IMMIGRANT NETWORKS AND THE TAKE-UP OF DISABILITY PROGRAMS: EVIDENCE FROM U.S. CENSUS DATA

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ABSTRACT

This paper examines the role of ethnic networks in determining Social Security Disability Insurance (DI) and Supplementary Security Income (SSI) take-up among working-age immigrants in the United States. Using data from the 2000 U.S. Census, we find that even when controlling for country of origin and area fixed effects, immigrants residing amidst a large number of co-ethnics are more likely to receive disability payments when their ethnic groups have higher take-up rates. We show that this pattern can be partially explained by cross-group differences in satisfying the work history or income and asset requirements of the disability programs. However, we also present evidence suggesting that social norms play an important role. Information sharing appears to be important in determining SSI take-up but not DI take-up. Leisure complementarities, on the other hand, do not seem to be a driving force behind the network effects in disability program participation.

Keywords: Social Security Disability Insurance, Supplementary Security Income, Social Interactions, Immigrants

JEL Classification: C31, H55, I18, J61

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1. INTRODUCTION

In 2008, the two largest disability programs in the United States, namely the Social Security Disability Insurance (DI) program and the Supplemental Security Income (SSI) disability program, paid approximately 135.8 billion dollars in benefits to the disabled.[1] Interestingly, despite improvements in the overall health of the population in the past twenty years, the two programs have grown substantially both in terms of benefits per recipient and the number of recipients (Autor and Duggan 2006; Social Security Administration 2006). A recent Congressional Budget Office (CBO) report projects that the DI trust fund will be exhausted by 2018 if no legislative actions are taken (Congressional Budget Office 2010). As policy-makers evaluate potential changes to these programs, important considerations include whether benefits are currently being awarded fairly[2] and how any policy changes may ultimately impact disability program take-up. To gain insight into these issues, this paper explores how networks, specifically ethnic networks, affect the probability that immigrants receive disability payments either from DI or SSI.

If Social Security examiners were perfectly able to distinguish between who is and who is not able to work, and everyone who was eligible for the programs applied for and ultimately received benefits, then we would not expect social networks to play a strong role in disability program take-up. On the other hand, if the application process is sufficiently complex, then information sharing within social networks may be an important determinant of take-up among the truly disabled. Also, if the Social Security Administration does not screen recipients effectively, then among those with marginal disabilities, ultimate decisions about applying for benefits may depend on social norms regarding exaggerating disabilities or the benefits of leisure, which are likely to increase with the number friends a person has who are out of the labor force.[3] Moreover, regardless of exactly how networks operate, their existence implies that

[1] In comparison, only about 10 billion dollars were paid to Temporary Assistance for Needy Families (TANF) recipients in the same year (U.S. Census Bureau 2011). Both the DI and SSI programs provide cash benefits to individuals unable to work as a result of a disability and both have the same standards for determining who is disabled, but DI recipients must satisfy certain work history requirements. The SSI program, on the other hand, does not have prior work requirements but does have income and asset limits.

[2] Benitez-Silva, Buchinsky and Rust (2004) estimate that 20 percent of the DI/SSI applicants who receive benefits are not disabled while 60 percent of the applicants who are disabled are denied benefits.

[3] Network members may also share information about doctors who are most likely to exaggerate disabilities. According to a recent New York Times article, three doctors were responsible for 86 percent of Long Island

any policy which would increase the number of people eligible for benefits might have substantial multiplier effects.

Network effects are notoriously difficult to estimate empirically (Manski 1993). It is easy to show that individual disability program take-up is positively correlated with average disability program take-up in a person's neighborhood, but this may simply reflect cross-neighborhood differences in labor markets or initial allowance rates by Disability Determination Services (DDS) offices, for example. Taking a different approach, researchers have also examined the relationship between individual outcomes of immigrants and average behaviors in their country of origin groups. Potentially suggestive of the importance of ethnic networks in the take-up of disability programs are the large within ethnic group correlations in the take-up of disability programs. While only 1.9 percent of 25 to 61 year old immigrants receive DI payments, the proportion ranges from 3.6 among Italians to 0.4 among the Taiwanese. The ethnic variation in the proportion receiving SSI is even greater, ranging from 7.3 for Cambodians to 0.1 for the Swiss (See Table 1). However, this type of ethnic variation also cannot be taken as proof of networks since there might be differences in the tendency to become disabled--due to differences in diet, for example--which vary by country of origin.

To address these types of issues, we use an empirical approach similar to the one pioneered by Bertrand, Luttmer, and Mullainathan (2000) in their study of welfare use.[4] Welfare use of the language group is used to measure the group's views and knowledge of welfare programs in the US. To measure the ease with which individuals can be in contact with co-ethnics, the authors use the number of people in a person's local area that speak the same language. Their main question is whether being surrounded by people who speak the same language increases welfare use more for people in high welfare-receiving language groups. This approach allows them to control for both language group and local area fixed effects which eliminates many of the standard sources of bias in this type of study.

In our analysis, we start by examining whether Bertrand et al's findings of network effects in welfare usage extend to disability programs. To our knowledge, Rege, Telle, and Votruba (2009)

Railroad's disability applications. They were charged with preparing fraudulent medical assessments for hundreds of retirees (Raushbaum and Secret 2011).

[4] Aizer and Currie (2004) take a comparable approach to identifying the role of networks in the use of publicly-funded prenatal care. Aslund and Fredriksson (2009) study welfare using a similar estimating equation as Bertrand et al. but exploit the plausibly exogenous placement of refugees in Sweden for tighter identification.

is the only other study of the role of social interactions in disability program participation. Using neighbors' exposure to plant downsizing as an instrument for neighbors' disability participation, they find that Norwegians geographically close to people who participate in the program are more likely to receive disability payments themselves. Not only does our paper differ from theirs in terms of empirical approach, but our focus is on immigrant networks within a US context, examining both the DI and SSI programs.[5]

Our analysis of Census 2000 data provides evidence of social interactions for both DI and SSI take-up. Immigrants belonging to high DI ethnic groups are especially likely to receive DI benefits if they live in a neighborhood with many others from the same origin country. The relationship is even stronger for SSI. Results are robust to adding a series of assimilation and human capital measures to the model suggesting that the country of origin and geographical area fixed effects are effectively controlling for the most egregious sources of bias.

