A version of t his paper has been published as:
"House of Green Cards: Statistical or Preference-based Accounts of Inequality in the Employment of Foreign Nationals." Rissing, Ben A. and Emilio J. Castilla. *American Sociological Review* Vol. 79, No. 6 (2014): 1226-1255.

House of Green Cards: Statistical or Preference-based Inequality in the Employment of Foreign Nationals

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March 27, 2014

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* We are grateful for the financial support received from the James S. Hardigg (1945) Work and Employment Fund and the MIT Sloan School of Management. While completing this project, Ben A. Rissing was a post-doctoral research associate at the Brown University Watson Institute for International Studies and Emilio J. Castilla was a visiting scholar in the Graduate School of Business at Stanford University, for which each is grateful. We thank our colleagues at the MIT Sloan School of Management and elsewhere for their feedback and suggestions on earlier versions of this paper, specifically those of Roberto Fernandez, Guillermina Jasso, Thomas Kochan, Rick Locke, Paul Osterman, Mike Piore, Susan Silbey, Viviana Zelizer, Ezra Zuckerman, Alan Benson, Seth Pipkin, and George Lan. We also benefited from the feedback of seminar participants in the Institute for Work and Employment Research at MIT, the Economic Sociology Working Group at MIT, the Department of Sociology Colloquium at the University of California Irvine, the Migration and Immigrant Incorporation Workshop at Harvard University, the Sociology Department Colloquium at Stanford University, the Princeton University Center for the Study of Social Organization Workshop, and the Wagner Colloquium at the New York University. Earlier versions of this paper were presented at the 2012 Academy of Management, the 2012 Society for the Advancement of Socio-Economics, and the 2011 American Sociological Association Annual Meetings. Please direct all correspondence to Ben A. Rissing, Brown University, Watson Institute for International Studies, 111 Thayer St., Room 344, Providence, RI 02912; E-mail: ben_rissing@brown.edu.

House of Green Cards:
Statistical or Preference-based Inequality in the Employment of Foreign Nationals

Abstract

This study contributes to the labor market inequality and organizations literature by investigating the role that government agents play in shaping the employment of immigrants. Using unique data on applications for immigrant permanent labor certification evaluated by U.S. Department of Labor agents, we assess to what extent immigrants of select citizenship groups experience disparities in the labor certification process—one critical stage of the work authorization system leading to the granting of most employment-based green cards. Despite current U.S. laws that forbid discrimination on the basis of nationality, we find that labor certification approvals differ significantly depending on immigrants' foreign citizenship, even after controlling for key factors. Additionally, because of the U.S. government's unique process of auditing applications, we are in a rare position to empirically distinguish between statistical and preference-based accounts of labor market discrimination in the labor certification process. In support of the statistical account, we find that certification approvals are equally likely for immigrant workers from the vast majority of citizenship groups when agents review audited applications with detailed employment information. This article concludes by discussing the implications of our results for addressing disparities in the employment of foreign nationals.

A substantial body of research has examined how organizational and legal factors affect inequality in labor markets (see, e.g., Baron and Bielby 1980; Edelman and Suchman 1997; Cohen et al. 1998; Dobbin and Sutton 1998; Kalev et al. 2006). While great progress has been made in documenting the many organizational sources of inequality *inside* firms (for reviews, see, e.g., Petersen and Saporta 2004; Phillips 2005; Castilla 2008, 2011; Dencker 2008), less research attention has been paid to how government, as represented by national regulatory agencies and agents acting on their behalf, also potentially affects the employment of individuals.

Historically, an important context in which government agents play a major role in shaping individuals' employment outcomes is through the implementation of immigration policies. The United States' 1924 quota system, for example, constrained immigration by country-of-origin and was eliminated by the 1965 Hart-Celler Immigration Act. This Act forbade discriminatory immigration policies on the basis of nationality (in addition to race, sex, place of birth, or residence) and resulted in larger immigration flows from Asia and Latin America (Liu 1992; Borjas 1994; Waters and Eschbach 1995). After 1965, U.S. employment-based admission was based on immigrant skills, abilities, and training.

In the U.S. today, immigration policies such as the labor certification program have built upon these equitable foundations: Currently, such policies contain no evaluation criteria pertaining to immigrant country-of-origin [see Title VII of the 1964 Civil Rights Act, 8 United States Code (USC) Section 1152, and 20 Code of Federal Regulations (CFR) 656.17]. Since 1952, U.S. federal agencies have actively regulated the employment of foreign nationals by assessing immigrant credentials and evaluating domestic employers' work visa requests (see the Immigration and Nationality Act of 1952 and the Immigration Act of 1990). Government agents are therefore central in these employment processes because they ultimately determine the hiring and work authorization outcomes for hundreds of thousands of foreign-born individuals each year (Jasso et

al. 2010; U.S. Department of Labor 2010; U.S. Citizenship and Immigration Services 2012). Yet, the question of whether (or to what extent) the decisions of government agents actually result in equal labor outcomes regardless of immigrant citizenship remains unanswered.

The goal of this article is to address this question by examining a crucial aspect of many foreign-born workers' employment, that is, their work authorization status as determined by a labor certification review conducted by government agents in the U.S. Department of Labor (U.S. DoL). In this review process, U.S. DoL agents assess employers' hiring and compensation efforts, primarily to determine whether the foreign national is qualified to work in a given job position, and to protect the employment of similar U.S. citizen workers. Generally, employers attest to meeting these requirements without providing direct evidence within the application—however, some applications are audited and thus assessed using detailed supporting documentation.

By leveraging the U.S. government's process of evaluating labor certification applications, we are able to identify and test two key theoretical propositions in the labor market inequality literature. First, we empirically assess, for the first time in this literature, whether disparities in approval outcomes exist among immigrants of different citizenship groups in the labor certification stage of the U.S. employment-based permanent residency system, after controlling for individual-, occupation-, and employer-level factors. We specifically focus on new immigrant groups from Asia and Latin America that today account for the largest percentages of U.S. legal permanent residents (see, e.g., Monger and Yankay 2012). Second, to the extent that unequal outcomes are observed in this labor certification process, we build upon prior studies suggesting that employment evaluations made with detailed information may be less subject to demographic biases (see, e.g., Reskin 2000; Petersen and Saporta 2004). By testing whether inequality in the U.S. labor certification process is observed in evaluation scenarios where *separate* teams of U.S. DoL agents make decisions with either 1) limited or 2) detailed employment-relevant information,

our study is well-suited for empirically distinguishing between two competing explanations of labor market inequality (that is, statistical group-level attributions versus group preferences).

In the absence of detailed employment-relevant information about individual workers, statistical and preference-based theories make the same prediction: That is, both theories predict observed differences in the employment outcomes of certain groups of workers. According to statistical theories of labor market discrimination, any observed differences in the employment outcomes of certain groups of individuals are primarily due to decision makers' attributions of group-level characteristics to individuals in scenarios with limited information. Because pre-hire employment data (e.g., productivity) on a potential employee may be costly (and/or difficult) to obtain, decision makers may draw inferences about the potential worker based on the characteristics or performance of an average worker belonging to the same (typically demographic) group. This explanation is proposed under theories of statistical discrimination (Phelps 1972; Arrow 1973; Aigner and Cain 1977; Bielby and Baron 1986) and model minority myth (Kitano and Sue 1973; Lowe 1996; Ho 2003), among others. Similarly, preference-based theories of inequality predict unequal labor market outcomes because of decision makers' biases and stereotypes regarding particular groups of workers. This explanation is generally proposed in taste-based discrimination (Becker 1957), status-based characteristics (Ridgeway 1997), and Latino threat (Chavez 2008) theories.

In contrast, when decision makers have access to detailed employment-relevant information, the prediction of statistical and preference-based theories of inequality differs. Statistical theories would predict equitable labor market outcomes—because in scenarios with detailed employment-relevant information, decision makers will no longer rely on attributions of group-level characteristics when making their evaluations. However, preference-based theoretical accounts would still predict unequal outcomes—because decision makers are less affected by information access and more influenced by their biased beliefs and stereotypes. While decision makers' access

to detailed information appears to be critical for distinguishing between these two competing theoretical accounts of the same phenomena, scholars have not had the opportunity to study organizational settings (like ours), where similar employment decisions are reached in scenarios with varying amounts of information (see, e.g., Correll and Benard 2006; Fernandez and Greenberg 2013).

This study therefore advances the labor market inequality and organizations literature by examining employment decisions made for individuals of different citizenships using a unique dataset describing the entire population of labor certification applications reviewed by U.S. DoL agents from June 2008 through September 2011, pertaining to 198,442 immigrant workers from 190 different countries seeking U.S. employment. Our findings are clear-cut: First, despite current U.S. laws forbidding discrimination on the basis of nationality, we find that labor certification approvals differ significantly depending on immigrants' citizenship, even after controlling for key factors. Secondly, in support of statistical accounts of labor market inequality, we find that agents' decisions made with detailed employment-relevant information (collected through government audits) are less subject to bias based on immigrant workers' citizenship than similar agents' decisions made with access to limited employment-relevant information, *ceteris paribus.* Whenever appropriate, our analyses are complemented by interviews of government agents responsible for labor certification decisions during the time period under study.

Employers, Government Agents, and Inequality in Labor Outcomes

A large body of research has documented that employers and their practices play a key role in shaping employment outcomes and labor market stratification since the publication of, e.g., Pfeffer (1977) and Baron and Bielby (1980). Building on this early work, several studies have explored the organizational mechanisms resulting in the unequal distribution of wages or limited career prospects for women, racial minorities, and non-U.S. citizens (e.g., Cohen et al. 1998; Barnett et

al. 2000; Petersen and Saporta 2004; Fernandez and Sosa 2005; Castilla 2008; Fernandez and Friedrich 2011 for reviews). Similarly, studies of immigrant labor market experiences in the formal economy have largely focused on employment and compensation outcomes determined by employers' assessments of immigrant workers (Chiswick 1978; Borjas 1987; Friedberg 2000; Tubergen, Mass and Flap 2004; for exceptions, see Rissing 2012; Menjívar and Abrego 2012).

It is also well established that firms are affected by their environments (Meyer and Rowan 1977; DiMaggio and Powell 1983), and therefore firm exchanges with key external actors (including government and labor market intermediaries) have the potential to influence individual-level career outcomes (see, e.g., Fernandez-Mateo 2009). In particular, scholars have claimed that the implementation of organization-level practices in response to broad national laws affects workplace inequality and diversity (e.g., Kalev et al. 2006; Tomaskovic-Devey and Stainback 2007; Hirsh 2009). Parallel to this literature, immigration research has stressed how destination country institutions, such as immigration and equal employment opportunity laws, affect foreign workers' labor market outcomes (Portes 1995; Alba and Nee 2003; Massey and Sanchez 2010). For example, in the United States, immigrants seeking to work without necessary visa credentials or valid work authorizations may be excluded from participating in the formal labor market (Menjívar and Abrego 2012), at risk of deportation (Ngai 2003; King et al. 2012), and barred from reentry (Immigration and Nationality Act of 1952).

Despite the critical role of government in the lives and professional experiences of immigrants, little attention has been paid to studying in-depth how government agents affect foreign workers' careers. Government agents are often afforded both autonomy and discretion, which may lead to bias or inconsistent application of their legal directives (Davis 1969; Wilson 1973; Lipsky 1980). In the United States, government agents frequently assess immigrant workers and their job opportunities through employment visa and work authorization programs in an effort to protect

native workers, maintain national security, and enforce immigration laws (U.S. DoL 2010a; Hunt 2011; Rissing 2013). Of particular relevance to this study are prior findings that U.S. immigration authorities' evaluations of fictitious immigrant visa applications "indicate the strong operation of region of origin as a criterion of a visa applicant's desirability" (Jasso 1988: 930). Similarly, qualitative work has suggested that U.S. immigration inspectors profile immigrants by nationality when evaluating those seeking U.S. admission (Gilboy 1991; Calavita 1992; Ngai 2003).

Immigrant Labor Certification in the United States

In the United States, most immigrants seeking employment-based permanent residency require labor certification, a process involving interactions between government agents and employers over several stages, as depicted in Figure 1. Received labor certification applications are reviewed by U.S. DoL agents, resulting in approval or denial (U.S. DoL 2009). The shaded region of Figure 1 shows that such labor certification decisions are generally reached with limited information provided through employer attestations (No Audit box). However, because of U.S. DoL quasi-random audits (details provided below), a portion of applications are evaluated by a separate team of government agents who have access to detailed employment-relevant information (Audit box).

[Insert Figure 1 about here]

Labor certification is required for the majority of employment-based green cards concerning "professionals with advanced degrees" and "skilled workers, professionals, and unskilled workers." This labor certification process always requires an application review by U.S. DoL agents (U.S. DoL 2009). Existing law, originating with the 1964 Civil Rights Act, forbids discrimination on the basis of national origin during government immigration decisions. Indeed, U.S. law states that "no person shall receive any preference or priority or be discriminated against in the issuance of an immigrant visa because of the person's race, sex, nationality, place of birth, or place of residence" (Immigration Act of 1990; 8 USC Section 1152). Further, *no* labor certification evaluation criterion pertains to

immigrant citizenship (20 CFR 656.17). Consequently, in an immigration system that is not supposed to be affected by immigrant citizenship, we should expect to observe no differences in labor certification approvals made by these government agents across citizenship groups, *ceteris paribus*. As one U.S. DoL agent stated during an interview, "[citizenship data is] available, but it's not a factor in the evaluation" (ID #1). Another agent even stressed that "all [labor certification] cases are decided on their merits" (ID #4).

The Effect of Foreign Citizenship on Labor Market Outcomes

While government agents may claim that immigrant citizenship is not a factor in their evaluations, there are theoretical reasons to expect that labor certification outcomes may nonetheless be affected by it. For example, both theories of statistical discrimination (Phelps 1972; Arrow 1973; Aigner and Cain 1977) and theories of preference-based discrimination (Becker 1973) would predict unequal employment outcomes based on workers' observable characteristics such as citizenship (see Blank et al. 2004, Correll and Benard 2006, or Fernandez and Greenberg 2013 for reviews of these competing theories).

In the context of immigration, scholars and practitioners have long suspected that Americans may hold certain stereotypes and beliefs regarding the largest current U.S. immigrant groups, namely Latin American and Asian individuals. Academic studies and U.S. public opinion polls, for instance, report negative perceptions towards Latino immigrants (e.g., Burns and Gimpel 2000; Chavez 2008). These attitudes may be fueled by beliefs that recent cohorts of Latin American immigrants are low-skilled (Mattoo 2007) or (erroneously) associated with U.S. crime (Pew Research Center 1996; Sampson 2008). By contrast, studies in the model minority myth research tradition have argued that among immigrants, Asians are viewed as professionally successful and well-educated (Kitano and Sue 1973; Liu 1992; Ho 2003). Research has also shown that non-Hispanic white Americans hold more positive views of immigration when living in proximity to

Asians, but more negative views when living near Hispanics (Ha 2010). Such negative views about Hispanics may be reinforced by media coverage: Along the U.S.-Mexico border, for instance, 76 percent of news articles and 85 percent of opinion pieces characterize immigration negatively (Branton and Dunaway 2009). Of particular relevance to our research is a study of immigrant perceptions in the United States showing that Asian immigrants are viewed as highly competent, Canadian immigrants as moderately competent, and both Mexican and Latino immigrants as having low competence (Lee and Fiske 2006).

Government agents' attitudes regarding immigrant groups may also be influenced by publicized aggregate information on visa eligibility or the quality of entry documentation pertaining to specific immigrant groups. U.S. Department of Homeland Security (U.S. DHS) data indicates that of all immigrants seeking U.S. entry that were regarded as inadmissible (or not valid), 31.8 percent originated from Mexico. In contrast, Chinese and Indians (the two largest immigrant groups from Asia seeking U.S. legal permanent residency) constituted 8 and 2.8 percent, respectively, of all inadmissible immigrants (Simanski and Sapp 2012). In recent years, the U.S. government has also heavily publicized its increased criminal deportation of immigrants (see King et al. 2012), potentially signaling that certain immigrant groups are more likely to be residing illegally or erroneously admitted into the United States. With specific regards to Latino immigrants, for instance, 93 percent of all 2008 deportations targeted immigrants from eight Latin American countries: Mexico, Honduras, Guatemala, El Salvador, Brazil, the Dominican Republic, Colombia, and Ecuador (U.S. DHS 2009). Mexican individuals are also estimated to comprise 60 percent of unauthorized U.S. immigrants (Hoefer et al. 2010).

