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Who Goes on Disability when Times are Tough? The Role of Social Costs of Take-Up among Immigrants

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Who Goes on Disability when Times are Tough? The Role of Social Costs of Take-Up among Immigrants*

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Abstract.

Social Security Disability Insurance (SSDI) take-up tends to increase during recessions despite the fact that the program is intended to insure against the possibility of a work-preventing disability, not job loss. We examine the role that social costs—such as taboos against receiving government benefits or the difficulty of obtaining information about the program within one’s social circle—play in the decision to apply for SSDI in response to changes in economic conditions. We show that immigrants from country-of-origin groups that have lower social costs to participation, as measured by past SSDI participation rates for their origin group, are more sensitive to economic downturns than immigrants from high cost groups. We present evidence that this is mainly driven by differences across origin countries in norms regarding the importance of work, rather than by information sharing or taboos against cheating the government.

Keywords: Disability Insurance, Immigrants, Unemployment Rates, Ethnic Networks

JEL Classification: H55, J61, I18, J15

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1 Introduction

The Social Security Disability Insurance (SSDI) program, established in 1956 to provide benefits to workers and their families in the event of disability, faces severe challenges today. In 2017, SSDI paid benefits of \$143 million from a trust fund which, according to recent projections, will be exhausted by 2052 (Trustees Report, 2019). Policymakers will soon be facing difficult decisions regarding whether to cut benefits or replenish funding. Given the argument that many SSDI recipients are in fact capable of working (Autor and Duggan 2006) and might earn substantially higher lifetime incomes by continuing to work (Maestas, Mullen, and Strand 2013), optimal policies may target the potential applicants who would indeed continue to work barring eligibility for SSDI. While in practice identifying this population is difficult, this paper takes a novel approach to understanding the factors driving the decisions of conditional applicants—i.e., applicants who apply for SSDI only if they cannot find a suitable job—focusing on the role played by the social costs of take-up.

Our approach exploits the fact that SSDI applications and awards tend to increase during economic downturns and then fall shortly after the unemployment rate peaks (Maestas, Mullen and Strand 2015; Maestas, Mullen and Strand 2018; Mueller, Rothstein and von Wachter 2016). Assuming that the timing of onset of work-preventing disabilities is relatively random, this suggests that there are individuals who, despite knowing that their level of disability might qualify for SSDI, only find it worthwhile to apply when their opportunities in the labor market are sufficiently poor. By considering what determines whether one goes on disability in response to an increase in the unemployment rate, we can identify the drivers of take-up among conditional applicants even without being able to identify whether a particular person in our dataset is a conditional applicant.¹

We hypothesize that among conditional applicants, the stigma associated with leaving the workforce in order to go on disability might be an especially strong deterrent to take-up. Friends and family members are likely to pass judgement on SSDI recipients who are deemed both physically able to work and capable of finding a job while at the same time supporting recipients who are not able to

¹ Identifying conditional applicants does not simply require information on a person's level of disability. Two people with the exact same level of disability may make different decisions regarding SSDI take-up as a result of, for example, differences in preferences for work despite severe back physical pain or differences in access to employers willing to accommodate their disabilities.

work. Moreover, the complexity of the SSDI application process may make it difficult to apply without help from friends and family members. While these types of costs are unlikely to be a deciding factor for someone incapable of working, for someone who is at the margin, they may play a pivotal role.

To measure social costs, we focus our analysis on the take-up decisions of immigrants and use average rates of SSDI take-up within an immigrant's origin group as our measure of social costs. We argue that immigrants who are from different countries but work in the same labor markets and apply to the same Disability Determination Services offices have the same benefits and direct costs of applying for disability. However, because taboos against take-up are likely to be lower and information about the program is likely to be more readily available in high SSDI ethnic groups, we assume that the larger the average SSDI take-up in a person's country of origin group, the lower the social costs of take-up. The main question we ask in the paper is the following: Do social costs—as measured by past SSDI take-up rates within a person's country of origin group—affect the likelihood that immigrants go on disability when the unemployment rate increases?

We start our analysis with a simple conceptual model describing the potential relationships between the costs of applying for SSDI and take-up rates. Not surprisingly, our framework predicts that lower social costs of application and higher unemployment rates both increase SSDI take-up rates. More interestingly, our model demonstrates that under reasonable assumptions, an increase in the costs of SSDI take-up results in weaker responses to a given increase in the unemployment rate, a theoretical implication we test with the data.

For our empirical analysis, we start with data from the American Community Survey (ACS) for the years 2001-2016. We show that immigrants in high SSDI take-up groups are more likely to go on disability in response to increases in unemployment rates than immigrants in low take-up groups. We interpret this finding as evidence that indeed social costs are influencing the decisions of applicants who would rather work when they have access to good jobs but are sufficiently disabled to go on disability when these jobs are either difficult to find or keep. It is rather noteworthy that seemingly small social influences play a role at all in take-up decisions given that once people enter SSDI, they rarely rejoin the labor force, even after the economy recovers. This creates efficiency losses for the

economy as a whole and income losses for individuals who might have earned higher incomes by remaining in the labor market (Maestas et al. 2018).

While our baseline findings are consistent with our theoretical model, there are other potential interpretations of our results. One is that variation across origin countries in SSDI take-up is generated from differences in eligibility for the program. Another is that immigrants in groups with high average SSDI rates are more adversely impacted by economic downturns than immigrants in low SSDI groups. We conduct several additional empirical analyses to provide evidence that these are not the main drivers of our findings. For example, instead of calculating the unemployment rate at the state-year level, we calculate it at the state-year-country of origin level. We also run a placebo regression examining impacts of our interaction term of interest on the likelihood of claiming Social Security retirement benefits for individuals above retirement age. All of our results suggest that variation in eligibility for the program and experienced severity of the recession are not the driving forces behind our baseline results.