A potential concern when interpreting these findings, however, is that immigrants residing amidst a large number of co-ethnics may have unobservable characteristics which more closely resemble the average characteristics of group members. For example, if Italians living in Italian enclaves are more likely to work in occupations which employ many Italians, then it might be occupational differences in on-the-job injury rates or layoff rates which are driving similarities in disability program take-up. To examine how problematic this is likely to be, we construct for each country of origin-local area cell, on-the-job injury rates and unemployment rates. Adding these variables to our baseline models has no impact on our estimated network effects. As even further evidence that we are identifying network effects, we show that estimated effects are stronger for people we would expect to be more socially connected to their ethnic groups—for example, those with worse English speaking abilities.

The next step in our analysis is to explore how ethnic networks may operate. Using data from the World Values Survey, we show that immigrants from countries where people tend to believe that receiving government benefits to which they are not entitled can be justifiable are more likely to receive disability benefits when they reside amidst many co-ethnics. This result certainly points to a potential role of social norms.

[5] As a percentage of gross domestic product (GDP), Norway spends about four times more on disability programs than the US (Social Security Administration 2006), and so any conclusions about disability programs in Norway may not be applicable to the US.

To examine the role of information sharing, we estimate models separately by educational attainment under the assumption that people with more education are able to navigate application processes without as much need for information gathered from social networks. While our results are consistent with an information sharing story for SSI recipients, they do not point to a strong role for information sharing for DI recipients.

We also find that, conditional on ethnic group disability program take-up, immigrants in groups with low employment rates are not more likely to take-up disability programs when they reside amidst many co-ethnics. Given that leisure is likely to be just as enjoyable if spent with non-disabled out of the labor force co-ethnics as with disabled co-ethnics, this result suggests that leisure complementarities are not likely to be driving our network effect results.

Our analysis ends with an exploration of whether differences in eligibility for the DI and SSI programs are driving our results. People over the age of 65 are eligible for Social Security retirement income as long as they satisfy the work history requirements and are eligible for SSI if they satisfy the income and asset requirements, regardless of disability. Given that information sharing about the appeals process and social norms about exaggerating a disability do not play any role for these older immigrants, we interpret any estimated network effects in this population as evidence that part of our estimated network effects in the baseline sample are driven by differences in satisfying the non-disability related requirements for the programs. We find relatively small but statistically significant estimated network effects in our retirement age sample suggesting that eligibility differences are important but not the sole drivers of our results.

The remainder of the paper is organized in the following way. Section 2 provides background information on the DI and SSI disability programs. Section 3 describes the econometric model and explains our identification strategy. Section 4 presents the data, while Section 5 outlines the main results. Robustness checks are conducted in Section 6, and Section 7 examines the mechanisms through which networks operate. Conclusions are provided in Section 8.

2. Background on Disability Programs in the US

The Social Security Disability Insurance program was established to insure U.S. workers against the risk of being unable to work due to a physical or mental disability. In order to be eligible, applicants must generally have accumulated 40 quarters in work experience with half of those quarters earned within the last ten years.[6] The Supplemental Security Income program also provides cash benefits to disabled or blind individuals. Although it generally does not have work history requirements, it does have income limits which vary by state. Thus, while both programs provide cash benefits to the disabled, DI is an insurance program while SSI is a welfare program. A disabled person may receive benefits from both DI and SSI if he or she satisfies the work history requirements of DI, but DI payments are not sufficient to bring the person above the SSI income limits.

The same process is used to determine whether a person is disabled for both programs. First, examiners verify that the individual has not engaged in substantial gainful activity (SGA), defined in the year 2010 as earning $1000 per month, in the previous five months. Next, they determine whether the impairment is severe enough to prevent work for at least a year or result in death. If the answer is yes, and the condition is on the list of impairments, then benefits are awarded. Applicants with severe disabilities which are not on the list of impairments are also awarded benefits if examiners determine that they are not able to perform any job in the national economy given their age, skills, and work experience. Even when benefits are ultimately denied, there is an extensive appeals process which is often successful.[7] Roughly one third of all DI applications are awarded initially and about two thirds of all applications are awarded after the appeals process (Maestas, Mullen, and Strand 2011). SSI applications have lower approval rates than DI applications.

[6] The Social Security Administration measures a quarter of work based on earnings as opposed to time spent working. In the year 2010, workers accumulated one quarter of work experience for every $1120 earned within the year, with a maximum of four quarters which can be earned in any one year. This implies that if a worker were employed the entire year but only earned $1120, that worker would only have accumulated one quarter of experience. On the other hand, if a worker earned $4480 in one month and did not work for the rest of the year, then he will have accumulated the entire four quarters for the year 2010. In practice, however, the 40 quarters requirement generally translates into ten years of work experience while the recent work requirement translates into having worked five of the past ten years.

[7] First, rejected applicants can ask for reconsideration at the same Disability Determination Services (DDS) office. The next level is a hearing before an SSA administrative law judge where the claimant appears in person. Further appeals can be made to the Appeals Council and the federal courts.

The DI and SSI programs also differ with respect to benefits. DI payments are a function of past earnings. High earners receive more than low earners, but the benefit formula is progressive so that replacement rates are higher for low earners than high earners. DI recipients are also eligible for Medicare coverage after two years of receiving DI payments. SSI payments are lower than DI payments, and tend to vary by state of residence because of the way different states supplement federal benefits. SSI recipients are eligible for Medicaid immediately upon being awarded benefits.

Before 1996, legal immigrants were eligible for both DI and SSI as long as they satisfied the other requirements of the programs. However, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 imposed many additional restrictions with respect to SSI eligibility on all non-citizens, including those legally in the US. Initially, practically all non-citizens were barred from receiving SSI, but later reforms restored SSI disability benefits to those who were legally in the US on August 22, 1996. All of the immigrants in our sample were residing in the US five years prior to the 2000 Census, and so, as long as they satisfy the other program requirements and are legally residing in the US, they are eligible for both types of disability programs.[8]

3. EMPIRICAL APPROACH

An ideal study of the effect of networks on disability program participation would involve randomly assigning some people to a group of friends and contacts with high disability program participation and others to a group with low disability program participation. In practice, however, researchers do not generally have information on who belongs to people's social circles or disability program usage within those circles. Moreover, even if such information did exist, some remaining problems would be that people choose friends who are similar to them, and because friends tend to reside within close geographic proximity, they would all experience similar environments. Thus, friends may have similar tendencies to be on disability programs for reasons unrelated to networks and social interactions.

[8] Immigrants arriving in the US after August 22, 1996 can receive SSI benefits if they have strong military connections, long work histories, or are cross-border Native Americans. Refugees and other immigrants admitted for humanitarian reasons are eligible during their first seven years in the US only. Other non-citizens cannot receive SSI.