Taken together, these statistics and the prior findings in the labor market inequality and immigrant stereotype literatures lead to our first theoretical proposition regarding new immigrant groups from Asia and Latin America. These two world regions currently represent the largest

sources of U.S. immigrants (U.S. Census Bureau 2012). They also collectively comprise 81 percent of all labor certification requests in the 40 months of data under study. Should similar attitudes, as described above, shape government agents' evaluations, the prediction is that relative to North American immigrants from Canada, *labor certification approvals are more likely for Asian immigrant workers and less likely for Latin American immigrant workers, ceteris paribus*.

This proposition is tested controlling for key variables that could influence the certification of foreign nationals, such as salary, job skill level requirement, occupation, industry, location of job, immigrant class of admission, and month of application review (additional details appear in the *Labor Certification Data* section).

The Effect of Employment-Relevant Information on Labor Market Outcomes

Two broad theoretical accounts offer partial explanations for unequal labor market outcomes based on workers' observable characteristics such as citizenship, namely, statistical and preference-based theories of discrimination. While both statistical and preference-based explanations offer the same prediction of unequal labor outcomes by immigrant worker citizenship (as described in our first theoretical proposition), access to detailed employment-relevant information by decision makers appears to be key for differentiating among them (see, e.g., Blank et al. 2004; Correll and Benard 2006; Rubineau and Kang 2012; Fernandez and Greenberg 2013).

On the one hand, statistical theories of labor market discrimination involve rational decision makers' attribution of group-level average performance characteristics to an individual when limited employment-relevant information is available during evaluation (Phelps 1972; Arrow 1973; Aigner and Cain 1977; Bielby and Baron 1986; Foster and Rosenzweig 1993; Altonji and Pierret 2001).[1] During employment decisions such as hiring, decision makers may rely on true aggregate-level data

[1] Among statistical inequality theories, scholars have proposed that unequal outcomes are due to 1) true differences in *average* productivity, 2) true difference in productivity *variance*, and/or 3) biased measurement tools affecting particular groups (Correll and Benard 2004: 94). We explicitly address the first of these accounts, and all citations in this article referring to statistical discrimination make claims regarding workers' average productivity.

pertaining to the average characteristics or performance of a specific demographic group of which the evaluated worker is a member (e.g., U.S. DHS statistics regarding inadmissible or deported Latin American immigrants). Central to this theoretical account is the notion that rational decision makers lack individual-level information by which to evaluate the candidate worker, and thus turn to observable group-level data to inform their decision.[2] A similar theoretical mechanism is proposed in the model minority myth literature, whereby population-level generalizations regarding an immigrant group's true educational achievements or relative career success may be applied to certain individuals, typically Asian immigrants (see, e.g., Kitano and Sue 1973; Lowe 1996; and Ho 2003). These theories together thus would predict unequal outcomes for different immigrant groups based on observable demographics in the *absence of detailed individual-level information*.

In agreement with this theoretical account, prior work has suggested that employment decisions made by evaluators with limited information are potentially subject to race or gender bias (Reskin 2000: 325), and that "opportunities to discriminate" are reduced when employment-relevant information is available (Petersen and Saporta 2004: 854). Similarly, the literature on the *construction* of status beliefs suggests that information challenging emerging preferences can weaken evaluators' beliefs regarding particular groups (Ridgeway and Correll 2006).

By contrast, a second body of theories typically stresses that unequal outcomes may instead be due to decision makers' preferences and stereotypes regarding particular demographic groups. This argument largely arises from theories of taste-based discrimination in which decision makers dislike individuals belonging to a particular group to such a degree that they are willing to incur some financial cost to avoid interactions (Becker 1957). Status-based theories of inequality also suggest that observable differences, such as immigrant worker citizenship, may inform stereotypes

[2] Related research, termed error discrimination, posits that average-group-productivity beliefs may emerge erroneously, even when no true productivity differences exist (England 1992: 60).

and expectations that affect work-related evaluations (Zelditch 1968; Berger et al. 1977; Ridgeway 1997; Jasso 2001). As Correll and Bernard succinctly write, "While the mechanism underlying statistical discrimination is utility maximization in the face of biased or limited information, the mechanism underlying status discrimination is biased cognitive processes acting on ostensibly accurate performance information" (2006: 99). These preference-based theories suggest that decision makers' beliefs influence the outcomes of particular groups, *irrespective of detailed individual-level information* available during employment decisions.

In this study, we are in a unique position to distinguish between statistical and preference-based explanations of labor market inequality by leveraging the U.S. DoL's use of separate teams of government agents to evaluate audited and non-audited applications. In particular, we are able to assess whether access to employment-relevant information affects citizenship biases in labor market outcomes. Drawing on statistical explanations of labor market inequality, the prediction is that government agents' decisions made with detailed employment-relevant information will likely be less subject to bias based on immigrant workers' observable foreign citizenship than similar decisions made with limited information. This leads to our second theoretical proposition, according to the statistical account of inequality, *labor certification approvals are equally likely for immigrant workers regardless of their citizenship when reviewed with detailed employment-relevant information, ceteris paribus*. Alternatively, observing significant unequal certification approvals by immigrant worker citizenship regardless of the availability of detailed employment information would be in agreement with both statistical (i.e., due to some unmeasured immigrant worker features) and/or preference-based theoretical explanations of labor market inequality.

Research Setting

We study the U.S. labor certification process from June 2008 through September 2011, pertaining to 198,442 immigrants from 190 countries seeking work authorization at one of 68,240

U.S. firms. Since June 2008, applications have been evaluated in a single processing center in Atlanta, Georgia (U.S. DoL 2010a: 10). Labor certification records were obtained through the U.S. DoL Case Disclosure Program, which provides public-use records containing application-level data on a quarterly and annual basis for "the purpose of performing in-depth longitudinal research and analysis" (U.S. DoL 2009). Records were downloaded from the case disclosure website and pooled across years.[3] We analyze all approved or denied labor certification requests evaluated by the agents in Atlanta. This U.S. DoL review is the first key step in the evaluation of the majority of employment-based green cards for "professionals with advanced degrees" and "skilled workers, professionals, and unskilled workers" (that is, EB-2 and EB-3 preference categories; see Appendix, Part I).[4]

The U.S. labor certification process requires a labor market review conducted by U.S. DoL agents, who are *randomly* assigned to applications that are evaluated *individually* on a *first-in first-out basis* (as stressed in multiple government agent interviews) to determine if 1) a foreign national worker is qualified to work in a described position, 2) their employment has any adverse consequences for similar U.S. citizen workers, and 3) an employer has sufficiently advertised for the position. Below we describe in detail the U.S. labor certification process and the data we analyze.

The Labor Certification Process

The evaluation of immigrants seeking U.S. employment-based permanent residency and requiring labor certification involves several key steps, as depicted in Figure 1. This study focuses on the critical first stage, when labor certification decisions are reached by U.S. DoL agents (indicated by the shaded boxes in Figure 1). Prior to submitting a labor certification application,

[3] See: http://www.foreignlaborcert.doleta.gov/quarterlydata.cfm for more information on the U.S. DoL Case Disclosure Program and available datasets. For additional details regarding our data cleaning and coding, see Appendix, Part II.
[4] In 2008 and 2011, respectively, 71.4 and 74.7 percent of employment-based green cards were granted in EB-2 and EB-3 preference categories (Monger and Rytina 2009; Monger and Yankay 2012), the majority of which require labor certification.

employers provide U.S. DoL agents with details regarding the requirements of a position. These agents use this information to classify the position's skill level requirements (elaborated below) and to establish an occupation-specific minimum salary reflecting the job's location and skill requirements, referred to as a "prevailing wage." This stage is citizenship-blind.[5] Upon receipt of the prevailing wage, an employer must specify an employee-specific salary at parity with, or in excess of, the government-mandated minimum.

The second stage of this process is central to this study because it involves U.S. DoL agents' evaluation of the labor certification application, resulting in approval or denial. Evaluation criteria contain no explicit provisions regarding immigrant worker citizenship. Moreover, at this stage, no citizenship-specific quotas or separate graduate-degree green card allocations limit agents' approval.[6]

Federal filings indicate that between 75 and 181 agents worked within the U.S. DoL during our study period in capacities including (but not limited to) the evaluation of labor certifications (U.S. DoL 2010c: 24-5, 2013: 28).[7] The employment decisions made by these agents are supposed to be based on the criteria "that there are no able, willing, and qualified U.S. workers for a position for which certification is requested and whether there would be any adverse impact on similarly employed U.S. workers" (U.S. DoL 2013: 28). This labor certification process is intended to

[5] See Burgess 2005 for explicit process details, or U.S. Employment and Training Administration Form 9141. Available at http://www.foreignlaborcert.doleta.gov/pdf/ETA_Form_9141.pdf.

[6] No more than seven percent of employment-based green cards can be awarded to any citizenship group each year. This said, immigrant citizenship is not a factor affecting the quantity of applications that might be approved. In practice, employment-based green card processing queues vary in length by citizenship group (see Jasso et al. 2010). Hypothetically, forward-looking government agents' decisions could be affected by the knowledge that large-volume citizenship groups will have longer processing times. This could result in a higher likelihood of denials among these large-volume groups in an effort to shorten processing times and ease strain on this system. In practice, these differential processing queues affect immigrants from India, China, Mexico, and the Philippines. Yet, applications describing Indian immigrants (the largest group in our dataset) have the highest approval chances (92.1 percent); thus there is little reason to suspect that agents' decisions are affected by such reasoning. Our interviews also support this conclusion.

[7] The U.S. DoL's Office of Foreign Labor Certification employed 75 workers in 2008, 131 in 2009, 160 in 2010, 189 in 2011, and 181 in 2012. A minority of these workers may have also been employed in the U.S. DoL's Washington D.C. office, which addresses program administration. We cannot determine the exact portion of those reviewing permanent labor certification requests, opposed to temporary labor condition requests, or those in support / administrative roles.

evaluate an employer's hiring efforts and salary offering, and determine if a given immigrant is qualified to work in a described job. In this regard, much like decision makers in hiring and labor market studies, these government agents seek to ensure that productive and qualified immigrants are authorized to work in the United States.

By design, all labor certification applications received by the U.S. DoL describe a "failed job search" for U.S. citizen workers, and virtually all applications describe salaries at parity with, or in excess of, identified prevailing wages. This system is attestation-based, meaning that the government does not require any documentary evidence to accompany non-audited certification requests. Thus, these non-audited applications include only attestations regarding the employer, job opportunity and salary, recruitment efforts, and the immigrant worker. In the event of an application audit, employers must be prepared to provide detailed (that is, all) supporting documentation for their request.[8] This includes specific materials such as background on the immigrant, justification for the duties and educational requirements of a position, hiring files, and job advertisements. Audits therefore allow government agents in-depth access to employers' hiring records.

To date, the U.S. DoL has not disclosed the criteria that triggers an audit, stating "we believe making the process predictable would defeat the purpose of the audit" (quoted in Gonzalez 2005: 15). That said, U.S. DoL communications suggest that applications are audited in a "random" and "representative" manner, but "targeted" audits are also directed at applications with specific deficiencies (Gonzalez 2005: 15; and Cook 2005: 235). When government agents review non-audited applications (87 percent of applications during our study period), they have limited employment-relevant information when making decisions (see Appendix, Part II).

[8] Created in 1977, the labor certification process originally involved a complete document review conducted by state workforce agencies. This slow process led to a ten-year application backlog, totaling 300,630 pending cases by 2005. In March 2005, that evaluation system was replaced with an attestation-based model to more efficiently process cases (Burgess 2005).

This set of audited applications provides a unique feature of our study: We are able to study similar labor market decisions (e.g., labor certifications) reached with varying amounts of employment-relevant information. Specifically, because *separate* teams of U.S. DoL agents evaluate either non-audited or audited applications (and communication across these two teams is actively discouraged), this research setting allows for a conservative test of our second theoretical proposition about the role of employment-relevant information in labor market decisions. Two additional key features of this study are noteworthy. First, government agents *never* meet the immigrant worker, and as such immigrants are exclusively evaluated through their applications. Thus, our results are not affected by potential interpersonal dynamics either during an interview process or through individuals' on-the-job performance that may influence key employment decisions. Second, scholars have not had a chance to investigate in-depth how government work authorizations affect the employment of immigrants in the formal economy (Kerr and Lincoln 2010; Jasso et al. 2010). We, on the contrary, are able to examine the formal role of government agents in including or excluding workers from U.S. labor market participation by analyzing both approved and denied labor certification applications (for a parallel discussion of the risks inherent in selection bias when studying career outcomes, see Fernandez and Weinberg 1997; Castilla 2005).

Labor Certification Data

To test our first proposition, we analyze all applications approved or denied between June 2008 and September 2011 in the U.S. DoL Atlanta, Georgia Processing Center, totaling 198,442 observations. U.S. DoL records enable us to control for detailed immigrant worker, employer, and occupation characteristics (described below) when examining labor certification outcomes.

Immigrant workers in this dataset claimed citizenship from 190 distinct countries. Due to this great diversity, and for the sake of simplicity, citizenship countries are aggregated into seven world

regions. These regions include Africa (1.8 percent of applications), Asia (66.3 percent), Australia and Oceania (0.5 percent), Canada (5 percent), Europe (8.2 percent), Latin America (15.1 percent), and the Middle East (3.1 percent)—see Appendix Table A1 for additional information.[9] To minimize any concern regarding world region heterogeneity though, a parallel set of analyses includes controls for every citizenship group comprising more than one percent of the entire population. Within these world region and citizenship categories, Canada was selected as the reference category because of commonalities with the United States, including similar GDP growth, unemployment levels, English fluency, and geographic proximity (Lipset 1990). Furthermore, scholars suggest that Americans and Canadians are regarded similarly in terms of competence (Lee and Fiske 2006).

Each application includes information regarding the immigrant worker's salary. The median natural log annual offered wage is 11.19 ($73,000).[10] Immigrant class of admission information is also provided, defined as the type of visa the foreign national held at the time of application filing. Visa information is a key control, as it is significantly associated with immigrant education level and work experience (see, e.g., Hunt 2011). In our sample, 99 percent of immigrants resided in the United States on a temporary basis prior to filing on one of 58 distinct visa types. For our analyses, this class of admission information is aggregated into eight categories by visa function.[11] Eighty-six percent of immigrant workers previously had one of two types of temporary work visas: dual-intent and non-dual-intent. Dual-intent visas allow foreign nationals to eventually apply for permanent residency and are generally granted to workers in specialty occupations or with

[9] The largest countries by application volume within each world region group include: Africa (Nigeria, South Africa, and Kenya), Asia (India, South Korea, and China), Australia and Oceania (Australia, New Zealand, and Fiji), Europe (United Kingdom, Poland, and France), Latin America (Mexico, Ecuador, and Brazil), and the Middle East (Turkey, Israel, and Iran).

[10] 18 percent of applications described an offered salary range. For these applications, the bottom of the offered salary range was used in the analyses.

[11] Separate regression models were run including all 58 distinct visa types (available upon request) and produced substantially similar results.

unique/internationally recognized skills (including H-1B, L-1, and O-1 visa holders, among others). In contrast, non-dual-intent visas (e.g., the E-, R- and B-family of visas) allow only a transient domestic stay and frequently require that a foreign national have no intention to reside on a permanent basis.[12] The remaining fourteen percent of immigrant workers resided on visa types that usually preclude domestic employment.[13] The full breakdown of visa types by class of admission category appears in Appendix Table A2.

Several additional variables allow us to control for the characteristics of the 68,240 employers that filed labor certification applications on behalf of foreign nationals. Our analyses include fixed effects for each of twenty distinct employer industry categories. The five largest industry categories are: "Information Technology" (31 percent of all applications), "Other Economic Sector" (15 percent), "Advanced Manufacturing" (12 percent), "Educational Services" (8 percent), and "Finance" (7 percent).[14] A key employer-level control is the firm's annual labor certification filing activity, ranging from one to 4,711 applications in a given year.