For further analyses, we then turn to the Current Population Survey (CPS) for its better measure of SSDI participation, information on general health, and information on parents' countries of birth. Our baseline findings are generally robust to the use of CPS data despite its significantly smaller sample sizes. They are also robust to controlling for a measure of immigrants' self-perceived health status. To explore whether our main findings are likely to be generalizable to the general population, we examine SSDI take-up patterns of second-generation immigrants and find that estimated impacts are even larger in this population despite the fact that they are surely less socially connected to their ethnic groups than are the foreign born. The larger impacts may be because the native born have most likely lived in the U.S. their entire lives, making them more likely to satisfy the work history requirements of SSDI. We view these results as suggestive that our examination of the role of social networks in determining immigrant SSDI take-up rates is relevant to the native population as well. For further support that indeed those induced into SSDI take-up during recessions have marginal disabilities, we show, using the CPS measure of subjective health, that our baseline results are driven not by those with the worst health or best health, but by those in the middle of the health distribution.

We end our study by returning to the larger samples of the ACS to examine the likely mechanisms through which social costs matter. Specifically, to provide evidence of the role of social

norms, we collect data from the World Values Survey (WVS) and the European Values Survey (EVS) on home country attitudes regarding the importance of work, such as whether people believe work is a duty to society. We show that during bad economic times, immigrants belonging to ethnic groups with weaker importance of work norms are more likely to take-up SSDI. This suggests that social pressure may be an important consideration for people when deciding whether to leave the labor force and apply for SSDI during periods of economic hardship. Interestingly, in specifications that include both the average SSDI take-up rate and the values surveys measure at the same time, work values continue to exert a strong impact on the likelihood of taking-up benefits while the historical origin group take-up rate has no statistically significant impact. This suggests that rather than information sharing, it is the notions of what is considered acceptable behavior that plays the more important role in determining take-up. We also show that when comparing values regarding the importance of work to values related to taboos against stealing from the government, it is the work norms that play the driving role.

The remainder of the paper proceeds as follows. Section 2 provides some background on the Social Security Disability Insurance program and discusses how our analysis contributes to the existing literature on SSDI take-up. Section 3 outlines our theoretical background, and Section 4 presents our empirical strategy. Section 5 presents our main data source and outlines the main results. Section 6 presents data from a different source and provides complementary results. Section 7 examines which types of social costs are likely to be driving our findings. Section 8 concludes.

2 Background

2.1 The Social Security Disability Insurance Program

Social Security Disability Insurance is a federal program in the U.S. designed to provide income to people who are unable to work as a result of a physical or mental disability. To be eligible, an applicant must satisfy work history requirements (“technical requirements”) and provide sufficient evidence of disability (“medical requirements”). In terms of work history, applicants must generally have worked at least five of the past ten years and ten years in their working lives, but the actual rules depend on the

applicant's age and are fairly complicated.² Documented immigrants, regardless of whether they are citizens, qualify for SSDI as long as they have the necessary work experience in formal sector jobs.³ Undocumented immigrants do not qualify for the program.

Because the Social Security Administration defines disability as the inability to perform substantial gainful activity (SGA), applicants must be out of work for five months after their determined "onset" date before receiving benefits—although technically they are allowed to work as long as they do not earn more than the amount determined as SGA—in 2017, this was \$1,170 per month. About a quarter of denied claims are denied for technical reasons (Deshpande and Li 2019)—evidence of the potential difficulty applicants face in determining whether they qualify.

While local offices confirm that applicants satisfy the technical requirements and collect the medical evidence provided by medical doctors, the medical evidence is examined at Disability Determination Offices. Examiners first evaluate whether the impairment is severe and whether it is expected to last more than a year (or likely to end in death before that), but even if they determine it is, the claim will not be allowed if the claimant is able to perform his or her past work or any work in the U.S. economy. This determination is based not only on the person's disability level but also his or her age, past work experience, and education. An application of a person who is unable to perform physically demanding work may be denied for a person who has the education and experience to work in an office job, but approved for a person who would not qualify for such a job.⁴

In general, only about a third of applicants are awarded benefits at the first determination (Maestas, Mulligan, and Strand 2013). Denied applicants can and often do appeal initial decisions. Thirty-five percent of denied applicants appeal and most of those who appeal eventually have a hearing before an Administrative Law Judge (Liebman 2015). There are several different levels of appeals starting with a simple reconsideration determination and ending with a trial in a U.S. district court. The

² For further details about the work history requirements, see the Social Security Administration website at <https://www.ssa.gov/planners/credits.html>.

³ In contrast, non-citizens generally do not qualify for Supplementary Security Income (SSI), the other major income-support program for people with disabilities, even if they are legal permanent residents.

⁴ During the Great Recession, a substantially larger share of SSDI awardees were awarded based on "vocational" considerations (Maestas et al. 2018) implying that many were marginal applicants; had they had the same disability but were of a different age or had a different level of education, they would not have been awarded benefits.

appeals process can be long, difficult, and expensive, but appeals are often eventually successful. In general, two thirds of all initial applications are eventually awarded (Maestas, Mullen and Strand 2013). Around 40 percent of Great Recession-induced applications were eventually awarded (Maestas et al. 2018) despite the fact that applicants were far more likely to have only marginal disabilities.

2.2 Economic Conditions and SSDI Applications

Exploiting plausibly exogenous local labor demand shocks, several papers have shown that worse labor market conditions result in higher SSDI take-up rates. In a seminal article, Black et al. (2002) find that disability claims increase in coal-producing counties when energy prices drop and decrease when prices increase. Building on this research, a recent paper conducts a similar analysis focusing on the oil and gas industries and finds similar results (Charles et al. 2018). Using an even more general source of variation in local labor demand conditions, Autor et al. (2013) uncover large increases in disability program take-up in labor markets that are more intensely exposed to Chinese import competition.