In our study of observational data, we focus on immigrants and use their country of origin to proxy for their social circles. Immigrants typically arrive in the US with little knowledge of US customs, institutions, traditions, and language. Upon arrival, they typically reside in ethnic enclaves with many other immigrants from the same country of origin (Bartel 1989). Participation in social networks with people from the same country of origin has been found to aid in the assimilation process (Munshi 2003).

It may be tempting to simply regress disability program participation on the proportion of immigrants from one's country of origin receiving disability programs. The problem with this strategy, however, is that people from the same country of origin may have similar tendencies to become disabled. They may have similar genetic predispositions to certain conditions or engage in similar health-related habits related to diet and exercise, for example. An alternative approach would be to construct the proportion of co-ethnics living in the same city which receive disability payments. This may result in more accurate measures of disability program participation among one's friends. However, people residing within close geographic proximity are affected by the same environmental factors, such as pollution, which could result in disability.

The very progressive nature of disability payments also makes results from naïve regressions difficult to interpret. Immigrants from the same country of origin may face similar job market opportunities. Thus, a person with limited labor market opportunities and a marginal disability may be tempted to leave the work force in order to receive benefits. Plant downsizing, for example, has been found to substantially increase disability program participation of workers in affected plants (Rege, Telle, and Votruba 2009). Similarities in disability program participation among people in the same ethnic group or residing in the same city may simply reflect similar labor market opportunities as opposed to the role of networks in determining who applies for the benefits.

To address these issues, we use an approach pioneered in Bertrand et al.'s (2000) study of welfare cultures. Specially, we examine whether immigrants residing amidst a large number of co-ethnics are more likely to receive disability payments when their ethnic groups have stronger disability program usage tendencies. This methodology allows us to include both country of origin and geographic area fixed effects in the model which absorb many of the unobserved predictors of disability and labor market opportunities common to ethnic groups and areas. We estimate the following equation:

$$D_{ijk} = \beta_1 \bar{D}_j \times CA_{jk} + \beta_2 CA_{jk} + \mathbf{X}_{ijk}\beta_3 + \delta_j + \gamma_k + \varepsilon_{ijk}, \qquad (1)$$

where D_{ijk} is equal to one if person *i* from country of origin *j* residing in area *k* receives disability payments and zero otherwise. Models are run separately for DI and SSI. We define area based on Public Use Microdata Areas (PUMAs).[9] The proportion of people receiving disability payments in a person's ethnic group is denoted $\bar{D}_j$. This will refer to average DI use in DI models and average SSI use in SSI models.[10] CA_{jk} refers to contact availability, or the density, of country of origin group *j* in area *k*. Following Bertrand et al., contact availability is defined as

$$\log\left(\frac{C_{jk}/P_k}{C_j/P}\right),$$

where C_{jk} is the number of people in area *k* who are from country of origin *j*, P_k is the population of area *k*, C_j is the number of people from country of origin *j* in the entire country and *P* is the US population. This measure of contact availability is used to ensure that we do not underestimate the availability of contacts for people in small ethnic groups. Country of origin and area fixed effects are denoted δ_j and γ_k respectively, while $\mathbf{X}_{ijk}$ is a vector of demographic characteristics including, human capital, demographic and assimilation controls. We do not include a control capturing if the individual is disabled as we believe that is it highly endogenous. People who exaggerate their disabilities to get disability insurance are more likely to say that have a disability in the Census even when they do not. This endogenous variable would affect all the other coefficients in the model. Even when including the disability dummy as a control variable, it has a positive and significant coefficient suggesting that disable people are more likely to receive disability insurance.

This specification addresses many of the typical concerns associated with this type of analysis. Country of origin fixed effects control for all of the unobserved determinants of DI

[9] PUMAs identify the Public Use Microdata Area where the housing unit is located. PUMAs are the lowest level of Geography in the 2000 5% sample. They consist of 100000 plus residents and in contrast to Metropolitan Statistical Areas (MSAs) they do not cross state lines.

[10] Even when we drop the *ith* individual from the sample in order to have a cleaner measure of average DI/SSI usage,
the results remain exactly the same. This is to be expected as each country in our sample has more than 2000 observations.

take-up, such as genetic predisposition to certain conditions, which vary by ethnicity. Geographic area fixed effects control for factors related to a person's environment which affect all people living in the same area. Geography fixed effects also pick up regional differences in the leniency of Disability Determination Services (DDSs) offices. The contact availability variable controls for the characteristics of immigrants that choose to self-segregate.

4. DATA

Our source of data is the 5 percent sample of the 2000 U.S. Census as reported by the Integrated Public Use Microdata Series (IPUMS, Ruggles et al. 2004). Our sample consists of immigrants, age 25-61, who do not reside in group quarters. Given the restrictions on SSI eligibility imposed by the 1996 Welfare Reform Act, we limit our analysis to those immigrants who were in the US five years prior to responding to the 2000 survey. This restriction also increases the proportion of the sample eligible for DI payments given the work history conditions for DI eligibility. We keep only immigrants from the 75 largest countries of origin in order to limit measurement error in our contact availability variable. For the purposes of this study, only naturalized citizens and non-citizens are considered immigrants. Individuals born abroad of American parents, Puerto Ricans and people from other US territories are dropped from the sample.

Census data are not ideal for studying disability programs because no direct questions on whether people are receiving disability income are asked. However, the Census does ask for the amount of income people are receiving in Social Security Payments and in Supplementary Security Income, separately. Technically, Social Security income can be in the form of disability insurance as well as public pensions, survivor benefits, and Railroad Retirement insurance payments, but we do not believe people in our sample are receiving pensions since they are all below retirement age. We also drop widows and widowers from the sample to make it less likely that they are receiving survivor benefits. Similarly, SSI payments can be made to the disabled as well as the elderly, but given the age restrictions we impose on the data, recipients of SSI in our sample should be receiving it as a result of a disability. Our final sample consists of 674058 observations.

Table 2 shows descriptive statistics of the variables used in the analysis. The proportions of our sample that receive DI and SSI are about equal. This pattern differs quite remarkably from

the general population where about seven times more people receive DI than SSI. We remind readers that the foreign born are significantly less likely to satisfy the DI work history requirements both because they may not have resided in the US for a sufficient number of years and because they are more likely to work "under the table" or not work at all in the years they have resided in the US. Another explanation relates to how benefits are calculated. In order to qualify for DI benefits, individuals must work approximately ten years, but payments are calculated based on average earnings within the worker's best thirty-five years. Years in which immigrants do not work are counted as zeros. Thus, immigrants with marginal disabilities may choose to forego disability payments, at least until they have worked a good number of years in the US.[11] In addition to their being less likely to receive DI payments, they are more likely to eligible for SSI given their typically lower wages than natives.