Our analyses also control for variation in the characteristics of foreign nationals' job opportunities. First, regression models include fixed effects for the 985 different occupation classifications in the sample, identified by the six-digit Standard Occupation Classification (SOC) code. The most frequent occupations describe computer and mathematical positions (40 percent of applications).[15] Another key control is the U.S. DoL-identified job skill level requirement, which can vary from one to four. This measure captures the minimum education and work experience requirements of a position, in addition to any supervisory roles. Job skill requirement levels, as

[12] Non-dual-intent visa holders can still apply for permanent residency, however, a visa spot-check, security screening, or border inspection could bar their U.S. re-entry or result in visa revocation. Conversations with U.S. DoL agents indicate that they have no statutory mandate to review immigrants' visa status when evaluating applications.
[13] These non-work visas include student (4 percent), tourist (4 percent), and dependent (0.4 percent) visas. Further, a portion of immigrants entered the U.S. without visa authorization or border inspection (4 percent).
[14] Alternative regression specifications provide substantially similar results when using six-digit NAICS industry fixed effects.
[15] The most frequent occupations include: "Computer Software Engineer" (12.3 percent of applications), "Computer Systems Analyst" (7.5 percent), and "Computer Software Engineer: Systems Software" (4.2 percent).

with prevailing wage determinations, are reached through a system blind to immigrant citizenship (see U.S. Employment and Training Administration Form 9141). Skill level one, "entry," refers to routine tasks (31 percent of applications), while level two, "qualified," denotes moderately complex tasks with limited independent judgment (39 percent). Higher skill level positions are less common and require greater expertise. Individuals in skill level three positions, classified as "experienced," exercise judgment and have supervisory authority (16 percent), while skill level four, "fully competent," positions require independent evaluation of complex problems (14 percent).[16]

Each application record includes the state in which a foreign national would be employed (including the fifty U.S. states, Washington D.C., and three U.S. territories; California, with 19 percent of all applications, had the most work opportunities). We also control for the timing of each application's review by including a vector of dummy variables for the month in which the decision was reached. Timing controls further capture U.S. economic fluctuations that may influence decisions. Summary statistics for key variables are reported in Table 1.

[Insert Table 1 about here]

When evaluating labor certification applications, government agents have access to data on immigrant workers' education level and birth year. However, these variables are not available for this study for confidentiality reasons. That said, several key controls described in this section allow us to account for some variation in immigrant workers' human capital and employment experience, notably using class of admission data (i.e., student or work visa status, among others) and salary. Robustness checks presented later in the paper help to minimize the potential concern regarding these omitted variables.[17] Also, while government agents do not have access to sex or race data on the immigrant workers, they do have access to their first, middle, and last name. For

[16] The mean job skill level requirement is 2.13. Applications describing Latin American and Asian workers have mean values of 2.12 and 2.14, respectively.

[17] In particular, we analyze those immigrants residing on H-1B, F-1, and J-1 visas prior to filing, and thus likely hold undergraduate or graduate degrees.

confidentiality reasons, the name fields are also unavailable for this study.

To test our second proposition, we use a classification process aimed at identifying which applications were audited—using U.S. DoL processing queue and application date information. We identify two clearly distinct sub-populations of labor certification requests, non-audited applications (87 percent of applications, with a 91 percent approval rate, and evaluated on average within 201 days of application receipt), and audited applications (13 percent of applications, with a 57 percent approval rate, and evaluated on average within 731 days). For additional details pertaining to this classification process, please see Appendix, Part II.

Finally, whenever possible, our regression analyses are complemented by interviews with a stratified sample of 40 government agents making certification decisions during the same period as the quantitative records under study. Between February 2011 and November 2012, we interviewed agents who exclusively evaluated non-audited (N=10 agents) and audited (N=10) applications. Further, we interviewed agents that had experience working on both the non-audit and audit teams at different points in time (N=10). Additional phone and in-person interviews (arranged through formal U.S. DoL requests) were conducted with government agents having program oversight responsibilities (N=10) (for details, see Appendix, Part III).

Results

Inequality in the Labor Certification of Foreign Nationals

In this section, we analyze labor certification outcomes as determined by government agents. Our dichotomous dependent variable indicates whether any given application is approved (1 if approved; or 0 if denied). A series of logit regression models reported in Table 2 provide the coefficients for several variables predicting labor certification approval (we obtained substantially similar results when we estimated probit and linear probability models with identical control

variables; these models are available upon request).[18] As explained in the previous section, all models include fixed effect controls at the level of the occupation (job skill level requirement, occupation code, state of employment), immigrant worker (salary, class of admission), employer (industry, application volume), and government review process (month of review). These models allow for the testing of our first proposition, that is, whether approval is more likely for Asian immigrants (90.5 percent approved) and less likely for Latin American immigrants (66.8 percent approved) than North American immigrants from Canada (the reference category, 89.7 percent approved).

[Insert Table 2 about here]

Model 1 (Table 2) includes two key independent variables for employers' offered wages and job skill level requirement, in addition to occupation, industry, work location, and application month of review controls (for simplicity, not all controls are reported). Of all variables included in Model 1, the natural log of the annual offered wage is the best predictor of labor certification approval. Model 1 also suggests that U.S. DoL agents are *less* likely to certify employment positions as the job skill level requirement increases, even after controlling for occupation, work location, and salary.[19] All else equal, an immigrant seeking employment in a position requiring a "qualified" worker is 9.3 percent less likely to be approved than if the position had been classified as "entry-level." Similarly, an immigrant seeking employment in a position requiring an "experienced" or "fully competent" worker is 22 and 31.9 percent less likely, respectively, to receive approval than an immigrant

[18] Our models in Table 2 include an important number of fixed effect controls. The coefficients of logit models with multiple fixed effects may be considerably biased if there is no variation in the dependent variable for a number of fixed effects—because such observations with no variation in the dependent variable may be dropped. In our analyses, 0.6 percent of applications were dropped because of the absence of variation in the dependent variable when including all fixed effects. Once again, our results are consistent when we estimate linear probability models.

[19] The negative relationship between job skill level requirement and application approval is also found in the absence of other controls (notably including annual offered wage).

seeking entry-level employment (all significant at the 0.001 level, or $p<0.001$ henceforth).[20]

This observed negative relationship between approval and job skill level requirement is consistent with the U.S. DoL's review guidelines—because higher job skill level requirements reflect increasingly stringent prerequisites regarding prior work experience, education, special skills, supervisory authority, and language expertise to satisfy the demands of a particular U.S. job.[21] One government agent indicated that job skill level requirement information was useful because "you could say [when] the foreign worker is not qualified for the job: [The credentials of the foreign worker] don't match the skill set level that [the U.S. DoL has established] for the position" (ID #17). Our results support this view, as we find higher denial rates for applications describing jobs with higher skill requirements.

Model 2 in Table 2 introduces the main world region variables and shows that immigrants originating from specific world regions are considerably more (or less) likely to receive approval compared to the Canadian reference category, *ceteris paribus*. To address concerns regarding heterogeneity within world regions, Model 3 in Table 2 includes variables for all citizenship groups that constitute one percent or more of the entire population—using this rule, 80 percent of all immigrant workers are represented using their exact citizenship as it appears on the labor certification application.[22] Model 3 shows that immigrant citizenship variables have consistent signs when compared to their associated world region variable included in Model 2. These world region and citizenship effects remain significant even after the inclusion of key individual-level controls for immigrant workers' class of admission, as shown in Models 4 and 5 (Table 2). In

[20] -9.3% = 100% x [exp(-0.098) – 1]; -22% = 100% x [exp(-0.249) – 1]; -31.9% = 100% x [exp(-0.384) – 1].
[21] See also Appendix B of the 2009 Prevailing Wage Determination Policy Guidance. Further, this negative job skill level requirement pattern is observed in regression models controlling for U.S. occupation- and year-specific unemployment rates. Separate models also find substantially similar results when controlling for whether the application was evaluated prior to the December 2007 financial recession.
[22] For simplicity, distinct immigrant citizenships referenced in less than one percent of all applications are aggregated into "other" categories by world region.

particular, regarding our first proposition, results show some considerable contrast between Asian and Latin American regions when compared to the Canadian reference category. As seen in Model 4, Asian immigrants are 13.3 percent more likely to receive labor certification than their Canadian counterparts ($p<0.01$). Latin American immigrants, by contrast, are 23 percent less likely to receive certification than Canadians ($p<0.001$). Immigrant workers originating from Africa and the Middle East are 21.1 and 16.9 percent less likely to receive labor certification than Canadians ($p<0.01$).[23]

Model 5 in Table 2 shows substantively similar results when including immigrant worker citizenship in addition to class of admission: All citizenship groups within Asia are as likely or more likely to be granted approval when compared with Canadians. In particular, immigrant workers from India, South Korea, and Taiwan are 18.4, 21.4, and 21.4 percent more likely to receive certification than Canadians, respectively (significance varies between $p<0.001$ and $p<0.1$). By contrast, all Latin American citizenship groups in Model 5 are less likely to be granted approval when compared with Canadians (significance varies between $p<0.001$ and $p<0.01$). The most disadvantaged immigrants are Mexican, who are 35.1 percent less likely to receive certification than Canadian immigrants ($p<0.001$). Immigrants from Brazil, Colombia, Ecuador, Venezuela, and other Latin American citizenship categories are 22, 20.9, 24.2, 18, and 15.8 percent less likely than Canadians to receive approval, respectively (significance varies between $p<0.001$ and $p<0.1$). These citizenship effects remain significant after controlling for salary, job skill level requirement, class of admission, occupation, industry, work location, and month of application review.

Models 4 and 5 in Table 2 add controls for immigrants' class of admission, which provides

[23] Due to the small sample size for applications describing Middle East immigrants (3.1 percent of applications), we do not further discuss findings concerning this immigrant group, though important future work may make fruitful contributions in this area. See Bakalian and Bozorgmehr (2009) for a discussion regarding U.S. perceptions of Middle Eastern immigrants, and Marcus (2010) for a study of discrimination and civil rights protections targeting Jewish individuals in the United States. Additional analyses predicting labor certification outcomes for specific citizenships are available upon request.

some information on these immigrant workers' prior employment experience and human capital at the time of application filing (the coefficients for these class of admission controls are substantively similar across Models 4 and 5). Model 5 shows that those immigrant workers that bypassed visa inspection or entered the country illegally are 53.3 percent less likely to receive labor certification relative to those residing on dual-intent work visas at the time of filing ($p<0.001$). Immigrants on student, tourist, or dependent visas are 24.6, 18.3 and 22.9 percent less likely to receive certification (significance levels vary between $p<0.001$ and $p<0.1$), while those on non-dual-intent work visas are 35.5 percent less likely to receive certification than individuals on dual-intent work visas at the time of filing ($p<0.001$).

In sum, we find strong support for our first proposition. As can be seen in Model 4 in Table 2, Asian immigrants are more likely, and Latin American immigrants are less likely, to receive labor certification than Canadian immigrants. Similarly, in Model 5, which contains citizenship variables, all Asian citizenship groups are as likely, if not more so, to receive approval as Canadians. In contrast, all Latin American citizenship groups are less likely to receive labor certification approvals relative to Canadians.

Alternative Key Explanations

So far we have shown that immigrants' labor certification outcomes vary by citizenship with particular attention to workers from Asia and Latin America. In this section, we address potential alternative explanations that may account for our results.

First, it is important to note that this dataset comprises the *entire* population of labor certification decisions made by U.S. DoL agents during a 40-month period. As such, the relative magnitudes of coefficients are more meaningful indicators than the coefficients' statistical significance. Model 5 in Table 2 shows that citizenship coefficients from Latin America are consistently large and negative, while Asian citizenship groups are either large and positive or

close to zero, indicating parity with the Canadian reference category. The descriptive statistics in Table 1 also show great disparity in the proportion of certifications for immigrant workers from Asia and Latin America, thus providing further evidence that the observed differences in the regressions that include key controls are not the result of a statistical artifact.

Second, although our study benefits from analyzing the entire population of labor certification requests, we cannot account for the possibility that immigrants of select citizenship groups differentially sort themselves into specific occupations, employers, and/or geographic locations with higher approval likelihoods. While the inclusion of immigrant worker-, employer-, and occupation-level variables in our models minimizes this concern (that is, the non-random sorting into distinct employment opportunities), we also ran specific models to address it. To begin, we estimate models with identical controls to Model 4 (Table 2) for those applications describing "Restaurant Cook" occupations in the hospitality industry (3,829 applications, 65 percent approved). Within this occupation, immigrants from the Asia and Latin America world regions are the most closely balanced, such that applications describing each group composed 37 and 56 percent of the occupation's total observations, respectively. Because few Canadian individuals applied for labor certification within this occupation, we use Latin American immigrants—the largest world region group within this occupation—as the reference category. Results from our logit model shows that immigrants seeking employment as Restaurant Cooks from Asia are 41.6 percent more likely to be approved than those from Latin America, all else equal (β=0.348, $p<0.1$). We also ran this same model for the largest occupation in which Latin American workers were described in the majority (80.9 percent) of applications: "Construction and Extraction Occupations" (SOC code 47) in the construction industry (4,563 applications, 52 percent approved). We still find that Asian immigrants seeking construction worker employment are 81.3 percent more likely to be approved, relative to Latin American immigrants, all else equal (β=0.595; $p<0.05$).

Third, to address occupation heterogeneity concerns, we examine the largest occupation in this dataset: "Computer Software Engineers" (SOC codes 151031 and 151032; 44,441 applications; 92.3 percent approved). In a regression model limited to Computer Software Engineers, and consistent with our first proposition, we find that Latin American immigrants are 25.4 percent less likely (β=-0.293, $p<0.1$) to receive labor certification than Canadian immigrants. In this model we find no statistically significant differences between Asian and Canadian immigrants (though this coefficient is positive, $p=0.225$). Similarly, in a model examining Computer Software Engineers which contains citizenship variables, we also find strong negative coefficients for the citizenship variables associated with Africa, the Philippines, Brazil, Colombia, Venezuela, and other regions of Latin America, relative to Canadians (significance levels vary between $p<0.001$ and $p<0.1$).

Fourth, to further address occupation and employer heterogeneity, we also examine labor certification outcomes a *single* occupation within a *single* employer hiring within *one* local labor market. The largest employer was a major U.S. software firm seeking to employ many "experienced" computer software engineers specializing in systems software within a single state (2,199 applications, 73.5 percent approved). The logit model predicting approval for non-audited applications (with the same controls included in Model 4 (Table 2) reveals statistically significant positive coefficients associated with Asian immigrants (significant at the $p<0.05$ level). Even in this conservative case, we find evidence of unequal certification outcomes by citizenship, *ceteris paribus.*[24]

Additionally, because denials may also be attributable to negligent employers or organizations that intentionally violate immigration laws, we re-ran our models excluding the small number of

[24] We re-ran Model 4 in Table 2 including employer fixed effect controls, for all applications filed by employers that submitted 50 or more applications between October 2006 and August 2013. For example, results from a probit model show that Latin American immigrants are less likely to be approved than Canadian immigrants (β=-0.155, $p< 0.001$), though we do not observe any significant differences between Asian and Canadian immigrants. We thank an anonymous ASR review for suggesting this analysis.

employers that the U.S. DoL identified as program violators during the period under analysis (208 applications; see U.S. DoL 2010b for a partial list of program violators). Our regression findings remain consistent when these applications are excluded (results available upon request).