In terms of the impact of recessions on SSDI, Duggan and Imberman (2009) found that nearly 25 percent of the increase in male SSDI participation in the late 20th century was due to recessions. While this cyclicalit y has decreased in more recent years (von Wachter 2010), there were rather large increases in SSDI awards during and shortly after the Great Recession (Maestas et al. 2018, Mueller et al. 2016).⁵ These findings suggest that while surely there are some people who are so disabled that they choose SSDI regardless of economic conditions and others who are insufficiently disabled to ever do so, there is a subset of the population that only takes up disability if their labor market prospects are sufficiently poor.⁶ While we know from prior research that these applicants tend to have less severe

⁵ One potential explanation for these patterns is that displaced workers turn to the SSDI program for income when their unemployment insurance (UI) payments run out (Mueller et al. 2016). Exploiting plausibly exogenous variation in the duration of UI benefits during the Great Recession, Mueller et al. (2016) fail to find any evidence of this and conclude that the relationship between recessions and SSDI is most likely driven either by changes in the Social Security Administration’s judgment of people’s potential to work or changes in the relative attraction of SSDI benefits for marginally disabled workers with worse labor market prospects. Using data from before the Great Recession, Lindner (2016) finds an economically, but not always statistically significant substitution effect between UI and SSDI.

⁶ To borrow terminology from the treatment effects literature, those who only take-up SSDI if they cannot find an adequate job are the “compliers”, in contrast to the “always takers” or “never takers”.

disabilities,⁷ little is known about the factors driving the application decisions of this population. We contribute to this literature by examining whether people with different social costs of participation, for example, because of difficulty in getting help navigating the application process or as a result of taboos against participation, react differently to business cycle fluctuations in terms of take-up decisions.

2.3 Social Costs of SSDI Take-Up

There is reason to believe that even relatively small changes in the convenience of applying for SSDI can lead to fairly large changes in the number as well as composition of SSDI applicants and recipients. Exploiting plausibly exogenous variation in closings of SSA field offices, Deshpande and Li (2018) show that increased congestion in field offices result in large decreases in the number of SSDI participants. Results are driven by people with moderately severe disabilities, low levels of education, and low pre-application earnings. Considering the impacts of a 2009 innovation to SSDI's online application process which made applying online significantly more convenient, Foote, Grosz, and Rennane (2019) show that post-2009 SSDI applications increased more in counties with better access to high-speed internet, a result pointing to the importance of transactions costs in determining SSDI take-up rates.

Children whose parents received disability payments may face lower (utility) costs of participation in the program. Exploiting variation arising from the random assignment of judges to disability insurance applicants whose cases are initially denied, Dahl, Kostøl, and Mogstad (2014) show that adult children whose parents were on disability are more likely to participate in disability themselves. Answering the same question but exploiting a different source of exogenous variation, Dahl and Gielen (2018) made the same conclusion. Our paper contributes to this literature by considering not only the vertical transmission of disability program participation from parents to children, but also horizontal transmission within wider communities. To be able to identify these wider communities in the data, we focus on the immigrant population.

⁷ During the Great Recession, applications were more likely to be denied initially (Maestas et al. 2015) but then awarded on appeal (Maestas et al. 2018). Moreover, significantly fewer of the recession-induced awardees had impairments that were severe enough to automatically qualify for SSDI (Maestas et al. 2018).

2.4 Immigrant SSDI Participation and the Role of Ethnic Networks

There is a large literature examining the role of ethnic networks in determining program participation using data on immigrants. In a seminal paper, Bertrand, Luttmer, and Mullainathan et al. (2000) show that immigrants residing amidst a large number of co-ethnics are especially likely to receive welfare payments if they belong to high welfare-using language groups. As the authors explain, social networks can affect welfare participation via information sharing about the program and/or via changing stigma associated with welfare participation. Using similar identification strategies, other researchers have uncovered ethnic network effects in health care utilization (Deri 2005; Devillanova 2008), Medicaid take-up (Gee and Giuntella 2011), and WIC participation during pregnancy (Figlio, Hammersma, and Roth 2011).

A separate but related literature provides evidence of the role of norms and culture in determining economic decisions by looking at the relationship between home country behaviors and immigrant behaviors. Blau et al. (2011) and Fernandez and Fogli (2009) show that higher country of origin fertility and female labor force participation rates are associated with higher employment and fertility rates among first generation and second generation immigrants in the US, respectively. Using similar approaches, other researchers have uncovered a role of culture in determining divorce decisions (Furtado et al. 2013), living arrangements (Giuliano 2007), participation in the stock market (Osili and Paulson 2008), and the decision to take out a large mortgage (Rodrigues-Planes 2018).

In terms of SSDI participation, Furtado and Theodoropoulos (2016) show that immigrants residing amidst a large number of co-ethnics are especially likely to receive disability payments when their ethnic groups have higher take-up rates. In a separate analysis, they show that while immigrants in networks with high Supplemental Security Income (SSI) for disability participation are more likely to apply for SSI for a disability, conditional on applying, they are in fact less likely to be awarded benefits (Furtado and Theodoropoulos 2013). This suggests that high take-up ethnic networks induce people with marginal disabilities to apply for benefits, but applications of people with marginal disabilities are often denied. Consistent with this general idea, Borjas and Slusky (2018) show that the relationship between medical conditions and self-reported disability status is stronger for the foreign

born with legal status than for those who are likely to be undocumented. They interpret this finding as evidence that workers who are eligible for SSDI exaggerate their disabilities in order to receive benefits.

Our analysis uses SSDI participation within a person's ethnic community (defined as the share of co-ethnics receiving SSDI payments) as a measure of the informal costs potential applicants face to ultimately receiving benefits, particularly applicants with only marginal disabilities. While the complicated rules about eligibility and rather arduous appeals process may make it difficult for anyone to navigate the system, they are likely to be especially difficult for immigrants who are often unfamiliar with U.S. programs and may not be proficient in English. Information shared within social circles may substantially lower the costs of ultimately receiving SSDI benefits for immigrants.

In addition, taboos against leaving the workplace despite having only a marginal disability are likely to be weaker in high take-up communities – again, decreasing the cost to applying despite potentially being able to work. Furtado and Theodoropoulos (2016) show that immigrants from countries with strong taboos against cheating the government as well as strong importance of work norms are less responsive to exposure to SSDI take-up within their ethnic communities suggesting that norms within ethnic communities influence SSDI participation decisions.