The table also shows that on average, disability payment recipients are older, have lower levels of education, and are more likely to live in PUMAS with a large representation of co-ethnics. All immigrants in our sample have lived in the US approximately twenty years, making them very likely to be eligible for DI. Racial distributions do not differ substantially by whether people participate in disability programs but interestingly, the proportion of Asians receiving DI is smaller than the proportion of Asians in our immigrant sample; there is no such difference for SSI. Comparing DI recipients to SSI recipients, we can see that DI recipients have higher levels of education and English fluency than SSI recipients. DI recipients typically have resided in the US for a longer period of time. Asians are significantly more likely to receive SSI than DI. SSI recipients are also more likely to reside amidst a large number of people from the same country of origin. Beyond these differences, DI and SSI recipients have very similar observable characteristics.

The first two rows of Table 2 also show that there is a complementarity between DI and SSI. For instance, 15.6% of the people that receive SSI also receive DI, and 12.2% of the people that receive DI receive SSI. This suggests that people who receive both programs are people that have worked long enough, but have never made enough money so they receive SSI after getting DI benefits.

[11] See Gustman and Steinmeier (2000) for an examination of how the Social Security benefit formula affects natives and immigrants differently.

5. BASELINE RESULTS

Tables 3A and 3B present estimates of the coefficients in equation (1) for models explaining DI and SSI participation, respectively. The mean DI (SSI respectively) use in the interaction term is taken in deviation from the overall DI/SSI use in the sample: $CA * \left(\overline{DI_j} - \overline{DI}\right)$. As in Bertrand et al. (2000) we do this in order to facilitate the interpretation of the non-interacted CA coefficient. Our parameters of interest are identified from variation across 75 countries of origin and 2071 PUMAs. Standard errors are clustered on country of birth throughout.

As can be seen in the first column of both tables, our estimates suggest a positive coefficient on β_1, even in very simple models which contain only the controls necessary for interpreting the interaction coefficient. In the second column of both tables, basic demographic controls are added to the specification, the most important of which are age fixed effects. All estimated coefficients have the expected signs: Given that males are more likely to have substantial work histories, it should not be surprising that males are more likely than females to receive DI but less likely to receive SSI. Married people are less likely to receive both types of disability payments. Blacks are more likely than other racial groups to receive both types of disability payments. Hispanics are less likely than whites to receive SSI, but they do not have statistically different take-up rates of DI. When these controls are added to the basic specification, the estimated interaction coefficient decreases by about 15 percent in the DI model but only 3 percent in the SSI model.

A potential threat to our identification strategy is that immigrants who reside amidst a large number of others from their same ethnic background may be very similar to them in ways which can result in similar tendencies to participate in disability programs. For example, Italian immigrants residing in Italian enclaves may have characteristics, such as lower potential wages, which make them significantly more likely to find DI attractive than the Taiwanese who live in Taiwanese neighborhoods.[12] We will devote much of the remaining part of the paper to addressing this type of concern, but as a preliminary check, it is useful to see what happens to our estimated network coefficient when measures of education and assimilation are added to the

[12] Note from Table 1 that Italians have high DI usage while the Taiwanese have low DI usage.

model. As can be seen in the third column of Tables 3A and 3B, immigrants with more education and better English language speaking ability are less likely to be receiving DI and SSI, with stronger results for SSI. More importantly, when these variables are added to the model, the network coefficients do not change substantially, in both the DI and SSI specifications. This suggests that the country of origin and puma fixed effects are likely to be already controlling for many of the most influential unobservable characteristics.

These results certainly point to a role of networks on disability program participation, but it is also useful to think about how the coefficients translate into parameters with policy implications. Specifically, how much do networks magnify the effect of changes in policies which would increase the number of people eligible for disability programs? As derived in Bertrand et al. (2000), equation (1) implies that a policy which increases disability program participation by one percentage point in a world with no network effects would actually increase participation by $1/(1-\beta_1\overline{CA}_k))$ percentage points for people from country of origin *k*. Taking the weighted mean of this expression over all countries of origin, plugging in our estimates of β_1 from the third columns of Tables 3A and 3B and subtracting 1 to derive the extra change induced by networks, we conclude that network effects amplify the effects of policy changes by about 16 percent for DI and 81 percent for SSI.

Our finding that network effects are so much stronger for SSI take-up than DI take-up should not be surprising for two reasons. First, person to person information sharing should be relatively more important for people eligible for SSI payments given their low life-time earnings and presumably lower levels of human capital. Second, while DI is an insurance program requiring recipients to have paid into Social Security for a minimum of 40 quarters, SSI is a means tested program. Presumably, any taboos against exaggerated disability claims should be more important for SSI than DI.

6. CAN RESULTS BE EXPLAINED ENTIRELY BY OMITTED VARIABLE BIAS?

A. The Role of Occupational Similarities

As discussed above, the main potential threat to our identification strategy is the possibility that immigrants who choose to reside amidst a large number of co-nationals may resemble their ethnic groups in ways which result in higher disability program participation. Readers may be specifically concerned that immigrants residing amidst a large number of other immigrants from their country of origin are likely to be employed in the same jobs. Job-related disabilities may then be driving our results. The Census contains information on people's occupation and industry, but only for the jobs in which people are currently employed. The disabled typically are no longer employed, and when they are, it is unlikely that they are employed in the job which caused their disability. Thus, we do not feel comfortable in controlling for people's listed occupation and industry. However, we do construct several aggregate variables which can be used to alleviate the most obvious concerns with our identification strategy.

We use data from the Bureau of Labor Statistics' (BLS) Injuries, Illnesses, and Fatalities (IIF) program on work-related fatalities and nonfatal injuries and illnesses. Following Orrenius and Zavodny (2009), we construct on-the-job injury rates by dividing the number of injuries in the occupation by the number of private sector workers in the occupation (and then multiplying by 10,000). A work-related injury is defined as an injury involving at least one full day away from work. Data on the number of workers is obtained from the Occupational Employment Statistics. After assigning to each employed person in our sample injury rates for his or her occupation, we then construct average injury rates for each puma-country of origin cell. Similar measures are constructed for specific types of on-the-job injuries: sprains, chemical burns, and back pain.

Tables 4A and 4B present results from models which include controls for occupational hazards. As can be seen in Table 4A, immigrants residing in areas where people from their country of origin tend to work in jobs with many injuries are more likely to receive DI. This is true when considering all injuries as well as specific injuries. The prevalence of chemical burns in occupations typically held by local co-ethnics is highly correlated with DI participation. That said, the inclusion of controls for occupation injury rates in the model has virtually no effect on

our measure of the importance of networks. Table 4B shows that the prevalence of injuries in occupations held by co-ethnics has no statistically significant impact on the probability of receiving SSI benefits. This makes some sense in that SSI-receivers typically do not have strong work histories. Naturally, the estimated coefficient on our network interaction is not sensitive to the inclusion of injury controls.