As previously discussed, one aspect of this U.S. DoL labor certification process pertains to the evaluation of an immigrant worker's human capital. Unfortunately, we do not have access to the evaluated immigrants' education level. Given our regression approach, unobserved heterogeneity in omitted variables, such as immigrant education, may explain the unequal work authorization outcomes we observe.[25] In order to mitigate this concern regarding education, our analysis again controls for immigrant class of admission. To further examine this potential source of variation, we analyze those immigrants residing on an H-1B temporary work visa at the time of filing (136,572 applications, 92.2 percent approved). Notably, 98.8 percent of immigrants awarded H-1B's during the study period (and the six years prior) held a bachelor's degree or higher.[26] Our logit model shows that Asian immigrants are 11.7 percent more likely to be approved ($p<0.05$), and Latin American immigrants are 20.5 percent less likely to be approved, than Canadians ($p<0.001$), all else equal (see also Appendix, Part V).[27]

Next, we analyze immigrant workers with an F-1 student visa at the time of filing (6,363 applications, 85.4 percent approved), as these immigrants very likely studied at a four-year U.S. college or university. A logit model predicting approval among this sub-population shows that Latin American immigrants are 45.4 percent less likely to receive approval than Europeans (as very few Canadian workers are in this F-1 group), all else equal ($\beta=-0.605$, $p=0.02$). In contrast, Asian

[25] In interviews, we asked agents to contrast the characteristics of applications describing immigrants from different citizenship groups, though we frequently received wandering and vague responses. One agent, for example, told us "I don't know that we've done that kind of data analysis, if someone has, I'm not aware of it" (ID #1).
[26] See U.S. Citizenship and Immigration Services (U.S. CIS) reports for more information on the educational characteristics of foreign nationals described in H-1B petitions (U.S. CIS 2012: 10, 2009: 9, 2006: 9).
[27] We use identical controls to Models 4 (Table 2), however, in order to enable this logit model to converge—we control for occupation using two-digit SOC codes (in lieu of six-digit codes) and application year of review (in lieu of month of review). We thank an anonymous ASR reviewer for suggesting this additional analysis of H-1B visa holders to ensure the robustness of our findings.

immigrants are 61.8 percent more likely to receive approvals than Europeans (β=0.481, p=0.011).

Finally, we ran a logit model for the 762 applications for immigrant workers on J-1 visas (86.6 percent approved), generally used by students with certain types of graduate funding, completing medical residency, or postdoctoral fellows (see Hunt 2011: 423). Relative to European workers (since again there are very few Canadians in this J-1 visa group), Latin American immigrants are 94.6 percent less likely to be approved, all else equal (β=-2.913, p<0.001). We find no statistically significant differences between Asian and European immigrant workers with a J-1.[28] Even when analyzing decisions for immigrants likely to possess a bachelor's degree or higher (as identified through class of admission information), we find substantially similar unequal outcomes associated with immigrant world region, *ceteris paribus*.

Overall, these additional models increase confidence in our results, supporting our first proposition concerning immigrant workers from Asia and Latin America.

Statistical or Preference-based Inequality in the Labor Certification of Foreign Nationals?

We now test our second proposition, concerning the role of employment-relevant information in the labor certification process. By leveraging data on applications selected for audit, we are able to study similar labor certification decisions made by government agents on separate teams evaluating applications with either 1) *limited* or 2) *detailed* employment-relevant information. Results of our analyses of labor certification approvals under non-audited and audited scenarios appear in Table 3.

[Insert Table 3 about here]

Models 1 and 2 include identical controls to those included in Models 4 and 5 (Table 2) but predict certification outcomes only for *non-audited* applications evaluated with limited information (87 percent of applications, 91 percent approved). These models show that when agents have

[28] For this regression, identical controls are used to those of Model 2 (Table 2); however, due to the small number of observations, we control for occupation using four-digit (in lieu of six-digit) SOC codes.

limited information, Asian immigrants are more likely to be approved and Latin American immigrants are less likely to be approved, relative to the Canadians, *ceteris paribus*.

One key finding of this study is presented in Models 3 and 4 (Table 3), where logit models predict labor certification approvals *only* for applications identified as being audited by the U.S. DoL (13 percent of applications, 56 percent approved). For these *audited* applications (evaluated with detailed information), we find the coefficients for world region variables (Model 3) and the vast majority of the coefficients for citizenship variables (Model 4) to be statistically insignificant. Particularly relevant to this study, the strong negative effects associated with immigrants from Mexico, Brazil, Ecuador, and other Latin American citizenship groups observed in non-audited labor certification decisions (Model 2) are not statistically significant predictors of approval outcomes in audited evaluations (Model 4). Concerning Asian immigrants, the positive effects associated with China, Taiwan, and India estimated in non-audited certification decisions (Table 3, Model 2) are not statistically significant predictors of approvals in audited evaluations either (Table 3, Model 4). These results thus provide strong support for statistical explanations of labor market discrimination.[29]

Additional conservative analyses performed support this finding: Specifically, substantially similar results are found when estimating Heckman probit (and Heckman linear probability) models controlling for the non-random likelihood of application audit (see Appendix Table A3). When estimating the coefficients for world region (Models 1 and 2) or citizenship group (Models 3 and 4), these models correct for potential differences in the likelihood that an application may be audited depending on the immigrant workers' citizenship, among other variables (see Appendix, Part IV,

[29] U.S. DoL agents may conceivably have greater discretion when evaluating more complex positions that are difficult to categorize, resulting in unequal outcomes among applications describing higher job skill requirements (consistent with Reskin and McBrier 2000). Applications filed in job skill level requirement 2 generally require a bachelors' degree and several years of work experience, while those in level 3 may require a graduate degree and extensive work experience. We find consistent results when running separate regression models on skill level requirement 2 and 3 applications with the same controls as Table 3 (models available upon request).

for more about these models). Again, in support for the statistical account, the main equation of our Heckman probit models show that world region variables (Model 2) and the vast majority of citizenship variables (Model 4) are statistically insignificant when compared to the Canadian reference category in audited evaluations, all else equal.[30] Further, a χ^2 test of significance for the seven world regions in the main equation of the Heckman probit (Model 2) shows that these world regions altogether have no significant effects on approval during evaluations with detailed information (see Appendix Table A3).[31]

It is worth noting that the relative equality we observe among audited applications is primarily attributable not to a reduction in bias against select disadvantaged groups (Latin American immigrants in our setting), but to a reduction in favoritism targeting advantaged groups (Asian immigrants in our setting). As an attestation program, government agents must assume that employers are truthful in the information they provide, resulting in generally high approval rates for non-audited applications—it is here that Asian immigrant workers appear to be favored in the certification process. That said, among audited applications, detailed immigrant worker and employer hiring information is provided and program compliance is generally found to be low, resulting in high denial rates irrespective of immigrant citizenship. These consistently high denial rates among audited cases, regardless of citizenship, thus lead to statistically insignificant citizenship coefficients predicting approvals in our models.

Of the 19 citizenship categories in Model 4 (Table 3), only two Asian citizenships are

[30] As our results may be affected by unobserved heterogeneity in immigrant education level, we also ran a Heckman probit model for those immigrants on an H-1B at the time of filing (98.8 percent of which hold a bachelor's degree or higher). We again find no statistically significant differences in approval outcomes among world region groups reached during decisions with detailed information. Further, a $\chi 2$ test shows no significant differences among these world regions (see Appendix, Part V).

[31] Another way of examining our second proposition as it pertains to Latin American and Asian workers consists of directly comparing the coefficients for these two groups, rather than to the Canadian category. To accomplish this, we compute a χ^2 that tests whether the coefficients for the Asia and the Latin America world regions are equal. The estimated χ^2 shows an insignificant difference between the Asian and Latin American coefficients (χ^2 =0.07, p=0.785); in other words, this χ^2 test does not allow us to reject the null hypothesis that the Asia and Latin America region coefficients are equal. We thank an anonymous ASR reviewer for suggesting this additional way to test our proposition.

statistically significant in the audited model: Japan and South Korea ($p<0.001$ and $p<0.01$, respectively). The significant positive coefficients for South Korean and Japanese immigrants seem to support statistical and/or preference-based mechanisms acting in concert—given our study's available data, we are unable to conclude whether these findings are due to decision makers' preferences or some unmeasured factors. As discussed in studies of the model minority myth (Kitano and Sue 1973; Lowe 1996; Ho 2003), select Asian groups (in this setting South Korean and Japanese) may experience favoritism due to broadly held beliefs regarding their relative performance.[32]

In sum, in support of statistical theories of labor market discrimination (second proposition), we find no difference in certification approvals by immigrants' world region, and no differences by immigrants' citizenship in audit scenarios where government agents' decisions are reached using detailed employment-relevant information (with the two exceptions above described).

Why These Citizenship-based Labor Certification Outcomes?

Within the limits of our non-experimental study design of audited and non-audited applications, the results of our analyses provide support in favor of statistical theories of discrimination in the labor certification process. We now offer additional support for our findings using qualitative evidence from a stratified sample of government agents who made certification decisions during the study period (for details, see Appendix, Part III).

As we learned from our interviews, one team of government agents reviews applications with limited information and identifies applications to receive selective audits, while a second team only reviews audited applications. This is a key distinction as audited applications do not enable U.S. DoL agents to learn about, or update beliefs pertaining to, any particular application.

[32] Along these lines, for instance, in its 2009 report detailing the labor certification program, the U.S. DoL specifically discussed South Korean and Canadian immigrant workers, stating "South Korea and Canada are full [OECD] members and described as 'high-income' countries" (U.S. DoL 2010a: 20). Such public statements could also potentially affect the decisions of government agents.

Specifically, if a member of the non-audit team selects an application to receive an audit, the approval or denial decision is then reached by a different U.S. DoL agent on the audit team. These teams are physically separated, and the U.S. DoL actively discourages cross-team communication.

From our interviews, we learned that agents primarily assess applications primarily based on salary offerings relative to a prevailing wage, whether the immigrant meets minimum job requirements, and whether the employer's attested job advertising efforts satisfy federal regulations. Non-audited evaluations are based on employers' self-described compliance efforts. An agent described a successful non-audited application, saying "there wouldn't be any red flags on the application… There is wage information, there's job title, job duties, and there is job skills information, all of that would seem to mesh" (ID #1). This agent went on to say that "in an audited application, there is a lot more to look for, and we look for everything that I just discussed, but at the same time, we're looking at the documentation." By "documentation," agents referred to the detailed information collected in order to assess/verify application attestations. Audit evaluations may review the language used in job advertisements, collected resumes, and evidence of foreign worker qualifications, among other requested materials.

In support of our first proposition, our interviews of government agents responsible for evaluating non-audited applications revealed that agents do seem to consider immigrant citizenship during their decisions when limited employment-relevant information is available. One agent, for example, stated: "If the country [of the immigrant worker] was friendly to America, if they were an ally of America, they were likely to be approved, and if they were less of an ally, like maybe Middle Eastern countries, we kind of took, I know I personally did it and maybe this is my personal prejudice but I think a lot of us did the same thing, like maybe Middle Eastern countries we kind of like slowed down and kind of really made sure of what was going through, [we] really looked at the application" (ID #40). This agent also added that applications describing particular sending

countries could be advantaged in the labor certification process: "I did not give you an example [of a friendly country]. Say like any European country, even Asian countries, I mean just any like, you know, if someone came from Europe, that's friendly to America. Even African countries, like you know friendly. I guess some were like in the Middle East… that's kind of what would raise eyebrows. And I think that, and not because the Department of Labor told us to, I think it was natural, us being Americans, our instinctive, kind of wanting to protect other Americans" (ID #40).[33]

As noted previously, a separate team of government agents have access to detailed employment information *only* for audited applications, a process that one agent described as "looking behind the curtain" (ID #1). In support of our second proposition regarding decisions reached using detailed employment-relevant information, audit team agents routinely mentioned that they do not take immigrant citizenship into consideration during their decisions. When describing their evaluations, audit team agents indicated "there was no bearing on where you were from, on whether or not your application was going to get approved or not. That wasn't even something we looked at" (ID #23). Another audit team agent indicated "for my approach, it wouldn't ever have anything to do with [citizenship]" (ID#8). Further, agents with experience on both teams generally felt more confident in their judgments reached with detailed employment-relevant information. As one agent (ID #12) with experience evaluating audited and non-audited applications described, "I felt way more confident in the audit process than I did in [the non-audited] review… you hope in good faith that employers post these ads and they do it correctly, but there is nothing in the [non-audited] review that ensures it." This agent added, "in the [non-audit] review, you really don't look at anything… you don't have all the detail to go on, or to rely on."

[33] For additional work about Middle Eastern immigrants in the United States, see again Bakalian and Bozorgmehr (2009).

Limitations and Directions for Future Research

Within the limits of this study's design, our findings provide evidence that the employment decisions of government agents are shaped by immigrant citizenship. Consequently, we think our work could be expanded in several productive research directions. In this study we use a regression approach to study certification approvals, and as a result, unobserved heterogeneity in immigrant qualifications or application characteristics may explain the unequal outcomes we observe. While we identify consistent results for those immigrants likely holding bachelor's degrees or higher (residing on H-1B, J-1, and F-1 visas at application filing), future work may study similar work authorization decisions with immigrant education controls (akin to Rissing 2012). Additionally, the U.S. DoL audit process we study is not completely random; and similarly, immigrant worker characteristics and their desired jobs may vary across citizenship groups. Thus, one extension of this work consists of examining the role of information in decision making using experimental designs, where audit processes and evaluated worker characteristics can be manipulated. Such study designs could also explore the question of how government agents' demographics, in relation to those of the foreign nationals they evaluate, shape labor market outcomes under controlled conditions (for similar experimental approaches for managerial decisions, see, e.g., Castilla and Benard 2010; Maas and Torres-González 2011).

While we study labor certifications leading to employment-based green card requests, immigrants may still work in the United States on other types of visas. In this regard, future research should study government decisions surrounding other visa applications (see, e.g., Jasso 1988; Ramji-Nogales et al. 2007; Rissing 2012). Ideally, these studies would be carried out in settings where additional immigrant demographics, such as sex or race, may also be collected. Furthermore, we see merit in the continued investigation of immigrant labor market experiences among those without legal U.S. work authorization (see, e.g., Donato and Armenta 2011; Menjívar

and Abrego 2012; Ryo 2013). Such studies stress the prevalence of illegal immigrant employment in informal economies. They also suggest that labor market disparities emerge from institutional and legal boundaries such as work authorization and visa access. Our hope is that future research continues to examine in-depth how organizational and legal factors affect the labor outcomes of immigrants, using detailed data akin to that analyzed here.

Discussion and Conclusion

Annually, tens of thousands of foreign nationals seek U.S. employment-based permanent residency (U.S. Citizenship and Immigration Services 2010). In this study, we examine in-depth the labor certification process, the first critical stage for the majority of employment-based green cards. While the labor certification review contains no evaluation criteria pertaining to immigrant citizenship, our study addresses, for the first time, the question of whether (and to what extent) the decisions of U.S. DoL agents may be affected by immigrant citizenship.

We analyze a dataset containing individual-, occupation-, and employer-level information for the population of labor certification applications reviewed by government agents between June 2008 and September 2011. In so doing, we test two key theoretical propositions in the labor market inequality and organizations literatures. First, our analyses reveal that certification decisions reached by agents significantly differ depending on immigrants' citizenship group, all else being equal. Specifically, we find higher chances of labor certification approval for immigrant workers from Asia and lower chances for immigrants from Latin America when compared with the Canadian reference category, *ceteris paribus*. To our knowledge, this is the first time that this has been tested using the entire population of U.S. labor certification requests within a particular timeframe.

Second, because of the U.S. DoL's process of auditing applications, we were in a unique

research position to empirically distinguish between statistical and preference-based theories of discrimination in the labor certification process. In support of the statistical account, we find that agents' decisions reached using detailed employment-relevant information (collected through audits) are not affected by immigrant citizenship, *ceteris paribus*, with the exception of two groups: South Koreans and Japanese immigrants. We argue that these findings are largely consistent with statistical explanations of labor market inequality.[34] Additionally, the lack of significant differences in application approvals across immigrant citizenships when decisions are reached with detailed information offers an interesting case of a "reverse spotlight." Through audits, government agents are seeking to improve employer compliance; and as a result, agents themselves seem to be making more equitable decisions.

Beyond the contributions to labor market inequality and organization theories, our research advances the broader literature on the social and economic incorporation of immigrants. A variety of studies have shown differences in the labor market performance of immigrants depending on their origin and destination countries (e.g., Tubergen, Mass and Flap 2004), human capital investment (Friedberg 2000), and economic assimilation through the acquisition of destination country work experience (Chiswick 1978; Borjas 1987; Jasso and Rosenzweig 1990). Although the topic of immigration has drawn great attention among scholars and practitioners, the question of how government-level selection processes affect foreign nationals remains less understood (Kerr and Lincoln 2010; Jasso et al. 2010). This study takes a first step toward remedying this by examining whether the decisions of government agents result in unequal labor outcomes depending on immigrant citizenship. Our findings are consistent with prior studies suggesting that immigration authorities may exhibit inherent biases toward specific immigrant groups (Jasso 1988; Gilboy 1991;

[34] Altonji and Pierret specifically call for additional research into statistical discrimination by worker's country of origin (2001: 343).