Our paper links the literature on the role of ethnic networks in program participation with the literature on the cyclical nature of SSDI take-up. As discussed previously, SSDI benefits are intended for people who are no longer able to work because of a physical or mental disability; the SSDI program is not structured to provide unemployment insurance. By considering how social costs affect recession-induced take-up decisions, we are able to identify the effect of social costs specifically on individuals who would prefer to and are able to work despite having a disability severe enough to be awarded benefits. In the following section, we develop a model depicting how these conditional applicants might make application decisions.

3 Theoretical Background

While the SSDI program is intended only for people who are unable to work due to a disability, because disability is very difficult to observe and costly to verify, a major determinant of who ends up on disability is who decides to apply for benefits (Deshpande and Li 2019). In this section, we lay out a

framework for thinking about how individuals make decisions about whether to apply for SSDI focusing on how differential costs of participation impact how a change in the unemployment rate might translate into take-up rates.

We assume that an individual who qualifies for the program (i.e. legally in the U.S. with the necessary work experience and some documentable disability) applies if the expected benefits of participation exceed the costs of take-up. We can conceptualize the benefits of participation as the net utility a person would obtain from leaving the labor force but receiving monthly SSDI payments. We can think about these benefits as equal to the difference between the monthly income benefits provided by SSDI, D , and the expected income from working. We let the expected income from working be equal to the person's wage income, w , weighted by the expected probability of having a job. We assume that this expected probability of having a job is equal to 1 minus the unemployment rate, U . Thus, benefits can be written, $D-(1-U)w$.

It is also reasonable to assume that the wage a person can receive in the labor market is a decreasing function of the person's disability severity, S . This can be because the disability makes the person less productive while on the job or because the disability requires workplace accommodations and the cost of these accommodations are borne by the worker in the form of lower wages. For simplicity, we assume that S is uniformly distributed and varies between 0 and S^U , taking the value 0 for those who are not at all disabled and S^U for those that are completely disabled.⁸ For simplicity, we assume that wage income is a linear function of disability severity, $w = a - bS$ and that both a and b are positive. In order to ensure that wage income is never negative, we assume that a is greater than bS^U . Benefits from SSDI take-up can thus be written as,

$$\text{Benefits} = D-(1-U)w=D-(1-U)(a-bS).$$

Note that because $a > bS^U$, the benefits of SSDI take-up will always increase when the unemployment rate increases. For simplicity, we assume that the costs of SSDI take-up are equal to C ,

$$\text{Costs} = C$$

⁸ Allowing S to have a more realistic distribution does not change the basic predictions of the theory, as shown in the appendix.

To make the problem interesting, we assume without loss of generality that $C < D$ since if $C > D$, then even someone with zero wages would not apply for SSDI.

Individuals will apply for SSDI if the benefits of SSDI exceed the costs. If the benefits of SSDI participation are increasing in disability severity and the costs are constant, then there exists a disability severity, S^* , such that people with a disability level less than S^* choose not to apply for benefits and people with more severe disabilities do apply.⁹ In our model, S^* can be written,

$$S^* = \frac{a(1-U) - (D-C)}{b(1-U)} \quad (1)$$

Given the assumption of a uniform distribution for S , the probability of choosing SSDI is then equal to:

$$P(S > S^*) = 1 - \frac{a(1-U) - (D-C)}{b(1-U)S^U}$$

and so we can derive the following comparative statics:

$$\frac{\partial P(S > S^*)}{\partial U} = \frac{D-C}{bS^U(1-U)^2} \quad (2)$$

$$\frac{\partial P(S > S^*)}{\partial C} = -\frac{1}{bS^U(1-U)} \quad (3)$$

Because we assumed $C < D$, equation (2) implies that an increase in the unemployment rate will result in an increase in the probability of a person claiming SSDI. This prediction is consistent with the empirical findings of Maestas et al. (2015) who show that, during the Great Recession, SSDI applicants tended to have less severe disabilities. As can be seen by equation (3), the take-up probability also increases with the cost of SSDI take-up. If the costs of take-up are high enough, only those with very severe disabilities will take advantage of the program. This has also been supported by papers using different measures of increased costs (Deshpande and Li, 2019; Foote et al. 2019).

⁹ We assume that costs are not a function of disability severity for simplicity. It is certainly possible, however, that applying for SSDI (and asking doctors to fill out paperwork documenting the disability) comes at higher costs for people with less severe disabilities given the knowledge that the SSDI program is meant for people who are unable to work. Moreover, paying expensive lawyers is likely to be more important for people with relatively minor disabilities. Making costs a decreasing function of severity would complicate our model slightly but would not change the model's predictions. A more problematic possibility is that application costs are increasing in disability, as would be the case if people with more severe disabilities find it especially difficult to fill out an application (see Deshpande and Li 2019). Even in this case, we can solve for S^* as long as disability severity has a larger impact on the benefits of SSDI than on the costs of application, an assumption we believe to be very reasonable. In any of these cases, the basic intuition provided in this section remains relevant.

For our purposes, we are most interested in how the responses to increases in the unemployment rate vary with the costs of take-up, namely:

$$\frac{\partial^2 P(S > S^*)}{\partial U \partial C} = \frac{-1}{bS^U (1-U)^2} \quad (4)$$

which is negative. Taken together, equations (2) and (4) imply that while an increase in the unemployment rate leads to an increase in the likelihood of a person applying for SSDI, the magnitude of this increase will be smaller for people facing higher costs of take-up.

Figure 1 provides a graphical illustration of these general relationships. The (dark) blue and (light) green lines depict the benefits from SSDI participation. Both are increasing in disability severity, but the line associated with the higher unemployment rates (blue line) always lies above the line associated with lower unemployment rates (green line). More interestingly, the high unemployment line has a smaller slope, conveying the idea that with higher unemployment rates, the additional benefits from SSDI resulting from a more severe disability are lower.¹⁰ The horizontal lines convey the different costs of SSDI participation. The orange dashed line depicts costs for a person facing low costs to SSDI take-up while the orange solid line depicts costs for a person with higher costs.