Another potential issue related to the occupational distribution of immigrants is that immigrants from certain countries residing in certain areas may be more likely to have lost their jobs. To explore this labor market avenue, we construct puma-country of origin unemployment rates. As seen in the last columns of Tables 4A and 4B, our unemployment controls are not statistically significant in both models. In the SSI specification even has the wrong sign. The network coefficient decreases very slightly when the unemployment control is added to the DI model, but the estimated network coefficient actually increases slightly when the SSI model includes unemployment. For simplicity, however, we do not control for any of these work-related variables in our models for the remainder of the analysis.

B. Networks and Assimilation

Regardless of whether they operate via information sharing or norms, ethnic network effects should be stronger for immigrants who are more attached to their ethnic groups. For further evidence that our estimated network effects are actually measuring networks as opposed to omitted variables, we explore whether our estimated network effects are indeed larger for immigrants who are least assimilated and therefore more attached to their groups.

First, we replace the country of origin based definition of ethnicity with a continent of origin based definition. If immigrants communicate more with other immigrants from their own country, then we should expect network effects to be stronger when networks are defined by country of origin than when they are defined by continent of origin. For convenience, the first column of Tables 5A and 5B, showing results for DI and SSI respectively, reproduce the baseline estimates from Tables 3A and 3B. In the second column of both tables, we show regression results after replacing the average disability program usage among people from the same country of origin to the average among people from the same continent of origin. Similarly, we construct the contact availability measure based on the broader conception of ethnicity. Our estimated network effect coefficient drops in magnitude by about a third smaller in the DI

specification and by about half in the SSI specification. We conclude that indeed people's disability program take-up is more sensitive to country of origin-based networks than continent of origin-based networks.

Next, after reverting back to our country of origin based measure of networks, we separate the sample by English speaking ability. The third column in Tables 5A and 5B reports results from regressions run on a sample of immigrants who do not speak English well or do not speak English at all while the fourth column is run on immigrants who either can only speak English, speak English very well, or speak English well. Not surprisingly, immigrants fluent in English are less sensitive to network effects when it comes to both DI and SSI participation. Interestingly, however, the language ability differential is stronger for SSI than DI.

Finally, we aim to compare network effects for the foreign born to the native born. From a theoretical perspective, the comparison is not as clear-cut as one might think. On the one hand, we may expect the foreign born to have stronger ties to their ethnic group and so should be more sensitive to any ethnicity-based norms and taboos. They should also benefit more from information sharing about US programs than their native-born counterparts. On the other hand, the native born are significantly more likely than the foreign born to be eligible for disability programs. The native born are all US citizens by birth, while many of the foreign born are living in the US illegally and would not be eligible for either disability program. Moreover, the native born are more likely to have worked the necessary 40 quarters to receive DI both because they have lived in the US their entire lives and because they are less likely to have worked under the table. For these reasons, it is rather unclear whether network effects will be stronger for the foreign born or native born, but a finding that immigrant network effects are stronger could be viewed as strong evidence in favor of the role of networks. Given that SSI does not have work history requirements, we expect the native-foreign differential to be larger for SSI than DI.

Of course we cannot make the native-foreign comparison with our sample of immigrants. Instead, we define ethnicity by the first ancestry listed in the Census. Note that people who identify with a particular ancestry are very heterogeneous. They range from second-generation immigrants whose parents arrived in the US shortly before their births to people whose families have been in the US for many generations. Tables 5A and 5B compare ancestry network effects for the native and foreign born. In both the DI and SSI models, results point to strong ancestry-based network effects for the foreign born but statistically insignificant effects for the native

born. This is quite remarkable given that the native born are more likely to be eligible for both programs. We would also like to note that the native born who choose to identify with a specific ancestry are likely to be more similar to people in their ethnic groups than the native born who do not identify with a particular ancestry (see Duncan and Trejo (2011) for a more formal exploration of this issue). The fact that we do not see network effects for the native born suggests that natives either do not need the information provided by their networks or do not suffer from any taboos within their networks.

C. Bureaucratic Channel

As discussed in Bertrand et al. (2000), bureaucracies can provide another potential explanation for our results which is unrelated to information sharing and norms within networks. For example, local Social Security offices may hire agents who speak a specific language whenever the number of people in the area that speak that language is sufficiently high.

Following Bertrand et al., we examine this possibility by restricting our sample to Spanish speakers. From the perspective of Social Security offices, decisions about whether or not to hire Spanish speaking agents should depend on the total number of Spanish speakers regardless of country of origin. In contrast, if immigrants are more likely to befriend immigrants from their country of birth than they are other Spanish speakers, then we should be able to uncover network effects even in a sample restricted to Spanish speakers.

As can be seen in the last column of Tables 5A and 5B, the estimated coefficient on the interaction term is positive and statistically significant at the 10 percent level in both the DI and SSI models. It is not surprising that standard errors are higher in these specifications given that the sample includes only sixteen countries of origin.[13] What is noteworthy is that while the estimated Spanish-only network coefficient in the DI model is about the same as that in the baseline specification, the Spanish-only network coefficient in the SSI specification is significantly smaller in magnitude than that in the baseline all-languages model. This suggests that the bureaucratic channel may be a partial, but certainly not total, explanation for the strong estimated network effects in the SSI model.

[13] These are: Mexico, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Cuba, Dominican Republic, Argentina, Bolivia, Chile, Colombia, Ecuador, Peru, Venezuela.

7. How do Networks Operate?

Having provided evidence that networks play an important role in immigrants' disability program take-up, in this section we explore how. As discussed above, networks may influence eventual disability program utilization via information sharing about the existence of the programs, how to apply, or how to navigate the system of appeals if initial applications are denied. Social norms are also maintained via networks. It is also possible that networks operate mainly through making people eligible for the programs as opposed to encouraging eligible people to take advantage of the programs. Although we cannot hope to perfectly distinguish between these mechanisms using Census data, in this section, we provide several pieces of evidence suggesting that all three mechanisms might be at play.

First, to examine the role of information sharing, we separate the data based on educational attainment. There is a large literature documenting the fact that many of the people eligible for social assistance programs do not take them up (see Aizer 2007). One potential explanation for this is that the application process is a substantial barrier for people, especially those with limited education levels. To explore this issue in the context of disability insurance, we split the sample based on college completion since the college-educated should be well-equipped to navigate the entire application process without requiring help from social contacts. We present results for both the DI and SSI programs, but we focus on the DI results given that so few college-educated immigrants receive SSI, and the ones that do are surely are very select sample.