Calavita 1992; Ngai 2003; Ramji-Nogales et al. 2007). As such, certain immigrants may experience unique structural conditions quite distinct from those affecting U.S. citizen minorities.

Finally, previous studies seeking to explain individuals' migration decisions have afforded great agency to the prospective migrant, whose decision to travel to, or remain in, a host-country might be based on demographic, social, and economic considerations (Massey et al. 1993; Franzoni et al. 2012). Our study contributes to this body of work by directing research attention to the crucial role of broader institutional actors in shaping individuals' employment and migration outcomes. In this regard, our results also highlight how organizations (in this study, a government bureaucracy) may stratify labor market processes and outcomes (à la Pfeffer 1977; Baron and Bielby 1980; Cohen et al. 1998).

Beyond this work's theoretical contribution, our findings also have implications for practice. They are especially relevant in light of the ongoing immigration policy debates in the U.S. House of Representatives and Senate, and the public. In particular, the finding of unequal labor certification outcomes by immigrant citizenship under scenarios of limited employment-relevant information raises concerns about the fair administration of current federal immigration statutes. Our study suggests that a labor certification review process in which all applications (rather than 13 percent) were to be audited and evaluated with detailed employment-relevant information would likely produce more equitable outcomes for immigrants. Should the audit of *all* applications be unfeasible due to administrative costs, we also see value in masking immigrants' demographic characteristics (e.g. citizenship). The same way that current labor certification applications do not collect information on immigrants' sex, race, or religion, we think that concealing (or even avoiding collection of) immigrant demographics would potentially result in a more equitable evaluation process that minimizes the risk that key labor outcomes are shaped by conscious or unconscious (citizenship) biases.

Table 1: Summary Statistics for Dependent and Key Independent Variables

Variable	Mean	Percentage of Observations	Percentage Approved
Dependent Variable			
Application Approved		86.2%	Non-Applicable
Audit Status			
Application Audited		13.0%	57.1%
Annual Compensation			
ln Annual Offered Wage	11.09		
U.S. Federal Fiscal Year of Application Evaluation			
2008		7.4%	78.4%
2009		17.6%	84.6%
2010		39.7%	89.3%
2011		35.4%	85.2%
Job Skill Level			
Level 1: 'Entry'		31.7%	85.8%
Level 2: 'Qualified'		38.7%	88.5%
Level 3: 'Experienced'		15.7%	86.1%
Level 4: 'Fully Competent'		14.3%	85.9%
Class of Admission			
None - Visa Bypassed		4.3%	54.3%
Dependent Visa		0.4%	82.0%
No Visa - Not in U.S.		1.0%	83.7%
Other Visa Type		0.5%	74.1%
Student Visa		4.0%	85.5%
Tourism Visa		4.0%	76.9%
Work Visa - Dual Intent		80.9%	92.0%
Work Visa - Non Dual Intent		5.0%	78.0%
Citizenship			
Asia			
China		5.9%	90.7%
India		41.0%	92.3%
Japan		1.3%	88.7%
Pakistan		1.6%	87.7%
Philippines		4.6%	81.3%
South Korea		6.1%	87.8%
Taiwan		1.6%	91.6%
Other Asian Citizenships		4.1%	87.5%
Latin America			
Brazil		1.3%	77.6%
Columbia		1.1%	80.1%
Ecuador		1.5%	55.7%
Mexico		6.2%	59.0%
Venezuela		1.0%	84.2%
Other Latin American Citizenships		4.0%	71.8%
Rest of World			
Africa		1.8%	84.0%
Australia and Oceania		0.5%	86.6%
Canada		4.9%	89.7%
Europe: United Kingdom		1.7%	88.4%
Europe: Other European Citizenships		6.5%	86.5%
Middle East		3.1%	85.2%
Observations (Number of Applications)		198,442	

Table 2: Logit Models Predicting Government Agents' Labor Certification Approval

	All Applications				
	(Model 1)	**(Model 2)**	**(Model 3)**	**(Model 4)**	**(Model 5)**
Annual Offered Compensation					
ln Annual Offered Wage	1.130***	1.144***	1.141***	1.158***	1.152***
	(0.044)	(0.044)	(0.045)	(0.049)	(0.049)
Job Skill Level Requirement [Ref: Level 1 - 'Entry']					
Level 2: 'Qualified'	-0.098***	-0.110***	-0.110***	-0.028	-0.032
	(0.022)	(0.022)	(0.022)	(0.024)	(0.024)
Level 3: 'Experienced'	-0.249***	-0.256***	-0.261***	-0.298***	-0.304***
	(0.030)	(0.030)	(0.030)	(0.033)	(0.033)
Level 4: 'Fully Competent'	-0.384***	-0.403***	-0.411***	-0.359***	-0.363***
	(0.034)	(0.034)	(0.034)	(0.038)	(0.038)
World Region and Citizenship [Ref: Canada]					
Asia (66.2% of All Apps)		0.231***		0.125**	
		(0.041)		(0.044)	
China (5.9% of All Apps)			0.160**		0.013
			(0.053)		(0.058)
India (41% of All Apps)			0.270***		0.169***
			(0.043)		(0.046)
Japan (1.3% of All Apps)			0.258**		0.107
			(0.079)		(0.086)
Pakistan (1.6% of All Apps)			-0.020		-0.005
			(0.073)		(0.084)
Philippines (4.6% of All Apps)			0.097*		0.012
			(0.057)		(0.063)
South Korea (6.1% of All Apps)			0.329***		0.194***
			(0.052)		(0.058)
Taiwan (1.6% of All Apps)			0.300***		0.194*
			(0.083)		(0.088)
Other Asian Citizenships (4.1% of All Apps)			0.066		0.039
			(0.055)		(0.061)
Latin America (15.1% of All Apps)		-0.257***		-0.262***	
		(0.045)		(0.050)	
Brazil (1.3% of All Apps)			-0.093		-0.248**
			(0.071)		(0.081)
Colombia (1.1% of All Apps)			-0.162*		-0.235**
			(0.076)		(0.084)
Ecuador (1.5% of All Apps)			-0.602***		-0.277***
			(0.063)		(0.082)
Mexico (6.2% of All Apps)			-0.379***		-0.432***
			(0.050)		(0.060)
Venezuela (1.0% of All Apps)			-0.092		-0.198*
			(0.083)		(0.091)
Other Latin American Citizenships (4.0% of All Apps)			-0.175***		-0.172**
			(0.052)		(0.059)
Rest of World					
Africa (1.8% of All Apps)		-0.190**	-0.197**	-0.237**	-0.239**
		(0.068)	(0.068)	(0.074)	(0.074)
Australia and Oceania (0.5% of All Apps)		-0.127	-0.131	-0.086	-0.087
		(0.110)	(0.110)	(0.116)	(0.116)
Europe (8.2% of All Apps)		0.046		-0.074	
		(0.047)		(0.051)	
United Kingdom (1.7% of All Apps)			-0.019		-0.134*
			(0.072)		(0.078)
Other European Citizenships (6.5% of All Apps)			0.041		-0.060
			(0.049)		(0.054)
Middle East (3.1% of All Apps)		-0.244***	-0.260***	-0.185**	-0.185**
		(0.057)	(0.057)	(0.065)	(0.065)
Class of Admission [Ref: Work Visa- Dual Intent]					

Visa Bypassed				-0.816***	-0.761***
				(0.050)	(0.053)
Dependent Visa				-0.229*	-0.260*
				(0.115)	(0.116)
No Visa - Not in U.S.				0.032	0.047
				(0.082)	(0.082)
Other Visa Type				-0.315**	-0.310**
				(0.099)	(0.100)
Student Visa				-0.275***	-0.283***
				(0.043)	(0.043)
Tourism Visa				-0.202***	-0.202***
				(0.046)	(0.046)
Work Visa - Non Dual Intent				-0.445***	-0.439***
				(0.039)	(0.039)
Occupation Fixed Effects (985 Variables)	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects (20 Variables)	Yes	Yes	Yes	Yes	Yes
Work Location Fixed Effects (54 Variables)	Yes	Yes	Yes	Yes	Yes
Application Month of Review Fixed Effects (40 Vars.)	Yes	Yes	Yes	Yes	Yes
Constant	-9.445***	-9.785***	-9.760***	-9.782***	-9.727***
	(0.488)	(0.493)	(0.495)	(0.546)	(0.546)
Observations	186,338	186,319	186,319	168,522	168,522
Pseudo R-Square	0.19	0.19	0.19	0.18	0.18

Notes: Standard errors are in parentheses. Significance levels are: *** p<0.001, ** p<0.01, * p<0.1 (two-tailed tests). All models include controls for employer-level characteristics (economic sector and the natural log of the quantity of applications filed by a given employer in a given year), occupation-level fixed effects (six digit SOC code, state of employment), and controls at the level of the government agent review process (month of review). A series of dummy variables was included to control for whether the offered wage was below, at parity with, or in excess of, the prevailing wage; additional controls account for whether the offered wage was listed as an hourly, weekly, bi-weekly, monthly, or annual amount.

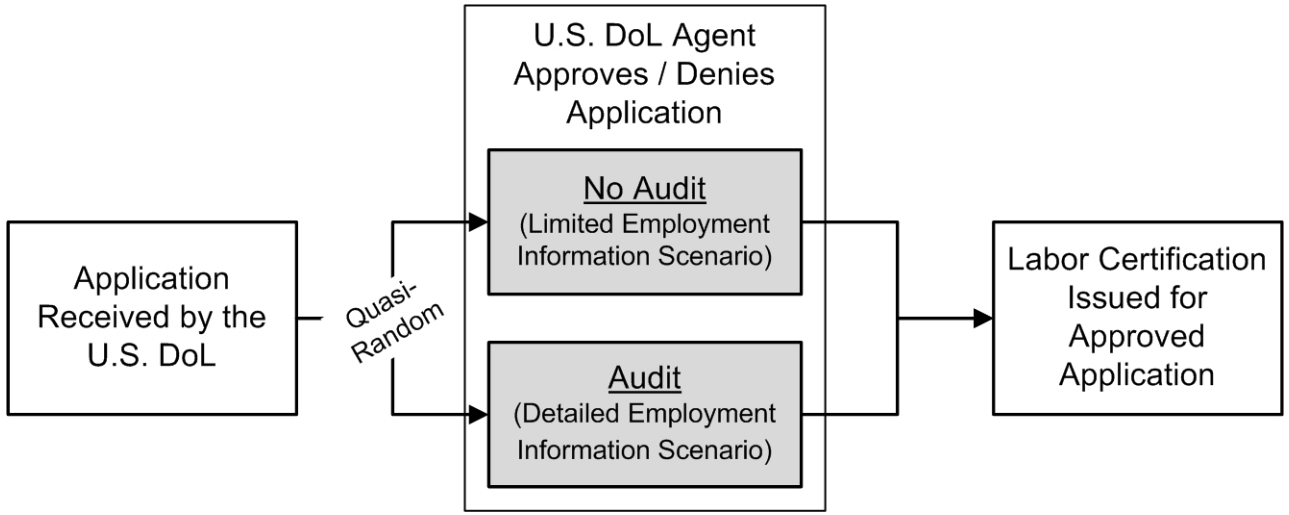
Table 3: Logit Models Predicting Government Agents' Labor Certification Approval in Audited and Non-Audited Scenarios

	Non-Audited Apps.		Audited Apps.	
	(Model 1)	(Model 2)	(Model 3)	(Model 4)
Annual Offered Compensation				
ln Annual Offered Wage	0.998***	0.990***	0.336***	0.339***
	(0.063)	(0.063)	(0.091)	(0.091)
Job Skill Level Req. [Ref: Level 1 - 'Entry']				
Level 2: 'Qualified'	0.121***	0.116***	0.039	0.031
	(0.032)	(0.032)	(0.049)	(0.049)
Level 3: 'Experienced'	-0.138**	-0.142**	0.114*	0.101
	(0.043)	(0.043)	(0.063)	(0.063)
Level 4: 'Fully Competent'	-0.151**	-0.150**	0.063	0.049
	(0.049)	(0.049)	(0.073)	(0.074)
World Region and Citizenship [Ref: Canada]				
Asia (66.2% of All Apps)	0.119*		0.061	
	(0.060)		(0.083)	
China (5.9% of All Apps)		0.178*		-0.026
		(0.082)		(0.108)
India (41% of All Apps)		0.136*		0.018
		(0.063)		(0.087)
Japan (1.3% of All Apps)		0.090		0.581***
		(0.113)		(0.153)
Pakistan (1.6% of All Apps)		-0.083		0.037
		(0.108)		(0.166)
Philippines (4.6% of All Apps)		0.005		0.011
		(0.082)		(0.127)
South Korea (6.1% of All Apps)		0.130*		0.317**
		(0.076)		(0.114)
Taiwan (1.6% of All Apps)		0.330**		-0.227
		(0.119)		(0.170)
Other Asian Citizenships (4.1% of All Apps)		0.082		-0.085
		(0.082)		(0.116)
Latin America (15.1% of All Apps)	-0.281***		-0.125	
	(0.067)		(0.097)	
Brazil (1.3% of All Apps)		-0.224*		-0.143
		(0.106)		(0.160)
Colombia (1.1% of All Apps)		-0.155		-0.065
		(0.113)		(0.157)
Ecuador (1.5% of All Apps)		-0.285**		-0.259
		(0.105)		(0.159)
Mexico (6.2% of All Apps)		-0.498***		-0.189
		(0.078)		(0.121)
Venezuela (1.0% of All Apps)		-0.153		-0.167
		(0.121)		(0.171)
Other Latin American Citizenships (4.0% of All Apps)		-0.197*		-0.038
		(0.078)		(0.113)
Rest of World				
Africa (1.8% of All Apps)	-0.200*	-0.199*	-0.218	-0.218
	(0.099)	(0.099)	(0.142)	(0.142)
Australia and Oceania (0.5% of All Apps)	-0.154	-0.158	0.148	0.162
	(0.156)	(0.155)	(0.223)	(0.223)
Europe (8.2% of All Apps)	-0.068		0.011	
	(0.069)		(0.096)	
United Kingdom (1.7% of All Apps)		-0.213*		0.180
		(0.101)		(0.146)
Other European Citizenships (6.5% of All Apps)		-0.027		-0.019

		(0.073)		(0.101)
Middle East (3.1% of All Apps)	-0.131	-0.127	-0.189	-0.183
	(0.088)	(0.088)	(0.124)	(0.124)
Class of Admission [Ref: Work Visa - Dual Intent]				
Visa Bypassed	-0.941***	-0.860***	-0.657***	-0.614***
	(0.062)	(0.065)	(0.110)	(0.115)
Dependent Visa	-0.057	-0.076	-0.369	-0.436*
	(0.150)	(0.152)	(0.227)	(0.229)
No Visa - Not in U.S.	0.291**	0.282*	-0.445**	-0.419**
	(0.111)	(0.111)	(0.160)	(0.161)
Other Visa Type	-0.376**	-0.368**	-0.063	-0.069
	(0.121)	(0.121)	(0.203)	(0.203)
Student Visa	-0.181**	-0.195***	-0.364***	-0.391***
	(0.056)	(0.057)	(0.087)	(0.088)
Tourism Visa	-0.163**	-0.160**	-0.371***	-0.384***
	(0.058)	(0.059)	(0.095)	(0.096)
Work Visa - Non Dual Intent	-0.463***	-0.446***	-0.499***	-0.534***
	(0.050)	(0.050)	(0.078)	(0.079)
Occupation Fixed Effects (985 Variables)	Yes	Yes	Yes	Yes
Industry Fixed Effects (20 Variables)	Yes	Yes	Yes	Yes
Work Location Fixed Effects (54 Variables)	Yes	Yes	Yes	Yes
App. Month of Review Fixed Effects (40 Vars.)	Yes	Yes	Yes	Yes
Constant	-8.563***	-8.485***	-2.505*	-2.492*
	(0.701)	(0.701)	(1.076)	(1.080)
Observations	148,051	148,051	19,707	19,707
Pseudo R-Square	0.21	0.21	0.16	0.16

Notes: Standard errors are in parentheses. Significance levels are: *** p<0.001, ** p<0.01, * p<0.1 (two-tailed tests). All models include controls for employer-level characteristics (economic sector and the natural log of the quantity of applications filed by a given employer in a given year), occupation-level fixed effects (six digit SOC code, state of employment), and controls at the level of the government agent review process (month of review). A series of dummy variables was included to control for whether the offered wage was below, at parity with, or in excess of, the prevailing wage; additional controls account for whether the offered wage was listed as an hourly, weekly, bi-weekly, monthly, or annual amount.