As can be seen from the figure, a person with high participation costs facing low unemployment rates will take-up SSDI if his or her disability severity is above S_4^* . If the unemployment rate increases, this person's threshold disability will drop to S_3^* . The corresponding values for someone with low costs are S_2^* and S_1^* . From the figure, it can be seen that, conditional on the unemployment rate, disability thresholds are always lower for the people with low costs than for those with high costs. It can also be seen that regardless of whether costs of SSDI are low or high, an increase in the unemployment rate will decrease S^* and therefore increase the take-up rate. Most importantly, however, the figure shows that the impact of an increase in the unemployment rate on the threshold values is larger for people with lower costs of take-up. Since we have assumed a uniform distribution for S , an increase in the threshold

¹⁰ To take an extreme example, for someone who is so severely disabled that wages are zero, an increase in the unemployment rate will not affect the benefits of SSDI. On the other hand, for someone who has such a marginal disability that wages are really high, an increase in the unemployment rate will have a very large impact on the benefits of SSDI since a high enough unemployment rate means the person does not have access to those high wages.

disability translates to a proportional increase in the probability of someone applying for SSDI.

To conclude, our theoretical model provides an illustration of why people with low costs of SSDI participation may be more sensitive to increases in unemployment rates than people who face high costs of participation. In the next section, we will empirically examine how reactions to increases in the unemployment rate differ for people with different costs of participation using a particular measure of costs specific to immigrants.

4 Empirical Strategy

In our empirical analysis, we begin by using average SSDI take-up within a person's ethnic group to measure the social costs of take-up. Certain immigrants groups may have initially had higher SSDI participation rates for relatively minor idiosyncratic reasons (for example, their ethnic neighborhoods may have coincidentally been located close to Social Security field offices or immigrants from certain groups may have systematically held occupations that tended to result in work-preventing injuries). Regardless of the explanations for the high SSDI participation rates in certain groups in the past, immigrants connected to ethnic networks with high SSDI participation are likely to face lower costs to participation, perhaps because they can more easily find information about the program, get assistance with filling out applications, and even perhaps learn about the most lenient doctors and effective lawyers. They may also be less likely to face social stigma as a result of leaving the labor force to receive SSDI payments, even if they have only marginal disabilities. For all of these reasons, our theoretical model implies that we can expect members of high SSDI groups to experience a greater decrease in disability threshold, S^* , and therefore a greater increase in take-up rates, in response to a given increase in the unemployment rate than members of low SSDI groups.

The main empirical specification we use in the analysis is

$$DI_{iost} = \beta_1 UR_{st-1} \times \overline{DI}_o + \beta_2 X_{iost} + \gamma_o + \delta_{st} + \varepsilon_{iost} \quad (5)$$

where DI_{iost} takes on the value one if person i for country of origin o , living in state s in year t receives any disability insurance income and the value zero otherwise. Our right hand side variable of interest is the interaction between the state unemployment rate, UR , in the year prior to the survey and the average

SSDI take-up rate among immigrants from the same country of origin, \overline{DI} .¹¹ Empirically, the β_1 parameter is identified from variation across countries of origin (132 origin countries, shown in Appendix Table A2) and state-year unemployment rates. A positive estimate of β_1 is consistent with the theoretical model presented in Section 3.

We control for a series of individual characteristics including gender, race, marital status, whether there are children in the household, educational attainment, years in the U.S., several broad measures of disability (such as whether the person has difficulty hearing or seeing or has an impairment making it difficult to perform self-care activities like bathing or dressing), and a full set of age as well as years in the U.S. dummy variables. The state-year fixed effects (δ_{st}) control for all factors affecting all immigrants living in the same state at the same time equally. The country of origin fixed effects (γ_o) will absorb any unobserved tendencies for immigrants from particular backgrounds to take up SSDI. We cluster standard errors within state, year, and country of origin cells.

5 Data and Baseline Results

5.1 American Community Survey Data

We start our analysis using data from the 2001 to 2016 samples of the American Community Survey (ACS), as reported by the Integrated Public Use Microdata Series (IPUMS, Ruggles et al. 2017). Our baseline ACS sample consists of immigrants between the ages of 25 and 61 who have been in the U.S. for more than five years, and who do not reside in group quarters. Only naturalized citizens and noncitizens are included in the sample; Puerto Ricans and people from other U.S. territories as well as individuals born abroad of American parents are dropped from the sample. To clearly link people to their country of origin communities, we drop individuals without a clear country of birth listed in the ACS (for example, they may be listed as “Central Africa, ns”). Finally, we drop widows and widowers from the sample because our measure of SSDI receipt is less informative for this population.

¹¹ We use the unemployment rate in the year prior to the survey because it can take several months to even years for ultimately successful SSDI applications to be awarded. In Appendix Table A1, we show the sensitivity of our results to different lag structures. We calculate the average SSDI take-up rate using data from the year prior to the first year in our sample period.

The ACS does not directly ask about SSDI income. Instead, the survey asks about Social Security income more broadly. There are four different sources of Social Security income: SSDI benefits, public pensions, survivor benefits, and Railroad Retirement insurance payments. Because our sample consists of working age individuals, the people in our sample will not be receiving retirement income and few will be receiving Railroad Retirement insurance payments. Because we drop widows and widowers, Social Security benefits will not be from survivor benefits. Another issue to consider is that, while most Social Security income recipients in our sample will be receiving SSDI for their own disabilities, in some cases, non-disabled spouses and children of the disabled workers also qualify for SSDI benefits. We are not able to determine in our ACS sample if people are receiving benefits for their own disabilities, but we know from aggregate data that over 80 percent of SSDI beneficiaries receive benefits for their own disabilities (Annual Statistical Supplement to the Social Security Bulletin 2017).