As can be seen in the DI specifications of Table 6A, estimated network effects are much smaller in magnitude and not statistically significant for college-educated immigrants. The SSI specifications in Table 6B suggest that although college graduates are less sensitive to network effects than non-college graduates, there are statistically significant network effects even for the college-educated. These results are certainly consistent with an information story, but they are far from a definitive test. It is possible that norms are the only mechanism through which networks matter but that the college-educated are simply not as sensitive to the norms within their ethnic groups.

Next, we replace our measure of "network quality", average program usage in the ethnic group, with a more direct measure of social norms. Using various waves of the World Values Survey, we constructed for each country the proportion of people who believe that "Claiming

government benefits to which you are not entitled" is never justifiable. We merged this variable by country of origin to the immigrants in our sample and used it to replace the proportion of same-country of origin immigrants that participate in the disability programs.[14] The results shown in Tables 6A and 6B suggest that an increase in the contact availability of co-ethnics has a smaller effect for people from countries where more people believe that claiming government benefits unfairly is never justifiable. This is certainly consistent with the taboos and norms story explaining our findings of network effects.

Another attractive feature of this test is that it can alleviate some concerns regarding the Manski reflection problem. First, unlike the average DI variable, the social norm variable is created from a very different sample than the one used in our analysis. In fact, this question is not even related to disabilities per se. The fact that we find network effects using this variable makes it more believablev that our analysis is not simply picking up within-group correlations in the tendency to become disabled.

Taken together, these results point to a role for information sharing and cultural norms in explaining how networks operate. However, it might also be that ethnic networks are operating in ways unrelated to the decision of whether or not to apply for disability benefits conditional on being eligible, but instead in terms of how to become eligible for the programs. Bertrand et al. (2000) and Aslund and Fredriksson (2009) present evidence of networks in welfare take-up while the results in Brügger, Lalive, and Zweimüller (2009) point to the importance of culture in determining unemployment rates. If there is such a thing as a culture of poverty, then our story might not be about applying to disability programs per se. Instead, it might be that networks affect whether immigrants meet the work history requirements of DI and income and asset requirements of SSI which would then translate into who ultimately receives those benefits.

To examine this possibility, we exploit the fact that the disability and retirement programs of the Social Security Administration are in essence the same programs with virtually the same eligibility requirements. To qualify for Social Security retirement income, individuals must satisfy the same work history requirements as DI-recipients but receive benefits as long as they

[14] We attempted to use the most recent wave of the World Values Survey from each country to construct this variable. In most cases, this ranged from 2005 to 2007. When this question was not available in the more recent years, we used information from the 1999-2002 Surveys. Out of the 75 country of birth in the original sample, we were only able to construct the variable for 52 countries. To confirm that country selection was not driving our results, we ran the baseline models using only these 52 countries. Results did not change substantially.

are above a certain age. Given the magnitude of the program, it is unlikely that networks play a large role in sharing information about its existence. Also the application process is significantly more straightforward since no evidence of disability is required. Moreover, it is unlikely that there are any significant taboos against receiving retirement income. Thus, a positive and statistically significant interaction coefficient in a model with the receipt of Social Security retirement income as the dependent variable, run on a sample of immigrants at or above the age of 65, might be interpreted as evidence of the role of networks in terms of satisfying work history requirements as opposed to applying for or receiving benefits.

Similarly, SSI is available to the elderly, regardless of disability status, as long as applicants meet the income and asset requirements. Findings that networks help determine SSI-receipt for the elderly would suggest that social contacts create or maintain a culture of poverty which makes people eligible for SSI, for reasons unrelated to disability.

The Census reports all income received from Social Security during the previous year. As discussed above, this includes pensions, survivors' benefits, permanent disability insurance, and U.S. government Railroad Retirement insurance payments. Our baseline models are restricted to non-widowed immigrants under the age of 62, and so income from Social Security is most likely to be DI income. To measure Social Security retirement income, we reproduce the baseline specifications (column 3 Tables 3A, B) to individuals in the age group 66 to 93 (elderly sample). Again, for people below retirement age, they must have a disability or be blind, but anyone who meets the income constraints can receive SSI if they are above retirement age.

Tables 6A and 6B show results of our models run on an elderly sample where we also drop people who still work (Borjas, 2011). Estimated coefficients on the interaction term are positive and significant in both the Social Security and the SSI models. This is certainly suggestive of network effects in determining who is eligible for the two disability programs. Since the estimated network coefficients in the elderly samples are about half the size of the network coefficients in our disability models, we may conclude that while as much as half of our network effects in disability program take-up can operate via work histories and poverty levels, the remaining half is likely to be explained by information sharing or social norms regarding disabilities specifically.

8. CONCLUSION

The stated aim of the Social Security Disability Insurance program is to insure below retirement age workers against the risk of not being able to perform "substantial" work due to a physical or mental disability. Our finding that that networks play a large role in determining who receives disability payments suggests that the Social Security Administration is not doing a fair and effective job of allocating disability insurance funds. Census data do not allow us to formally decompose the mechanisms driving our results, but the evidence we provide is consistent with ethnic network effects being driven by social norms, inconsistent with leisure complementarities, and partially consistent with information sharing. We also show that part of our estimated network effects reflecting cross-group differences in the likelihood of satisfying the non-disability related requirements of the two disability programs.

We view our results as suggestive of how social interactions affect disability program take-up in general but our analysis focuses on immigrants. Information sharing within networks is likely to be more important for the foreign born than for natives. Regardless of how much of our conclusions can be extrapolated to the general population, studying immigrant take-up of disability programs is interesting in its own right given its relevance to immigration policy. However, we hope our results are intriguing enough to motivate broader studies of network effects in disability program take-up.

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Table 1 Summary Statistics by Disability Program Type and Country of Birth

	DI		SSI
Top 5		**Top 5**	
Italy	0.036	Cambodia (Kampuchea)	0.073
Portugal	0.035	Laos	0.061
Cuba	0.030	Armenia	0.042
Dominican Republic	0.028	Ukraine	0.038
Greece	0.028	Dominican Republic	0.037
Bottom 5		**Bottom 5**	
Bolivia	0.007	Taiwan	0.003
Switzerland	0.007	Ghana	0.003
Sweden	0.005	South Africa (Union of)	0.002
Pakistan	0.005	Indonesia	0.002
Taiwan	0.004	Switzerland	0.001

Notes: Our sample consists of non-widowed, non-institutionalized immigrants, age 25 to 61, who were living in the US five years prior to the survey. Only countries with more than 2000 observations in the sample are considered.