Figure 1: The U.S. Department of Labor (DoL) Labor Certification Process under Study



* Note: This figure illustrates the key labor certification steps pertaining to EB-2 and EB-3 employment-based green card requests processed in the United States (see Appendix, Part I for more information, including exceptions. See also Burgess 2005; Cook 2005; Jasso et al. 2010; U.S. CIS 2010).

Appendix

This appendix provides additional information about 1) the U.S. labor certification and employment-based green card processes, 2) the preparation of the U.S. DoL disclosure data under study, 3) the collection of U.S. DoL agent interview data, 4) additional analyses that correct for the likelihood that an application may be audited, and 5) analyses of applications describing immigrant workers likely possessing a bachelor's degree or higher. We include this discussion here for those readers who are interested in these details, while avoiding unnecessary distractions from the key theoretical and empirical contributions in the main text of this study.

Part I. Immigrant Labor Certification and the Employment-Based Green Card

Each year, approximately 140,000 employment-based green cards are allocated to immigrant workers within five preference categories: "priority workers" (EB-1), "professionals with advanced degrees" (EB-2), "skilled workers, professionals, and unskilled workers" (EB-3), "special immigrants" (EB-4), and "investors" (EB-5) (U.S. CIS 2010).[35] For the purposes of this study, we examine the labor certification process, the critical first stage in applying for the majority of EB-2 and EB-3 employment-based green cards (for exceptions, see Jasso et al. 2010; U.S. CIS 2010).[36]

Labor certification requests are initiated by U.S. employers and include broad information pertaining to a job offer that has been extended to a specific immigrant worker, advertising efforts for the position, and the immigrant worker qualifications. Specifically, the labor certification evaluation is intended to ensure "that there are no able, willing, and qualified U.S. workers for a position for which certification is requested and whether there would be any adverse impact on similarly employed U.S. workers" (U.S. DoL 2013; 20 CFR 656.17).

The aforementioned federal mandate is satisfied in practice through four concrete stages. The first involves an initial labor market search conducted by the employer to ensure that no qualified and willing U.S. citizen employee might be available to fill the firm's open position.

[35] Further, foreign workers may also be employed in the United States on a variety of other work visa types that do not require labor certification and are thus outside the scope of this study. These include temporary work visas (H-1B, L-1, etc.), temporary visas for study or training (F-1, J-1, H-3, etc.), or select temporary dependent visas (spouses of J-1 and L visa holders). See Hunt (2011) for an analysis of how immigrants vary by entry visa in terms of salary, patenting, and publishing in the United States. Additionally, immigrants may obtain legal U.S. residency and access to the U.S. labor market through family sponsorship visas.

[36] The quantity of employment-based green cards issued within each preference category varies by year. In 2008, 166,511 employment-based green cards were issued and 118,949 of these (or 71.4 percent) were granted in EB-2 and EB-3 preference categories (Monger and Rytina 2009). By contrast, in 2011, 74.7 percent of the 139,339 issued employment-based green cards were granted in EB-2 and EB-3 preference categories (Monger and Yankay 2012).

The second stage involves the determination of an occupation- and location-specific minimum wage identified by the U.S. DoL Employment and Training Administration. Third, an *actual* offered wage is selected by the employer at parity with, or in excess of, the U.S. DoL's minimum wage. The fourth stage involves the final U.S. DoL review of the position and employee characteristics, which can result in labor certification. Once these four stages are completed, an approved application may be sent within 180 days to U.S. Citizenship and Immigration Services (U.S. CIS) in conjunction with Form I-140, "Immigrant Petition for Alien Worker." After a successful U.S. CIS review, approved applications then result in the granting of a green card in one to eight years. Processing times are determined by employment-based green card type (e.g. EB-2 or EB-3), priority date, and immigrant worker citizenship (for more detail about this process, see Burgess 2005; Cook 2005; Jasso et al. 2010).

It is important to note that the preference categories of labor certification applications (EB-2 or EB-3 designations, which reflect workers' skills and ability) are assigned only *after* the labor certification evaluation is conducted by the U.S. DoL. As such, the assignment of preference category information is unavailable to government agents at the time of their application review, and consequently this does not affect our results.

Part II. Preparation of the U.S. DoL Disclosure Data under Study

We analyze all approved and denied labor certification requests evaluated by U.S. DoL agents in the Atlanta Processing Center between June 2008 and September 2011. Labor certification records were obtained through the U.S. DoL quarterly and annual disclosure program and pooled across years. We analyze records evaluated after a major U.S. DoL restructuring that occurred in June of 2008, which centralized the evaluation of applications in Atlanta, Georgia.

After pooling years of U.S. DoL records, we cleaned variables for consistency. The U.S. DoL acknowledges on its Case Disclosure website (http://www.foreignlaborcert.doleta.gov/performancedata.cfm) that "noticeable typographical or other data anomalies may be due to internal data entry or other external customer errors in completing the application form." Salary information in particular required substantial data cleaning efforts, as it may be represented as hourly, weekly, monthly, bi-monthly, or annual compensation. All records were converted to an annual salary (the most frequent representation of salary in the dataset), assuming an eight-hour work day, 40-hour work week, and 52 weeks of

employment each year. 260 records contained incorrectly entered wage information (such as a six-figure salary denoted as an hourly wage), and these errors were corrected prior to regression analyses, which included controls for those observations with revised salary fields. We also exclude from our analysis 9,454 applications that were withdrawn by employers prior to evaluation by U.S. DoL agents. The dataset further includes 1,008 duplicate applications and three triplicate applications that are evaluated at multiple points in time, totaling 2,022 observations (sometimes with inconsistent approval outcomes). These applications are retained in the analyses we present in this study (that said, results do not change substantively if these applications are excluded from the analyses or not—available upon request). Finally, an estimated three percent of the 68,240 employers described in this dataset of labor certification requests are individuals filing on behalf of an immigrant worker. Applications filed by individuals comprise approximately one percent of all labor certification applications under study.

Through its disclosure program, the U.S. DoL does not identify which applications are selected for audit. Because the U.S. DoL processes applications on a first-in-first-out basis, and because audited applications take considerably longer to evaluate, we are able to use public U.S. DoL data on the separate processing queues for audited and non-audited applications to differentiate between these sub-populations of applications. Our classification process identifies audited applications using queue and application date information, and thus accounts for variations in audit volume, timing, and targeted audits that may select on key application characteristics. A key clarification here is that *none* of the variables included in this study's statistical analyses (as described in the paper) are used to identify the sub-population of audited applications. This classification process identifies two clearly distinct sub-populations of labor certification requests, as discussed in the main text.

We refrain from discussing additional specifics regarding our classification process to avoid negatively affecting the labor certification process (also in agreement with the required Human Subjects protocol we signed). As stated by the U.S. DoL, "making the audit process predictable would defeat the purpose of the audits and undermine the program's integrity" (U.S. DoL 2012). Further, and with similar respect to protecting confidentiality, we do not identify employers by name (though this information is publicly available in U.S. DoL disclosure files) so that we do not reveal variation in the frequency of targeted audits directed at specific U.S. employers.

Part III. U.S. DoL Agent Interviews

While challenging and time consuming to locate, government agents responsible for the evaluation of labor certification requests were identified for interview through formal requests of the U.S. DoL, referrals from colleagues, and professional networking websites. Interviews were strictly voluntary, and those government interviewees received no compensation. We developed a sample of 40 interviews, stratified by U.S. DoL role, including those agents who worked in the labor certification non-audit team (N=10 agents), audit team (N=10), both the non-audit and audited team at separate times (N=10), and those in program oversight or supervisory roles (N=10). These agents were interviewed over the phone with a response rate of 25 percent. Conversations, averaging 42 minutes in duration, were semi-structured using interview questions pertaining to application evaluation, U.S. DoL work organization, and agent perceptions regarding key application fields. Interviews were recorded whenever possible (about 80 percent of the time), transcribed, and analyzed using ATLAS.ti.

Demographic and human capital data were collected on those government agents interviewed when possible. Of those interviewed agents on the non-audit team, 60 percent were female, 67 percent held bachelor's degrees, 33 percent held graduate degrees, average training duration was 7 days, and average job tenure was 9.7 months. Among those interviewed agents on the audit team, 50 percent were female, 71 percent held bachelor's degrees, 29 percent held graduate degrees, mean training was 12 days, and mean job tenure was 15.1 months. No significant differences were found when comparing education, training duration, sex, and job tenure between those government agents on the audit team and those on the non-audit team (relevant bivariate statistics comparing these two teams of government agents are available upon request).

Part IV. Additional Analyses of the Effect of Employment-Relevant Information on Labor Certification Outcomes

The likelihood of labor certification approval varies dramatically between the audited and non-audited scenarios (56 versus 91 percent). While the U.S. DoL has stated that application audits are "random," they may also be audited through "targeted" sampling (Cook 2005: 235; Gonzalez 2005: 15). If applications describing immigrant workers from select citizenship groups are audited at differential rates, this could affect the disparities in certification outcomes found in our full models.

As a key robustness check, we re-estimated our main models in Table 3 controlling for the

potential differences in the likelihood that any application may be audited. In other words, we estimated the coefficients of the main labor certification approval models in Table 3 correcting for the possibility of selection bias (that is, the likelihood that applications may be differentially audited). In particular, we estimated the two-stage Heckman probit models. This is a variant of the original Heckman model (Heckman 1976) that uses a probit for the second stage estimation in lieu of an ordinary least squares regression (see King 2008; Ingram et al. 2010 for an application of the Heckman probit). In our model, the dichotomous dependent variable is still labor certification approval (1 if approved; or 0 if denied), though this outcome is corrected for the likelihood that any application may be selected for audit (a dichotomous variable with 1 if audited or 0 if not audited).

[Insert Table A3 about here]

Table A3 reports the Heckman probit specification predicting application approval. The Heckman probit main equation and selection equation include identical controls to those of Models 4 and 5 in Table 2. This said, in order to get these models to converge, we control for the year of application decision (in lieu of decision month) and the two-digit SOC job code (in lieu of the six-digit code).[37] The selection equation further includes variables for the natural log of applications by year and natural log of applications by employer (which are absent from the main equation). These variables were selected precisely because application volume should not directly affect approval outcomes, however, the quantity of applications may be an instrument for audit selection. Specifically, with finite resources and explicit application processing goals within the U.S. DoL, a higher aggregate quantity of applications may be associated with a lower likelihood that any individual application may be selected for audit.

Table A3 reports substantially similar results to the logit models presented in Table 3 of the main text. For simplicity reasons, we report only world region and citizenship controls for these analyses in this Table. The first two models in Table A3 control for immigrant world region, while the subsequent two models control for specific citizenship groups. Model 1 presents the Heckman probit main equation for non-audited evaluations, and shows that Asian immigrants are more likely to be approved (β=0.054, $p<0.05$), and Latin American immigrants are less likely to be approved (β=-0.164, $p<0.001$), than Canadians, all else equal. Model 2 presents the Heckman

[37] We also run a Heckman linear probability model using fully-specified controls identical to those of Models 4 and 5 in Table 2 in the main text. Our results are substantially similar to those presented in Table A3 of this Appendix.

probit main equation for audited evaluations, and shows no statistically significant differences among the world region coefficients at the 0.1 level. To further test our second proposition regarding the significance of world region as a predictor of labor certification outcomes, we run a χ^2 test of significance for the seven world regions during non-audited evaluations (Table A3, Model 1 main equation) and for audited evaluations (Table A3, Model 2 main equation). The χ^2 test shows that the world region is a significant predictor of approval outcomes in the non-audited evaluations (158.71, $p<0.001$), while a separate χ^2 test for audited evaluations shows that world region is not a significant predictor for these audited decisions (5.92, $p=0.43$). Similar results are found in Models 3 and 4 that control for specific citizenship groups. This said, and consistent with our findings previously reported in Table 3 of the main text, we find some statistically significant differences associated with Asian citizenship groups in audited evaluations—see, in particular, the coefficients associated with Japan, South Korea, and Taiwan in the Model 4 main equation.

The selection equations (Models 2 and 4) of our Heckman probit models reported in Table A3 are of particular interest: They assess which application characteristics are associated with government agent decisions to audit an application and obtain additional employment-relevant information (see Reskin 2000). In the context of labor certifications, while applications are "randomly" audited, they may also be deliberately selected for audit by government agents. As a result, the selection equation helps to account for any biases or preferences that agents may express toward particular citizenship groups through selective auditing. As we learned from a number of interviews with U.S. DoL agents, one team of government agents reviews applications with limited information and identifies applications to receive selective audits, while a second team only reviews audited applications. These teams are physically separated and the U.S. DoL actively discourages cross-team communications; these unique features of our setting thus allow us to explore the role of employment-relevant information in labor certification decisions.

The selection equation for Model 2 in Table A3 reports coefficients predicting the likelihood that an application is selected for audit: The Model 2 selection equation shows that Latin American and African immigrants are audited at higher rates ($p<0.001$ and $p<0.1$, respectively), while Asian immigrants are less likely to be audited ($p<0.001$) relative to Canadian immigrants, all else equal. Substantively similar results are found for specific citizenship groups for the selection equation reported in Model 4. Our selection models therefore support that detailed

employment-relevant information is more likely to be sought for those immigrant workers belonging to citizenship groups with higher denial rates during evaluations made with limited information (that is, Latin American immigrants; see Models 1 and 2 in Table 3 of the article). Similarly, in evaluations with limited information, applications pertaining to immigrant workers belonging to Asian citizenship groups are generally less subject to requests for additional information. It is important to note that agents' decisions to audit an application are always reached with limited employment-relevant information. As such, the statistically significant world region and citizenship coefficients in the Table A3 selection equations could be explained by either statistical or preference-based theories of labor market inequality.

Part V. Additional Analyses of Labor Certification Applications Describing Immigrants on H-1B Visas

Here we analyze applications describing immigrant workers residing on H-1B visas at time of filing (136,572 applications, 92.2 percent approved). Notably, 98.8 percent of immigrants awarded H-1B's during the study period (and the six years prior) held a bachelor's degree or higher (U.S. CIS 2012). Table A4 presents results from a logit model predicting approval for this sub-population of labor certification applications. We use identical controls to Models 4 in Table 2, however, in order to enable this logit model to converge—we control for occupation using two-digit SOC codes (in lieu of six-digit codes) and application year of review (in lieu of month of review).

[Insert Table A4 about here]

Model 1 in Table A4 includes regression results for applications describing immigrants working on an H-1B visa (both audited and non-audited). Consistent with our first proposition, we find that Asian immigrants are 11.7 percent more likely to be approved than Canadian immigrants ($p<0.05$), while Latin American immigrants are 20.5 percent less likely to be approved than Canadian immigrants ($p<0.001$), all else equal.[38] Model 2 in Table A4 shows results for only non-audited applicants, and shows again that Asian immigrants are more likely to be approved ($p=0.101$) and Latin American immigrants are less likely to be approved ($p<0.01$), relative to Canadian immigrants, all else equal. In support of our second proposition, no immigrant world region group is a statistically significant predictor of labor certification approval in the analysis of audited applications (see Model 3 in Table A4).

[38] 11.7% = 100% x [exp(0.111) – 1]; -20.5% = 100% x [exp(-0.229) – 1]

To account for potential selection into non-audited and audited evaluations among the sub-population of applications describing immigrants residing on H-1B visas at the time of filing, we also re-ran Table A4 using Heckman probit (and Heckman linear probability) models. We find substantially similar results to the logit results present in Table A3. Notably, in the Heckman probit main equation for non-audited applications describing immigrants on an H-1B visa, we find that Asian immigrants are more likely to be approved (β=0.058, $p<0.1$), and Latin American immigrants are less likely to be approved (β=-0.088, $p<0.05$), relative to Canadians, all else equal. This is, once again, in support of our first proposition. Further, in our Heckman probit main equation for audited applications describing immigrants on an H-1B visa, we find no statistically significant differences by world region—in support of our second proposition. While correcting for the non-random sorting of applications into audited and non-audited evaluations, we still find substantially similar results even among the sub-population of foreign nationals residing on H-1B visas at the time of filing.[39]

[39] We thank an anonymous ASR reviewer for suggesting this additional analysis of H-1B visa holders.