We gather data on annual state unemployment rates from the Local Area Unemployment Statistics program within the Bureau of Labor Statistics (BLS).¹² To alleviate concerns related to Manski's reflection problem, we use a measure of average SSDI take-up from before our sample period. Specifically, we calculate the share of a person's origin country community receiving SSDI payments using data from the 5 percent sample of the 2000 U.S. Census also downloaded from IPUMS (Ruggles et al. 2017).¹³

Table 1 shows descriptive statistics of the variables used in the analysis. On average, 1.4 percent of the immigrants in our sample receive SSDI, a number very close to the average origin group SSDI rate in the year 2000. The average unemployment rate in our sample is just under seven percent. The average immigrant in our sample is 42 years old. About fifty percent are males, fifty percent are Hispanic and seventeen percent are white. Sixty-four percent have children, and sixty-five percent are married (with the spouse present). Twenty-six percent have a high school degree, about twenty percent have some college, and twenty-seven percent have a college or higher educational qualification. Two percent have a cognitive, vision/hearing, or an independent living difficulty. Around three percent have

¹² The (unseasonably adjusted) data were downloaded from the BLS webpage: <https://www.bls.gov/lau/data.htm>.

¹³ As can be seen in Appendix Table A2, these averages are constructed from no fewer than 104 observations.

an ambulatory difficulty and one percent a self-care difficulty. Our final ACS sample consists of 2,537,827 observations.

5.2 Baseline Results

Turning now to our regression analysis, we start by examining the relationship between state unemployment rates and SSDI take-up. In column 1 of Table 2, we show that, just as predicted by our model, immigrants are more likely to receive SSDI benefits when they reside in states with higher unemployment rates a year prior. In column 2, we test the main prediction of our theoretical model, equation (4). The estimate of the coefficient on the interaction between the lagged unemployment rate and average SSDI take-up is positive, just as predicted by the theoretical model, and statistically significant. In column 3, we replace the un-interacted lagged unemployment variable with state-year fixed effects and results remain robust. In column 4, we replace the average SSDI variable with country of origin fixed effects, and thereby estimate the empirical model described by equation (5). The estimate of 2.32 suggests that a percentage point increase in the unemployment rate results in a 0.10 percentage point increase in SSDI take-up for Cape Verdean immigrants, the highest SSDI take-up group since 4.3 percent of Cape Verdean immigrants are on disability. In contrast, the same unemployment rate results in no increase for immigrants from Saudi Arabia, the lowest SSDI take-up group, since there were no Saudi Arabians receiving disability insurance in the 2000 Census (see Appendix Table A2).¹⁴ While this difference may appear small, it represents about seven percent of the average SSDI take-up in our sample. Most importantly for the purposes of our study, the baseline result suggests that indeed social costs matter in the decisions of conditional applicants, the very population that policymakers may care most about.

5.3 Further Support for our Interpretation of Results

¹⁴ Appendix Table A2 reveals substantial heterogeneity in SSDI take-up across immigrant countries. Borjas and Trejo (1991, 1993) also report substantial variation in immigrant participation in public assistance programs in the U.S.

There are two main alternative explanations for our baseline results. One story is that immigrants in high SSDI take-up groups are simply more likely to become unemployed during economic downturns. Another potential explanation is that the variation across origin groups in SSDI take-up arises mainly from variation in eligibility for SSDI, for instance due to work experience in the formal sector as well as legal status in the United States. It may be that, regardless of ethnic group, all immigrants who are eligible for SSDI would apply during downturns given the opportunity, but immigrants in high SSDI groups are simply more likely to be eligible. We take several different approaches to exploring these possibilities.

We start by adding several interactions between the lagged unemployment rates and average characteristics of the origin group. First, we include the interaction between the unemployment rate and average years of schooling because people with fewer years of schooling are more likely to lose their jobs during economic downturns (Hoynes et al. 2012) and because the foreign born with very low levels of education are more likely to be undocumented immigrants (Borjas 2017). By controlling for the education-unemployment rate interaction, we are not allowing the 2000 average SSDI rate interaction coefficient to simply pick up these relationships. Similarly, we include the average age-unemployment rate interaction because younger individuals are also more sensitive to labor markets (Hoynes et al. 2012) and are more likely to be undocumented (Borjas 2017). Finally, we include the average years in the U.S.-unemployment rate interaction because immigrants with fewer years in the U.S. are less likely to have worked in the U.S. for enough years to qualify for SSDI. In column 1 of Table 3, the estimated coefficient on the interaction between unemployment rates and average SSDI take-up increases in magnitude and remains statistically significant when the additional interaction terms are included in the model. This suggests that country of origin differences in schooling, age, and years in the United States are not driving the different business cycle sensitivities by country of origin.

Next, to address concerns about differential job loss responses to changes in state unemployment rates, we construct unemployment rates within more narrowly defined cells. To do this, we construct the unemployment rates ourselves from the ACS data because the BLS does not produce unemployment rates within the narrowly defined cells. In column 2 of Table 3, we show that our baseline estimates are practically unchanged regardless of whether we use the BLS state unemployment

rates or our own ACS-constructed state unemployment rates. Next, we replace the state unemployment rates with immigrants' country of origin-specific unemployment rate and then interact this variable with average SSDI take-up.¹⁵ This is not our preferred specification because many of these origin-state-year cells have few observations and so sampling error is likely to attenuate our estimates. Nevertheless, the results in column 3 of Table 3 show that while the estimate is certainly smaller than the estimate in our baseline, it remains positive and statistically significant despite potentially suffering from severe attenuation bias.

Next, since many of the immigrants in our sample have very low levels of education, and low-skill labor markets tend to be more sensitive to business cycles (Hoynes, Miller, and Shaller 2012), we construct unemployment rates within education-state-year cells. As seen in column 4 of Table 3, the estimate of the coefficient on our interaction is positive and significant in this specification as well.

In column 5 of Table 3, we construct unemployment rates within occupation-state-year cells. Again, the estimate of the interaction coefficient between this unemployment rate and average disability take-up within origin group is positive and statistically significant. This is also not our preferred specification because so many of the people on disability, even those new to the system, have not worked in many years (Mueller et al. 2016) and so do not list an occupation or industry in the ACS.¹⁶

We then return to our original BLS measure of state unemployment but examine impacts on wages of workers. If immigrants from high SSDI groups are more adversely affected by recessions, then we should expect them to experience larger wage losses during recessions. On the other hand, if our baseline findings are driven by differences in information about the SSDI program or taboos against participation, then there is no reason to expect larger recession-induced wage losses for immigrants in high SSDI groups. Using a sample of individuals who earned positive wages in the previous week and

¹⁵ Because there are some countries of origin represented in a state in one year but not in the previous year, we are unable to construct lagged unemployment rates for some observations. In order to make clear comparisons across the different specifications in Table 3, we drop observations with missing data on any of the three measures of the unemployment rate.