Table 2 Summary Statistics of Control Variables

	Whole Sample		DI Sample	SSI sample
	Mean	Standard deviation	Mean	Mean
DI	0.016	0.126	---	0.156
SSI	0.013	0.112	0.122	---
Age	40.94	9.642	46.94	46.27
Male	0.511	0.500	0.522	0.461
HS dropout	0.330	0.470	0.457	0.553
HS degree	0.300	0.458	0.310	0.291
Some college	0.143	0.350	0.117	0.089
English fluency	0.476	0.499	0.396	0.318
Spouse present	0.687	0.464	0.603	0.479
Child present	0.645	0.479	0.585	0.540
Number of kids (if number>0)	2.220	1.192	2.157	2.361
Hispanic	0.236	0.425	0.245	0.221
Black	0.067	0.251	0.083	0.084
Asian	0.251	0.434	0.172	0.258
Other race	0.003	0.058	0.002	0.003
Years in the United States	18.56	10.34	22.54	20.14
CA in fraction	13.13	27.68	16.57	22.38
	Min: 0.003		Min: 0.014	Min: 0.023
	Max: 385.7		Max: 385.7	Max: 385.7
CA in logs	1.456	1.494	1.642	1.950
	Min: -5.734		Min: -4.265	Min: -3.773
	Max: 5.955		Max: 5.955	Max: 5.955
Number of observations	674058		11226	8717

Notes: All observations in our sample (described in the text and in the notes to Table 1) are used to construct the statistics in columns 1 and 2. The sample is restricted to DI recipients when constructing column 3 and to SSI recipients in column 4. The contact availability measures (CA) measures are defined in detail in the text. They are calculated using all observations in the 2000 5% Census extract (14.1 million observations). "DI" is a dummy variable that equals one if a person receives disability insurance income. "SSI" is a dummy variable that equals one if a person receives supplemental security income. "Child present" is a dummy that equals one if the person has at least one child living in the household. "Number of kids" is the total number of children in the household. "English fluency" equals one for people who speak "only English at home" or speak English "very well" and zero for people who speak "well", "not well" or "not at all".

Table 3A Effects of Networks on Disability Insurance Receipt

Dependent variable: Disability Insurance Receipt (DI)			
Variables	(1)	(2)	(3)
CA* Proportion of co-ethnics	0.1143**	0.0970**	0.0929**
receiving DI	(0.028)	(0.028)	(0.025)
CA	0.0009**	0.0010**	0.0006**
	(0.000)	(0.000)	(0.000)
Male		0.0009	0.0011*
		(0.001)	(0.000)
Spouse present		-0.0084**	-0.0080**
		(0.001)	(0.001)
Child		0.0009	0.0012
		(0.001)	(0.001)
Number of children		-0.0001	-0.0005**
		(0.000)	(0.000)
Hispanic		0.0010*	0.0006
		(0.000)	(0.000)
Black		0.0071**	0.0075**
		(0.002)	(0.002)
Asian		-0.0004	0.0003
		(0.002)	(0.002)
Other race		-0.0024	-0.0028
		(0.003)	(0.003)
HS dropout			0.0124**
			(0.002)
HS degree			0.0065**
			(0.001)
Some college			0.0035**
			(0.001)
English fluency			-0.0032**
			(0.001)
Years in the United States			0.0002**
			(0.000)
Country fixed effects	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes
Age fixed effects	No	Yes	Yes
R-squared	0.008	0.017	0.018
Response to disability program shock	20.8%	17.0%	16.1%
Observations	674058	674058	674058

Notes: See Table 1 notes for information on the sample and Table 2 for notes on the variables. CA is measured in logs. The omitted education dummy is "College and more". The omitted race dummy is "white". Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin (75 cells). There are people from 75 different countries of origin living in 2071 different state-pumas in our sample. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%. A description of how to calculate the response to a disability shock is provided in the text.

Table 3B Effects of Networks on Supplemental Security Income Receipt

Dependent variable: Supplemental Security Income Receipt (SSI)			
Variables	(1)	(2)	(3)
CA* Proportion of co-ethnics	0.2749**	0.2648**	0.2691**
receiving SSI	(0.055)	(0.056)	(0.055)
CA	0.0009**	0.0010**	0.0004
	(0.000)	(0.000)	(0.000)
Male		-0.0025**	-0.0022**
		(0.001)	(0.001)
Spouse present		-0.0135**	-0.0130**
		(0.002)	(0.002)
Child		-0.0014	-0.0009
		(0.001)	(0.001)
Number of children		0.0008	0.0002
		(0.001)	(0.000)
Hispanic		-0.0009+	-0.0014**
		(0.001)	(0.000)
Black		0.0037+	0.0041*
		(0.002)	(0.002)
Asian		-0.0004	-0.0004
		(0.001)	(0.001)
Other race		0.0004	-0.0006
		(0.002)	(0.002)
HS dropout			0.0187**
			(0.004)
HS degree			0.0084**
			(0.001)
Some college			0.0035**
			(0.001)
English fluency			-0.0022*
			(0.001)
Years in the United States			0.0000
			(0.000)
Country fixed effects	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes
Age fixed effects	No	Yes	Yes
R-squared	0.016	0.024	0.027
Response to welfare shock	86.9%	78.1%	81.7%
Observations	674058	674058	674058

Notes: See Table 1 notes for information on the sample and Table 2 for notes on the variables. CA is measured in logs. The omitted education dummy is "College and more". The omitted race dummy is "white". Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin (75 cells). There are people from 75 different countries of origin living in 2071 different state-pumas in our sample. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%. A description of how to calculate the response to a disability shock is provided in the text.

Table 4A Effect of Occupational Injuries and Unemployment on DI

Dependent variable: Disability Insurance Receipt (DI)							
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CA* Proportion of co-ethnics	0.0924**	0.0923**	0.0920**	0.0921**	0.0919**	0.0930**	0.0924**
receiving DI	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
CA	0.0005*	0.0005*	0.0005*	0.0005*	0.0005*	0.0006**	0.0005*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
On-the-job injuries in	0.1107+						0.1108+
country of origin-puma cell	(0.066)						(0.066)
On-the-job sprains in country		0.2981+					
of origin-puma cell		(0.162)					
On-the-job chemical burns in			19.2493**				
country of origin-puma cells			(7.245)				
On-the-job pain in				1.4413+			
country of origin-puma cells				(0.855)			
On-the-job back pain in					4.0160+		
country of origin-puma cells					(2.022)		
Unemployment rate in country						0.0027	-0.0005
of origin-puma cells	No	No	No	No	No	(0.0034)	(0.004)
Country of origin fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Observations	667475	667475	667475	667475	667475	674058	667475

Notes: See Table 1 notes for information on the sample and Table 2 for notes on the variables. CA is measured in logs. Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin (75 cells). There are people from 75 different countries of origin living in 2071 different state-pumas in our sample. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. The number of observations in Columns 1 to 5 and in Column 7 are fewer than in Column 6 as we merge in data from the Bureau of Labor Statistics' (BLS) injuries, illnesses and fatalities program. In column 7 we include at the same time the unemployment rate and on the job injuries. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%.