Table A1: World Region and Citizenship Groupings

World Region Group	Citizenship Group (as listed on labor certification applications)	Number of Apps	Percent of Total	Percent Approved
Africa	Africa [Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Democratic Republic of Congo, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Republic of Congo, Rwanda, Senegal, Seychelles, Sierra Leone, Solomon Islands, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, and Zimbabwe]	3,458	1.8%	84.0%
Asia	China [China, Hong Kong, and Macau]	11,768	6.0%	90.7%
	India	81,543	41.0%	92.3%
	Japan	2,620	1.3%	88.7%
	Pakistan	3,131	1.6%	87.7%
	Philippines	9,243	4.6%	81.3%
	South Korea	11,781	6.1%	87.9%
	Taiwan	3,078	1.6%	91.6%
	Other Asian Citizenships: Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Brunei, Burma (Myanmar), Cambodia, Georgia, Indonesia, Kazakhstan, Kyrgyzstan, Laos, Malaysia, Maldives, Mongolia, Nepal, North Korea, Russia,* Singapore, Soviet Union,* Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan, and Vietnam	8,085	4.1%	87.5%
Australia and Oceania	Australia and Oceania [Australia, Fiji, Marshall Islands, Micronesia, New Zealand, Samoa, Tonga, and Vanuatu]	1,080	0.5%	86.6%
Canada	Canada	9,686	5.0%	89.8%
Europe	Europe: United Kingdom	3,412	1.7%	88.4%
	Other European Citizenships: Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Czechoslovakia, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, and Yugoslavia**	12,846	6.5%	86.5%
Latin America	Brazil	2,536	1.3%	77.6%
	Colombia	2,084	1.1%	80.1%
	Ecuador	3,113	1.5%	55.7%
	Mexico	12,193	6.2%	59.0%
	Venezuela	1,991	1.0%	84.2%
	Other Latin American Citizenships: Anguilla, Antigua And Barbuda, Argentina, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, British Virgin Islands, Cayman Islands, Chile, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Montserrat, Nicaragua, Panama, Paraguay, Peru, Pitcairn Islands, St Kitts and Nevis, St Lucia, St Vincent, Suriname, Trinidad and Tobago, Turks and Caicos Islands, and Uruguay	8,071	4.0%	71.8%
Middle East	Middle East [Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, and Yemen]	6,229	3.1%	85.0%
	Total Number of Applications	198,442**		

* All listed citizenship groups appear as listed on the labor certification applications. Russia (occasionally represented as "The Soviet Union" on applications) occupies both regions of Asia and Europe and thus does not neatly fit our citizenship aggregations. As a result of the few labor certification requests that originate from Russia (1,288 observations, or 0.6 percent of the total sample, with an 89.1 percent approval rate), neither the "Asia: Other Asian Citizenship" nor "Europe: Other European Citizenships" coefficients are affected by the inclusion or exclusion of Russian immigrant workers. As in excess of three-quarters of Russia lies in Asia, we have elected to retain Russia within the "Asia: Other Asian Citizenships" group.

****** In 441 applications (not listed in the above table), the immigrant citizenship field was listed as "United States of America." If this data is truthfully reported, it is unclear what benefit a U.S. citizen would derive from filing for labor certification. Moreover, the U.S. DoL has explicitly stated that they will not certify U.S. workers (U.S. DoL 2010a: 21). These applications were included in the analysis as a unique citizenship category. Regression findings are substantially the same whether those applications are included in the analyses or not (available upon request). In 44 applications (listed in the above table), the former country of Yugoslavia was indicated as the immigrant citizenship field; these applications were included in the world region "Europe" and citizenship group "Other European Citizenships." Results are substantially the same whether those applications are included in the analyses or not (these models are available upon request). In a further 53 applications (not included in the above table or this study's analyses), the citizenship field was empty and 98 percent of these applications were denied.

Table A2: Immigrant Worker Class of Admission Visa Groupings

Visa Groupings	Number of Applications	Percent of Total
Dual-Intent Work Visas [H-1, H-1A, H-1B, H-1B1, H-1C, H-B, L-1A, L-1, L-1B, L-2, O-1, O-2, P-1, P-2, P-3]	145,007	80.9%
Non-Dual-Intent Work Visas [B-1, E-1, E-2, E-3, H-2A, H-2B, H-3, H-4, R-1, TN, TN-2, VWB]	8,885	5.0%
Tourism [B-2, VWT]	7,211	4.0%
Student [F-1, J-1, M-1]	7,160	4.0%
Other [A-3, A-1, A-2, C-1, D-1, D-2, G-1, G-2, G-3, G-4, G-5, I, N, OOS, Q, T-1, TPS, U-1, U-3 U-4, Visa waiver]	811	0.5%
No Visa: Not in the United States	1,726	1.0%
Dependent [F-2, J-2, K-1, K-3, M-2, O-3, P-4, R-2, TD, V-1, V-2]	694	0.4%
Inspection Bypassed [EWI, No Visa, Parolee]	7,711	4.3%
No Prior Visa Data Provided	19,237	9.7%
Total Number of Applications	198,442	100.0%

Table A3: Two-Stage Heckman Probit Models Predicting Labor Certification Approval Conditional upon Application Audit

	(Model 1)	(Model 2)		(Model 3)	(Model 4)	
	Main Equation: Non-Audited Applications	**Main Equation: Audit Apps.**	**Selection Equation: Audit Apps.**	**Main Equation: Non-Audited Applications**	**Main Equation: Audit Apps.**	**Selection Equation: Audit Apps.**
World Region and Citizenship [Ref: Canada]						
Asia (66.2% of All Apps)	0.054*	-0.000	-0.091***			
	(0.026)	(0.041)	(0.020)			
China (5.9% of All Apps)				0.142***	-0.061	-0.011
				(0.034)	(0.053)	(0.026)
India (41% of All Apps)				0.103***	-0.038	-0.142***
				(0.026)	(0.043)	(0.021)
Japan (1.3% of All Apps)				0.095^{t}	0.438***	0.257***
				(0.050)	(0.075)	(0.038)
Pakistan (1.6% of All Apps)				0.001	-0.004	-0.034
				(0.048)	(0.083)	(0.040)
Philippines (4.6% of All Apps)				0.035	-0.075	-0.101***
				(0.035)	(0.061)	(0.030)
South Korea (6.1% of All Apps)				0.118***	0.127*	-0.092***
				(0.033)	(0.056)	(0.027)
Taiwan (1.6% of All Apps)				0.175***	-0.183*	-0.133**
				(0.051)	(0.086)	(0.041)
Other Asian Citizenships (4.1% of All Apps)				0.080*	-0.050	-0.025
				(0.036)	(0.058)	(0.028)
Latin America (15.1% of All Apps)	-0.164***	-0.009	0.098***			
	(0.030)	(0.048)	(0.024)			
Brazil (1.3% of All Apps)				-0.083^{t}	-0.049	0.044
				(0.048)	(0.080)	(0.041)
Colombia (1.1% of All Apps)				-0.020	0.029	0.190***
				(0.051)	(0.078)	(0.041)
Ecuador (1.5% of All Apps)				-0.101*	-0.041	0.109*
				(0.048)	(0.081)	(0.044)
Mexico (6.2% of All Apps)				-0.232***	-0.013	0.148***
				(0.034)	(0.059)	(0.030)
Venezuela (1.0% of All Apps)				-0.056	-0.092	0.083^{t}
				(0.054)	(0.087)	(0.045)
Other Latin American Citizenships (4.0% of All Apps)				-0.081*	-0.002	0.067*
				(0.034)	(0.056)	(0.029)
Rest of World						
Africa (1.8% of All Apps)	-0.093*	-0.084	0.063^{t}	-0.049	-0.096	0.063^{t}
	(0.045)	(0.071)	(0.036)	(0.044)	(0.072)	(0.036)
Australia and Oceania (0.5% of All Apps)	-0.074	0.110	0.061	-0.032	0.107	0.062
	(0.071)	(0.112)	(0.056)	(0.071)	(0.113)	(0.056)

Europe (8.2% of All Apps)	-0.032	0.030	0.027			
	(0.031)	(0.048)	(0.024)			
United Kingdom (1.7% of All Apps)				-0.046	0.088	0.046
				(0.045)	(0.072)	(0.035)
Other European Citizenships (6.5% of All Apps)				0.030	0.011	0.027
				(0.031)	(0.050)	(0.025)
Middle East (3.1% of All Apps)	-0.047	-0.062	0.054[t]	-0.001	-0.073	0.056[t]
	(0.039)	(0.062)	(0.030)	(0.038)	(0.062)	(0.030)
Salary Controls	Yes	Yes	Yes	Yes	Yes	Yes
Job Skill Level Req. and Class of Admission Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Occupation Fixed Effects (22 Variables)	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects (20 Variables)	Yes	Yes	Yes	Yes	Yes	Yes
Work Location Fixed Effects (54 Variables)	Yes	Yes	Yes	Yes	Yes	Yes
Application Year of Review Fixed Effects (4 Vars.)	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-3.242***	-0.554	3.765***	-3.209***	-0.660	3.683***
	(0.219)	(0.416)	(0.185)	(0.221)	(0.423)	(0.187)
Lambda		0.612***			0.574***	
		(0.079)			(0.080)	
Rho		0.546			0.517	
		(0.055)			(0.058)	
Observations	170,047	176,969	176,969	170,047	176,969	176,969
Significance of World Region χ^2 (6) in the main equation	158.71***	5.92 (n.s.)				
Significance of Citizenship χ^2 (19) in the main equation				221.46***	80.09***	

Notes: Standard errors are in parentheses. Significance levels are: *** p<0.001, ** p<0.01, * p<0.05, [t] p<0.1 (two-tailed tests). The reported selection equations for Models 2 and 4 predict the likelihood that an application is selected for audit. For simplification purposes, the selection equations for Models 1 and 3 (which predict the likelihood that an application is not selected for audit) are not shown, though are available upon request: The coefficients of these selection equations are approximately the same value but opposite sign of the coefficients in the selection equations reported for Models 2 and 4. All models include controls for employer-level characteristics (economic sector and the natural log of the quantity of applications filed by a given employer in a given year), occupation-level fixed effects (two digit SOC code, state of employment), and controls at the level of the government agent review process (year of review). A series of dummy variables are included to control for whether the offered wage was below, at parity with, or in excess of, the prevailing wage; additional controls account for whether the offered wage was listed as an hourly, weekly, bi-weekly, monthly, or annual amount. We thank an anonymous ASR reviewer for encouraging us to make these Heckman probit models available for the interested reader.

Table A4: Logit Models Predicting Government Agents' Labor Certification Approval for Applications Describing Immigrants Residing on an H-1B Visa at the Time of Filing

	All Apps. (Model 1)	Non-Audited Apps. (Model 2)	Audited Apps. (Model 3)
Annual Offered Compensation			
ln Annual Offered Wage	1.007***	0.927***	0.331***
	(0.043)	(0.055)	(0.078)
Job Skill Level Req. [Ref: Level 1 - 'Entry']			
Level 2: 'Qualified'	-0.130***	-0.001	0.082
	(0.028)	(0.037)	(0.054)
Level 3: 'Experienced'	-0.404***	-0.285***	0.144*
	(0.038)	(0.051)	(0.069)
Level 4: 'Fully Competent'	-0.435***	-0.307***	0.137^{t}
	(0.042)	(0.056)	(0.076)
World Region and Citizenship [Ref: Canada]			
Africa (1.8% of All Apps)	-0.150^{t}	-0.127	-0.075
	(0.087)	(0.115)	(0.160)
Asia (75.3% of All Apps)	0.111*	0.115	0.047
	(0.051)	(0.070)	(0.093)
Australia and Oceania (0.4% of All Apps)	-0.071	-0.024	0.026
	(0.161)	(0.223)	(0.273)
Europe (7.2% of All Apps)	-0.095	-0.060	0.006
	(0.062)	(0.084)	(0.111)
Latin America (6.7% of All Apps)	-0.229***	-0.216**	-0.002
	(0.062)	(0.083)	(0.112)
Middle East (3% of All Apps)	-0.134^{t}	-0.052	-0.005
	(0.077)	(0.105)	(0.139)
Occupation Fixed Effects (22 Variables)	Yes	Yes	Yes
Industry Fixed Effects (18 Variables)	Yes	Yes	Yes
Work Location Fixed Effects (54 Variables)	Yes	Yes	Yes
App. Year of Review Fixed Effects (4 Vars.)	Yes	Yes	Yes
Constant	-9.243***	-8.806***	-3.724***
	(0.490)	(0.629)	(0.898)
Observations	128,878	115,845	13,023
Pseudo R-Square	0.06	0.05	0.08

Notes: Standard errors are in parentheses. Significance levels are: *** p<0.001, ** p<0.01, * p<0.05, ^{t} p<0.1 (two-tailed tests). All models include controls for employer-level characteristics (economic sector and the natural log of the quantity of applications filed by a given employer in a given year), occupation-level fixed effects (two digit SOC code, state of employment), and controls at the level of the government agent review process (year of review). A series of dummy variables was included to control for whether the offered wage was below, at parity with, or in excess of, the prevailing wage; additional controls account for whether the offered wage was listed as an hourly, weekly, bi-weekly, monthly, or annual amount.

List of References

Aigner, Dennis J., and Glen G. Cain. 1977. "Statistical Theories of Discrimination in Labor Markets." *Industrial and Labor Relations Review* 30: 175-87.

Altonji, Joseph G., and Charles R. Pierret. 2001. "Employer Learning and Statistical Discrimination." *Quarterly Journal of Economics* 116: 313-50.

Arrow, Kenneth J. 1973. "The Theory of Discrimination." Pp. 3-33 in *Discrimination in Labor Markets*, edited by O. Ashenfelter and A. Rees. Princeton, NJ: Princeton University Press.

Alba, Richard D., and Victor G. Nee. 2005. *Remaking the American Mainstream: Assimilation and Contemporary Immigration*. Cambridge, MA: Harvard University Press.

Baron, James N., and William T. Bielby. 1980. "Bringing the Firms Back in: Stratification, Segmentation, and the Organization of Work." *American Sociological Review* 45: 737-65.

Bakalian, Anny, and Medhi Bozorgmehr. 2009. *Backlash 9/11: Middle Eastern and Muslim Americans Respond*. 1st ed. Berkeley and Los Angeles, CA: University of California Press.

Barnett, William P., James Baron, and Toby Stuart. 2000. "Avenues of Attainment: Occupational Demography and Organizational Careers in the California Civil Service." *American Journal of Sociology* 106: 88-144.

Becker, Gary S. 1957. *The Economics of Discrimination*. 1st ed. Chicago, IL: University Of Chicago Press.

Berger, Joseph M., Hamit Fisek, Robert Z. Norman, and Morris Zelditch, Jr. 1977. *Status Characteristics and Social Interaction: An Expectation States Approach*. New York, NY: Elsevier.

Bielby, William T., and James N. Baron. 1986. "Men and Women at Work: Sex Segregation and Statistical Discrimination." *American Journal of Sociology* 91: 759-99.

Blank, Rebecca M., Marilyn Dabady, and Constance F. Citro. 2004. *Measuring Racial Discrimination*. Washington, D.C.: The National Academies Press.

Borjas, George J. 1987. "Self-Selection and the Earnings of Immigrants." *American Economic Review* 77: 531-53.

Borjas, George J. 1994. "The Economics of Immigration." *Journal of Economic Literature* 32: 1667-717.

Branton, Regina P., and Johanna Dunaway. 2009. "Spatial Proximity to the US-Mexico Border and Local News Coverage of Immigration Issues." *Political Research Quarterly* 62:289-302.

Burgess, Lorna. 2005. "How the PERM Labor Certification Process Evolved." Pp. 1-12 in *The David Stanton Manual on Labor Certification, 3rd Edition,* edited by J. Gonzalez and E. Greenfield. Washington, DC: American Immigration Lawyers Association Publications.

