtaining doctoral degrees in the U.S. While the SED only surveys newly graduated doctoral recipients, the SDR follows cohorts of doctoral graduates over time. I use 2010 and 2013 SDR surveys to estimate the impact of Green Card (GC) wait time on the location decisions of immigrants receiving their Ph.D.s between 2001 and 2013. Information on GC wait times is available on the USCIS website, and is matched to immigrants using their country of birth and year of graduation recorded in SED and SDR data.

Results indicate that an additional year of wait time decreases the probability of retention of fresh immigrant doctoral recipients (0–2 years after graduation) by 5.5 percentage points. Current (as of January 2016) predicted wait times for graduates from India and China are 10 and 6 years, respectively. This can decrease the probability of retention of fresh graduates (0–2 years since graduation) from these two countries by one-half and one-third, respectively. However, my results indicate that the impact of wait time on the retention of immigrant Ph.D. recipients is temporary and not persistent. For immigrant doctoral recipients 3 to 5 years since graduation, the impact decreases to 1.2 percentage points, and for immigrants at least 6 years since graduation, there is no effect of wait time on immigrant retention in the U.S.

Previous studies have analyzed the impact of visa restrictions on source and receiving countries' knowledge economies. However, there is a dearth of research on the impact of these visa restrictions on the retention of immigrant doctoral recipients graduating from U.S. universities. Finn (2012, 2014) studies trends in the stay rates of doctoral recipients from U.S universities and concludes that stay rates vary substantially by country of citizenship. This is the first study to analyze the impact of wait time for permanent residency on the immediate and long-term retention of immigrant doctoral recipients graduating in the U.S.

## 2. Institutional background: visas and permanent residency

This paper evaluates the retention of immigrants who graduate with Ph.D.s from universities in the U.S. In 2009, 33% of U.S. doctoral degrees were earned by foreign students. In all, these international graduate students accounted for 50% of degrees in the physical sciences, 67% in engineering, and 68% in economics (Bound et al., 2009). More than 65% of these foreign graduates stay and work in the U.S. after graduation (Borjas, 2006). As students in the U.S., these immigrants are mostly on F-1 visas,[1] which allow international students to pursue an education in the U.S. After graduation, F-1 students who become employed in the U.S. may switch to H1-B visas if they are sponsored by their employers. The H1-B visa program is designed for temporary workers employed in "specialty occupations", which require specialized knowledge and at least a bachelor's degree or its equivalent. With this visa status, immigrants can work in the U.S for up to three years from the date of sponsorship, after which the visa must be renewed every three years.[2] Holders of H1-B visas are tied to the sponsoring firm, cannot leave their employer within the U.S., and, if laid off, are required to leave the country unless they find a new employer to sponsor them. While on H1-B visa status, immigrants are eligible to change their status and become legal permanent residents (LPR) or GC holders. Once an immigrant receives GC status, they are free to look for other employment opportunities and can start their own businesses or consultancies.[3] Recently graduated doctoral recipients who do not have H1-B sponsorship from their employers may remain and work in the U.S. for one to two years with OPT (optional practical training) status. However, they cannot file for a GC with this status.[4]

When these immigrants apply to become legal permanent residents, the wait time depends on their country of birth and date of their GC petition's acceptance. If an immigrant is from any country besides China or India, the change in status from H1-B to GC is immediate. For immigrants from China and India, however, because of the high volume of GC petitions from

[1] Immigrants from Canada and Mexico receive F-3 visas. These are for "border commuters" who retain a residence in their country of origin while attending school in the U.S., either on a part-time or full-time basis.

[2] The H1-B Visa is renewable for up to 6 years. Renewal after the sixth year depends on the status of the person's PERM application. "PERM" is application for permanent residency.

[3] The current law limits the number of foreign nationals who may be issued a visa or otherwise given H1-B status to 65,000 each fiscal year. Up to 20,000 foreign nationals holding master's or higher degrees from the U.S. universities are exempted from the cap on H1-B visas.

[4] Optional Practical Training (OPT) is a period during which undergraduate and graduate students with F-1 status who have completed or been pursuing their degrees for more than nine months are permitted by the USCIS to work in the U.S. for up to one year on their student visa. For students who qualify in STEM fields (science, engineering, technology, and mathematics) OPT status can be extended for 17 months.