Table 4B Effect of Occupational Injuries and Unemployment on SSI

Dependent variable: Supplemental Security Income Receipt (SSI)							
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CA* Proportion of co-ethnics	0.2718**	0.2722**	0.2725**	0.2725**	0.2727**	0.2690**	0.2718**
receiving SSI	(0.057)	(0.058)	(0.057)	(0.058)	(0.058)	(0.055)	(0.057)
CA	0.0004	0.0004	0.0003	0.0004	0.0003	0.0004	0.0004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
On-the-job injuries in	-0.1332						-0.1326
country of origin-puma cell	(0.088)						(0.088)
On-the-job sprains in country		-0.2952					
of origin-puma cell		(0.178)					
On-the-job chemical burns in			-8.1790				
country of origin-puma cells			(10.451)				
On-the-job pain in				-1.4154			
country of origin-puma cells				(0.862)			
On-the-job back pain in					-2.8193		
country of origin-puma cells					(2.071)		
Unemployment rate in country						-0.0012	-0.0025
of origin-puma cells	No	No	No	No	No	(0.003)	(0.004)
Country of origin fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.027	0.027	0.027	0.027	0.027	0.024	0.027
Observations	667475	667475	667475	667475	667475	674058	667475

Notes: See Table 1 notes for information on the sample and Table 2 for notes on the variables. CA is measured in logs. Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin (75 cells). There are people from 75 different countries of origin living in 2071 different state-pumas in our sample. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. The number of observations in Columns 1 to 5 and in Column 7 are fewer than in Column 6 as we merge in data from the Bureau of Labor Statistics' (BLS) injuries, illnesses and fatalities program. In column 7 we include at the same time the unemployment rate and on the job injuries. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%.

Table 5A Robustness Checks for DI

	Table 3A Column C	Continent	Bad English	Good English	Ancestry Foreign born	Ancestry Native born	Spanish speakers
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CA* Proportion of co-ethnics receiving DI	0.0929**	0.0885**	0.0786*	0.0452*	0.0842**	-0.0188	0.0894+
	(0.025)	(0.032)	(0.038)	(0.021)	(0.029)	(0.026)	(0.043)
CA	0.0006**	0.0005+	0.0005	0.0006**	0.0010**	-0.0005**	0.0005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.018	0.017	0.023	0.022	0.020	0.029	0.020
Observations	674058	674058	356136	317922	828582	4539999	290423

Notes: See Table 1 notes for information on the sample and Table 2 for notes on the variables. CA is measured in logs. Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin or ancestry (columns 5 and 6). Number of observations differ across columns as the sample size differs. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%.

Table 5B Robustness Checks for SSI

Variables	Table 3A Column C	Continent	Bad English	Good English	Ancestry Foreign born	Ancestry Native born	Spanish speakers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CA* Proportion of co-ethnics receiving SSI	0.2691**	0.1137+	0.3510**	0.0588+	0.2656**	0.0307+	0.0538+
	(0.055)	(0.061)	(0.066)	(0.034)	(0.045)	(0.017)	(0.029)
CA	0.0004	-0.0002	-0.0002	0.0005*	0.0014**	-0.0005**	0.0005
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.027	0.022	0.038	0.021	0.034	0.036	0.022
Observations	674058	674058	356136	317922	828582	4539999	290423

Notes: See table above.

Table 6A Mechanisms through Which Networks Operate: DI

	(1)	(2)	(3)	(4)
Variables	No College	College	World Values Survey	Elderly
CA* Proportion of co-ethnics receiving DI	0.1043**	0.0381		
	(0.027)	(0.039)		
CA*Origin country beliefs			-0.0001**	
			(0.00004)	
CA* Proportion of co-ethnics receiving Soc. Sec. retirement income				0.0387*
				(0.015)
CA	0.0006**	0.0006+	0.002**	-0.0071**
	(0.000)	(0.000)	(0.0002)	(0.002)
Country fixed effects	Yes	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes
Rsquared	0.020	0.028	0.019	0.244
Observations	524765	149293	526913	131016

Notes: See Table 1 notes for information on the sample (columns 1 and 2) and Table 2 for notes on the variables. CA is measured in logs. For information on the sample for columns 3 and 4 respectively see Section 7 in the test. Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin (75 cells, columns 1, 2 and 4), and 52 cells in column 3. There are people from 75 different countries of origin (52 in column 3) living in 2071 different state-pumas. The elderly sample consists of individuals who are above 65 years old and do not work. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%.

Table 6B Mechanisms through Which Networks Operate: SSI

	(1)	(2)	(3)	(4)
Variables	No College	College	World Values Survey	Elderly
CA* Proportion of co-ethnics receiving SSI	0.3028**	0.0638**		
	(0.060)	(0.024)		
CA*Origin country beliefs			-0.0002**	
			(0.00004)	
CA*Proportion of co-ethnics receiving SSI retirement income				0.1438**
				(0.023)
CA	0.0004	0.0003*	0.001**	0.0056**
	(0.000)	(0.000)	(0.0003)	(0.002)
Country fixed effects	Yes	Yes	Yes	Yes
Puma fixed effects	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes
Rsquared	0.028	0.023	0.019	0.154
Observations	524765	149293	526913	131016

Notes: See Table 1 notes for information on the sample (columns 1 and 2) and Table 2 for notes on the variables. CA is measured in logs. For information on the sample for columns 3 and 4 respectively see Section 7 in the test. Heteroskedasticity corrected standard errors are in parentheses. They are clustered by country of origin (75 cells, columns 1, 2 and 4), and 52 cells in column 3. There are people from 75 different countries of origin (52 in column 3) living in 2071 different state-pumas. The elderly sample consists of individuals who are above 65 years old and do not work. Estimates are obtained using a linear probability model. Observations are weighted using the appropriate-person-level weights provided by the 2000 U.S. Census. Significance levels are noted by the following: ** significance at 1%, significance at 5%, + significance at 10%.