Burns, Peter, and James G. Gimpel. 2000. "Economic Insecurity, Prejudicial Stereotypes, and Public Opinion on Immigration Policy." *Political Science Quarterly* 115: 201-25.

Calavita, Kitty. 1992. *Inside the State: The Bracero Program, Immigration, and the I.N.S.* New Orleans, LA: Quid Pro Books.

Castilla, Emilio J. 2005. "Social Networks and Employee Performance in a Call Center." *American Journal of Sociology* 110: 1243-83.

Castilla, Emilio J. 2008. "Gender, Race, and Meritocracy in Organizational Careers." *American Journal of Sociology* 113: 1479-526.

Castilla. Emilio J. 2011. "Bringing Managers Back In: Managerial Influences on Workplace Inequality." *American Sociological Review* 76: 667-94.

Castilla, Emilio J. and Steve Benard. 2010. "The Paradox of Meritocracy in Organizations." *Administrative Science Quarterly* 55: 543-76.

Chavez, Leo R. 2008. *The Latino Threat: Constructing Immigrants, Citizens, and the Nation*. Stanford, CA: Stanford University Press.

Chiswick, Barry R. 1978. "The Effect of Americanization on the Earnings of Foreign-born Men" *Journal of Political Economy* 86: 897-921.

Cohen, Lisa E., Joseph P. Broschak, and Heather A. Haveman. 1998. "And Then There Were More? The Effects of Organizational Sex Composition on Hiring and Promotion." *American Sociological Review* 63: 711-27.

Cook, Ryan C. 2005. "PERM Flowchart." Pp. 232-35 in *The David Stanton Manual on Labor Certification, 3rd Edition,* edited by J. Gonzalez and E. Greenfield. Washington, DC: American Immigration Lawyers Association Publications.

Correll, Shelley J. and Stephen Benard. 2006. "Biased Estimators? Comparing Status and Statistical Theories of Gender Discrimination." Pp. 89-116 in *Social Psychology of the Workplace* (Advances in Group Processes Vol. 23), edited by S. R. Thye and E. J. Lawler. New York, NY: Elsevier Science.

Davis, Kenneth C. 1969. *Discretionary Justice*. Baton Rouge, LA: Louisiana State University Press.

Dencker, John C. 2008. "Corporate Restructuring and Sex Differences in Managerial Promotion." *American Sociological Review* 73: 455-76.

Dobbin, Frank R., and Frank R. Sutton. 1998. "The Strength of a Weak State: The Rights Revolution and the Rise of Human Resources Management Divisions." *American Journal of Sociology* 104: 441-76.

Donato, Katharine M., and Amada Armenta. 2011. "What We Know About Unauthorized Migration." *Annual Review of Sociology* 37: 529-43.

DiMaggio, Paul J., and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48: 147-60.

Edelman, Lauren B., and Mark C. Suchman. 1997. "The Legal Environments of Organizations." *Annual Review of Sociology* 23: 479-515.

England, P. 1992. *Comparable Worth: Theories and Evidence*. New York, NY: Aldine Transaction Publishers.

Fernandez, Roberto M., and Colette Friedrich. 2011. "Gender Sorting at the Application Interface." *Industrial Relations* 50: 591-609.

Fernandez, Roberto M., and Jason Greenberg. 2013. "Race, Gender and Statistical Discrimination." *Research in the Sociology of Work* 24: 81-102.

Fernandez, Roberto M., and M. Lourdes Sosa. 2005. "Gendering the Job: Networks and Recruitment at a Call Center." *American Journal of Sociology* 111: 859-904.

Fernandez, Roberto M., and Nancy Weinberg. 1997. "Sifting and Sorting: Personal Contacts and Hiring in a Retail Bank." *American Sociological Review* 62: 883-902.

Fernandez-Mateo, Isabel. 2009. “Cumulative Gender Disadvantage in Contract Employment.” *American Journal of Sociology* 114: 871-923.

Foster, Andrew D., and Mark R. Rosenzweig. 1993. “Information, Learning, and Wage Rates in Low-Income Rural Areas.” *The Journal of Human Resources* 28: 759-90.

Franzoni, Chiara, Giuseppe Scellato, and Paula Stephan. 2012. “Foreign-born Scientists: Mobility Patterns for 16 Countries.” *Nature Biotechnology* 30: 1250-53.

Friedberg, Rachel M. 2000. “You Can’t Take It with You? Immigrant Assimilation and the Portability of Human Capital.” *Journal of Labor Economics* 18: 221-51.

Gilboy, Janet A. 1991. “Deciding Who Gets In: Decision-making by Immigration Inspectors.” *Law and Society Review* 25: 571-99.

Ho, Pensri. 2003. “Performing the ‘Oriental’: Professionals and the Asian Model Minority Myth.” *Journal of Asian American Studies* 6: 149-75.

Ha, Shang E. 2010. “The Consequences of Multiracial Contexts on Public Attitudes toward Immigration.” *Political Research Quarterly* 63: 29-42.

Heckman, James J. 1976. “The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models.” *Annals of Economic and Social Measurement* 5: 475-92.

Hirsh, Elizabeth C. 2009. “The Strength of Weak Enforcement: The Impact of Discrimination Charges, Legal Environments, and Organizational Conditions on Workplace Segregation.” *American Sociological Review* 74:245-71.

Hoefer, Michael, Nancy Rytina, and Bryan C. Baker. 2010. “Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2009.” Washington, DC: U.S. Department of Homeland Security, Office of Immigration Statistics.

Ingram, Paul, Lori Qingyuan Yue, and Hayagreeva Rao. 2010. “Trouble in Store: Probes, Protests, and Store Openings by Wal-Mart, 1998–2007.” *American Journal of Sociology* 116: 53-92.

Jennifer Hunt. 2011. “Which Immigrants Are Most Innovative and Entrepreneurial? Distinctions by Entry Visa.” *Journal of Labor Economics* 29: 417-57.

Jasso, Guillermina. 1988. “Whom Shall We Welcome? Elite Judgments of the Criteria for the Selection of Immigrants.” *American Sociological Review* 53: 919-32.

Jasso, Guillermina. 2001. “Studying Status: An Integrated Framework.” *American Sociological Review* 66: 96-124.

Jasso, Guillermina and Mark R. Rosenzweig. 1990. *The New Chosen People: Immigrants in the United States*. New York, NY: Russell Sage Foundation.

Jasso, Guillermina, Vivek Wadhwa, Gary Gereffi, Ben A. Rissing, and Richard Freeman. 2010. “How Many Highly Skilled Foreign-Born are Waiting in Line for U.S. Legal Permanent Residence?” *International Migration Review* 44: 477-98.

Kalev, Alexandra, Erin Kelly, and Frank R. Dobbin. 2006. “Best Practices or Best Guesses? Assessing the Efficacy of Corporate Affirmative Action and Diversity Policies.” *American Sociological Review* 71: 589-617.

Kerr, William R., and William F. Lincoln. 2010. “The Supply Side of Innovation: H-1B Visa Reforms and U.S. Ethnic Invention.” *Journal of Labor Economics* 28:473-508.

King, Brayden G. 2008. “A Political Mediation Model of Corporate Response to Social Movement Activism.” *Administrative Science Quarterly* 53: 395-421.

King, Ryan D., Michael Massoglia, and Christopher Uggen. 2012. “Employment and Exile: U.S. Criminal Deportations, 1908–2005.” *American Journal of Sociology* 117: 1786-825.

Kitano, Harry H. L., and Stanley Sue. 1973. “The Model Minorities.” *Journal of Social Issues* 29: 19.

Lee, Tiane L., and Susan T. Fiske. 2006. “Not an Outgroup, Not Yet an Ingroup: Immigrants in the Stereotype Content Model.” *International Journal of Intercultural Relations* 30: 751-68.

Lipset, S. Martin. 1990. *Continental Divide: The Values and Institutions of the United States and Canada*. New York, NY: Routledge, Chapman and Hall, Inc.

Lipsky, Michael. 1980. *Street-level Bureaucracy: Dilemmas of the Individual in Public Services*. New York, NY: Russell Sage Foundation.

Liu, John M. 1992. “The Contours of Asian Professional, Technical and Kindred Work Immigration, 1965-1988.” *Sociological Perspectives* 35: 673-704.

Lowe, Lisa. 1996. *Immigrant Acts: On Asian American Cultural Politics*. Durham, NC: Duke University Press.

Maas, Victor S. and Raquel Torres-González. 2011. “Subjective Performance Evaluation and Gender Discrimination.” *Journal of Business Ethics* 101: 667–81.

Marcus, Kenneth L. 2010. *Jewish Identity and Civil Rights in America*. 1st ed. New York, NY: Cambridge University Press.

Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegino, and J. Edward Taylor. 1993. “Theories of International Migration: A Review and Appraisal.” *Population and Development Review* 19: 431-66.

Massey, Douglas S., and Magaly R. Sanchez. 2012. *Brokered Boundaries: Creating Immigrant Identity in Anti-Immigrant Times*. New York, NY: Russell Sage Foundation Publications.

Mattoo, Aaditya, Ileana Cristina Neagu, and Çaglar Özden. 2008. “Brain Waste? Educated Immigrants in the US Labor Market.” *Journal of Development Economics* 87: 255-69.

Menjívar, Cecilia, and Leisy J. Abrego. 2012. “Legal Violence: Immigration Law and the Lives of Central American Immigrants.” *American Journal of Sociology* 117: 1380-421.

Meyer, John W., and Brian Rowan. 1977. “Institutionalized Organizations: Formal Structure as Myth and Ceremony.” *American Journal of Sociology* 83: 340-63.

Monger, Randall, and Nancy Rytina. 2009. “U.S. Legal Permanent Residents: 2008.” *Annual Flow Report*. Department of Homeland Security Office of Immigration Statistics Policy Directorate. http://www.dhs.gov/xlibrary/assets/statistics/publications/lpr_fr_2008.pdf.

Monger, Randall, and James Yankay. 2012. “U.S. Legal Permanent Residents: 2011.” *Annual Flow Report*. Department of Homeland Security Office of Immigration Statistics Policy Directorate. http://www.dhs.gov/xlibrary/assets/statistics/publications/lpr_fr_2011.pdf.

Ngai, Mae M. 2003. “The Strange Career of the Illegal Alien: Immigration Restriction and Deportation Policy in the United States, 1921-1965.” *Law and History Review* 21: 69-107.

Pew Research Center. 1996. *America’s Immigration Quandary. No Consensus on Immigration Problem or Proposed Fixes*. Washington, D.C.: Pew Research Center for the People and the Press.

Petersen, Trond, and Ishak Saporta. 2004. "The Opportunity Structure for Discrimination." *American Journal of Sociology* 109: 852-901.

Pfeffer, Jeffrey 1977. "Toward an Examination of Stratification in Organizations." *Administrative Science Quarterly* 22: 553-67.

Phillips, Damon J. 2005. "Organizational Genealogies and the Persistence of Gender Inequality: The Case of Silicon Valley Law Firms." *Administrative Science Quarterly* 50: 440-72.

Phelps, Edmund S. 1972. "The Statistical Theory of Racism and Sexism." *American Economic Review* 62: 659-61.

Portes, Alejandro. 1995. *Economic Sociology and the Sociology of Immigration*. New York, NY: Russell Sage Foundation.

Ramji-Nogales, Jaya, Andrew I. Schoenholtz, and Philip G. Schrag. 2007. "Refugee Roulette: Disparities in Asylum Adjudication." *Stanford Law Review* 60: 295-411.

Reskin, Barbara F. 2000. "The Proximate Causes of Employment Discrimination." *Contemporary Sociology* 29: 319-28.

Reskin, Barbara F., and Debra B. McBrier. 2000. "Why Not Ascription? Organizations' Employment of Male and Female Managers." *American Sociological Review* 65: 210-33.

Ridgeway, Cecilia L. 1997. "Interaction and the Conservation of Gender Inequality: Considering Employment." *American Sociological Review* 62: 218-35.

Ridgeway, Cecilia L., and Shelley J. Cornell. 2006. "Consensus and the Creation of Status Beliefs." *Social Forces* 85: 431-53.

Rissing, Ben A. 2012. "How Government Agents Shape the Employment of Skilled Immigrants." *U.S. Department of Labor Employment and Training Administration 2012 Occasional Paper Series (ETA-2012).*

Rissing, Ben A. 2013. "Highly-skilled Information and Technology Migrant Workers." Pp. 1646-51 in the *Encyclopedia of Global Human Migration*, edited by I. Ness and P. Bellwood. Hoboken, NJ: Wiley Blackwell.

Ryo, Emily. 2013. "Deciding to Cross Norms and Economics of Unauthorized Migration." *American Sociological Review* 78: 574–603.

Rubineau, Brian, and Yoon Kang. 2012. "Bias in White: A Longitudinal Natural Experiment Measuring Changes in Discrimination." *Management Science* 58: 660-77.

Sampson, Robert J. 2008. "Rethinking Crime and Immigration." *Contexts* 7: 28-33.

Simanski, John and Lesley M. Sapp. 2012. "Immigration Enforcement Actions: 2011" *U.S. Department of Homeland Security Office of Immigration Statistics Annual Report*. http://www.dhs.gov/sites/default/files/publications/immigration-statistics/enforcement_ar_2011.pdf.

Tomaskovic-Devey, Donald, and Kevin Stainback. 2007. "Discrimination and Desegregation: Equal Opportunity Progress in U.S. Private Sector Workplaces since the Civil Rights Act." *The Annals of the American Academy of Political and Social Science* 609: 49-84.

Tubergen, Frank van, Ineke Maas, and Henk Flap. 2004. "The Economic Incorporation of Immigrants in 18 Western Societies: Origin, Destination, and Community Effects." *American Sociological Review* 69: 704-27.

U.S. Census Bureau. 2012. "The Foreign-Born Population in the United States: 2010" *American Community Survey Reports.* http://www.census.gov/prod/2012pubs/acs-19.pdf.

U.S. Citizenship and Immigration Services. 2006, 2009, 2012. *Characteristics of H-1B Specialty Occupation Workers.*

U.S. Citizenship and Immigration Services. 2010. *Permanent Workers*. http://www.uscis.gov/portal/site/uscis/menuitem.eb1d4c2a3e5b9ac89243c6a7543f6d1a/?vgnextoid=cdfd2f8b69583210VgnVCM100000082ca60aRCRD&vgnextchannel=cdfd2f8b69583210VgnVCM100000082ca60aRCRD.

U.S. Department of Homeland Security. 2009. "Immigration Enforcement Actions: 2008" *U.S. Department of Homeland Security Office of Immigration Statistics Annual Report*. http://www.dhs.gov/xlibrary/assets/statistics/publications/enforcement_ar_08.pdf.

U.S. Department of Labor. 2009. *Permanent Labor Certification*. http://www.foreignlaborcert.doleta.gov/perm.cfm.

U.S. Department of Labor. 2010a. "The Foreign Labor Certification Report: 2009 Data, Trends and Highlights Across Programs and States." *Office of Foreign Labor Certification Annual Report*.

U.S. Department of Labor. 2010b. *Program Debarments.* http://www.foreignlaborcert.doleta.gov/pdf/Debarment_List_Revisions.pdf.

U.S. Department of Labor. 2010c. "Foreign Labor Certification." *FY 2010 Department of Labor Budget in Brief*. http://www.dol.gov/dol/budget/2010/PDF/bib.pdf.

U.S. Department of Labor. 2012. "Audit." *OFLC Frequently Asked Questions and Answers*. http://www.foreignlaborcert.doleta.gov/faqsanswers.cfm.

U.S. Department of Labor. 2013. "Foreign Labor Certification." *FY 2013 Department of Labor Budget in Brief*. http://www.dol.gov/dol/budget/2013/PDF/FY2013BIB.pdf

Waters, Mary C., and Karl Eschbach. 1995. "Immigration and Ethnic and Racial Inequality in the United States." *Annual Review of Sociology 21*: 419-46.

Wilson, James Q. 1980. *The Politics of Regulation*. New York, NY: Basic Books.

Zelditch, Morris, Jr. 1968. "Status, Social." Pp. 250-57 in *International Encyclopedia of the Social Sciences*, Vol. 15, edited by David L. Sills. New York, NY: Macmillan.