¹⁶ Survey respondents who have not worked within the past five years do not list an occupation in the ACS. We assigned all individuals without a listed occupation the average unemployment rate for people from their country of origin living in their state in the same year. We also added a dummy variable to the model to control for whether the person's state-year-occupation unemployment rate was imputed in this manner.

who worked more than 50 weeks in the previous year, column 5 of Table 3 shows no impact on hourly wages. Not only is the estimate statistically insignificant, but it is very small in magnitude.

Taking yet a different approach to addressing both recession severity and eligibility for SSDI issues at the same time, we conduct a placebo-style analysis. Following Furtado and Theodoropoulos (2016), we take advantage of the fact that eligibility rules for Social Security retirement benefits are very similar to eligibility rules for disability benefits. In fact, Social Security is a term often used to refer to the federal Old-Age, Survivors, and Disability Insurance (OASDI) program, which provides benefits to those who are either above retirement age or below retirement age but with a disability making it impossible to work. Undocumented immigrants are not allowed to claim Social Security retirement benefits just like they are not allowed to claim SSDI. Also, the work experience necessary to qualify for SSDI is very similar to the work experience necessary to qualify for Social Security retirement benefits.¹⁷ The monthly benefits from claiming disability are exactly the same as the benefits from claiming retirement at full retirement age (age 65 for the people in our sample). Moreover, just like SSDI applications increase during recessions (Maestas et al. 2015), people are more likely to leave the labor force and collect (retirement-based) Social Security earlier if there is a recession around the time they reach retirement age (Coile and Levine 2011).

The main difference between the two Social Security programs is that anyone with appropriate work experience can claim Social Security retirement benefits starting at age 62 (receiving a portion of their full benefits) and their full retirement benefits starting at age 65. To claim full benefits before age 65, an applicant must provide proof of a disability. To explore whether SSDI eligibility or even experienced severity of the recession are driving our results, we simply rerun our analysis using a sample of immigrants age 62 and above. If all of our results were driven by differences in legal status, work experience, or labor market conditions by country of origin, we would expect to see especially large increases in Social Security claiming during bad economic times for immigrants in groups with high average SSDI take-up. If, in contrast, our results are driven by information sharing or norms related to exaggerating a disability or leaving the workforce before retirement age, then average SSDI take-up

¹⁷ The only difference between the two programs is that SSDI has a recent work experience requirement while no such requirement exists for claiming retirement benefits.

will not be associated with the impact of business cycles on Social Security retirement claims. As can be seen in Column 5 of Table 3, the latter is more likely. In this sample of age 62 and above immigrants, the estimate of the coefficient on the interaction between unemployment rates and average SSDI take-up is not statistically different from zero, fairly small in magnitude relative to the mean of the dependent variable, and even has a negative sign.

As a final approach to determining whether differences in costs of application arising from network effects drive our baseline estimates, we examine whether immigrants that are more tightly connected to their ethnic communities are more likely to take-up SSDI during recessions when they belong to high SSDI ethnic groups. We start by splitting the sample by whether the immigrant is fluent in English. Comparing columns 1 and 2 of Table 4, we can see that our results are driven by immigrants who are not fluent in English (as defined by whether they self-report speaking English either “not at all”, “speak English but not well” or “speak well”). While the estimate of interest is positive for those are fluent in English (as defined by speaking English “very well” or “only English”), it is not statistically significant and much smaller in magnitude than our baseline estimate in column 4 of Table 2.

In the last two columns of Table 4, we compare immigrants who are geographically isolated from co-ethnics to those who live closer to other immigrants born in the same country. Immigrants living in states alongside many others from their country of origin may be more likely to have their social circles comprised predominantly of co-ethnics while those living in states with few others from their origin country are likely to have friends who are either native born or are foreign born from different origin countries. If our results are explained mostly by ethnic networks, we should expect stronger results for immigrants surrounded by co-ethnics. As can be seen in column 3 of Table 4, the estimate of the interaction coefficient is positive but statistically insignificant and of substantially smaller magnitude when using a sample of immigrants living in a state where the share of same-origin inhabitants is less than the median in the overall sample (.008). In contrast, for non-isolated immigrants, the estimate of the interaction coefficient is positive, statistically significant, and a bit larger in magnitude (column 4 of Table 3) compared to our baseline estimate shown in column 4 of Table 2.

6 Additional Evidence from the Current Population Survey

We supplement our analysis with data from the Annual Social and Economic Supplement (ASEC) to the CPS (March CPS) from the years 2001 to 2017, also provided by the Integrated Public Use Microdata Series (IPUMS, Flood et al. 2017). The CPS is a monthly survey covering approximately 60,000 households. The advantages of the CPS dataset over our ACS data are that the CPS dataset provides a more direct measure of SSDI income, it has better health measures, and the CPS data provide information on parental country of birth which can be used to identify second generation immigrants. The disadvantage of the CPS data compared to the ACS data is the smaller number of observations.

We make the same sample restrictions on the CPS data that we used for the ACS sample. We only include households that have been in the CPS for four months or less to ensure that the same household does not appear in the sample twice. The dependent variable is now defined as whether a person received Social Security income *for a disability* in the previous year. The average levels of SSDI receipt from the 2000 Census are merged in at the country of birth level, and the lagged unemployment rates from the BLS are merged in at the state-year level.

Estimating the primary specification using the CPS sample produces a positive coefficient of interest that is somewhat larger than the corresponding estimate from the ACS but is statistically insignificant (see column 1 of Table 5), most likely as a result of the substantially smaller sample size in the CPS. Adding controls for a person's health status (in column 2) makes little difference to the magnitude of the estimated coefficient, but in this model, the estimate is significant at the 10 percent level.

While our study focuses on immigrants, we see no obvious reason to believe that the mechanisms driving the relationship between unemployment rates and SSDI participation to be substantially different for immigrants and natives. If anything, because many of the foreign born in our sample are not eligible for the SSDI program, it is more difficult for us to uncover any impacts in this population. To examine this issue, we turn to a sample of the native-born children of immigrants. For this group, average SSDI receipt is calculated among all first generation immigrants from the foreign born parent's country of origin.¹⁸ Second generation immigrants are an especially interesting

¹⁸ We include all people who have at least one immigrant parent. For those with two immigrant parents, we use the mother's country of birth.

demographic group because, like third and higher generation immigrants, they were born in the U.S. and so most likely qualify for SSDI. However, like first generation immigrants, they may still have strong connections to their ethnic communities (Borjas 1992; Bisin and Verdier 2011; Guiso, Sapienza, and Vingales 2006). The third column of Table 5 shows that average SSDI receipt among those from a person's parent's country affects the likelihood of receiving SSDI when unemployment rates increase. The estimated coefficient of interest is substantially larger in magnitude than for first-generation immigrants, reflecting the fact that average take-up is around twice as high in the second generation. We conclude from this analysis that social interactions are likely to play an important role in native-born SSDI take-up decisions.¹⁹

Next, for further support that our results are driven by conditional applicants, we perform the primary regression separately by health status—a variable that is not available in the ACS data. As can be seen in Table 6, a significant coefficient on the average SSDI-unemployment rate interaction term is only found for those with good self-reported health and not for those with better or worse health. This is consistent with the idea that people in perfect health do not qualify for SSDI, and people with the worst health apply for and are awarded benefits regardless of the state of the economy or average SSDI take-up in their origin groups. These results are consistent with the findings of Maestas et al. (2018) that it is the applicants with marginal disabilities that are most likely to go on disability during bad economic times.

7 Social Norms and Values as a Potential Mechanism

Taken together, the evidence provided in the previous sections is certainly consistent with a model in which immigrants in high SSDI take-up groups have lower social costs to SSDI take-up and so become more likely to go on disability during economic downturns. These lower costs may be a result of

¹⁹ To explore whether our results are generalizable even to people whose families have been in the U.S. for potentially several generations, we also ran our analysis using data from the ACS on the native born who identify with a particular ancestry. Results reported in Appendix Table A3 show that our estimate of interest is stronger for natives (column 1) than for immigrants (column 2). This is not our preferred specification because of the self-selection issues with the ancestry variable. We prefer the estimates constructed from our CPS sample of second-generation immigrants because parents' country of birth is a more objective measure of background than self-reported ancestry (see Duncan and Trejo 2017 for a more thorough discussion of the self-selection issues with the ancestry variable).

information sharing within ethnic networks making it easier to learn about the program, navigate the system, and even hire the most effective lawyers. Another potential source of the lower participation costs is that in high SSDI groups, leaving the workforce to receive government benefits potentially by exaggerating a disability may be less taboo than in the groups with lower SSDI take-up rates.

Although we will not be able to perfectly differentiate these mechanisms, in this section we provide some suggestive evidence that social norms regarding the importance of work may be playing a role by exploiting information provided in the World Values Survey and the European Values Survey. Specifically, we replace the average SSDI take-up by origin group with various measures of norms obtained from the values surveys. In doing so, we will not only be able to provide some suggestive evidence that norms play a role in people's take-up decisions, but we will also gain insight into the specific values that may be driving these decisions.

7.1 Integrated World Values Survey-European Values Survey (WVS-EVS) Data

The World Values Survey (WVS) and the European Values Survey (EVS) are two large-scale, cross-national and longitudinal survey research programs. While the two surveys are processed by different organizations, their questions overlap. For our analysis, we use the Integrated Values Surveys 1981-2014 data file which includes four waves of the EVS conducted between 1981 and 2008 and six waves of the WVS conducted between 1981 and 2014 (Inglehart et al. 2014). In the end, we have data from 104 countries spanning many years.

We start by using several different questions to measure the (lack of) importance of work norms. Specifically, for each country, we calculate the share of respondents (over all of the years) who “strongly disagree” with the following statements: “Work is a duty towards society,” “People who do not work turn lazy,” and “To develop talents, you need to have a job.” To measure taboos against receiving government benefits, we calculate the share of respondents who “strongly disagree” with the statement, “It is humiliating to receive money without having to work for it.” In addition, we consider

the share of respondents who answer that it is “always justifiable” to claim government benefits and to cheat on taxes.²⁰ We then merge these WVS-EVS variables with our ACS data by country of origin.

7.2 Results

Panel A of Table 7 shows results from a model similar to that in equation (5) but with average SSDI take-up replaced with the share of people from a person’s home country who agree with several statements regarding the value of work. In column 1, the lagged state unemployment rate is interacted with the share of people from an individual’s home country who strongly disagree with the statement that work is a duty towards society. The estimated coefficient of 1.56 suggests that in response to a one percentage point increase in the unemployment rate, immigrants from France, the country with the highest proportion of people strongly disagreeing with the statement (10 percent, See Appendix Table A4), become 0.156 percentage points more likely to go on disability. This figure may appear small, but it is actually 11 percent of the mean SSDI take-up rate in the sample. In contrast, the same one percentage point increase in the unemployment rate yields practically no increase in the likelihood of going on disability (0.001 percentage point increase) for immigrants from Egypt, the country with the lowest share strongly disagreeing with that statement (0.09 percent, See Appendix Table A4). Columns 2 and 3 of Table 7 show similar findings for the other measures of the importance of work in people’s home countries.

We next use principal components analysis to construct an index of all of the variables related to importance of work norms. Column 4 shows similar results when using this index measure. All of these results are consistent with previous work on network effects (Furtado and Theodoropoulos 2016) showing that work norms make SSDI network effects stronger. In column 5, we include both our original measure of social cost of take-up – average SSDI take-up – and the importance of work norms

²⁰ For the questions asking whether people agree with certain statements, survey respondents answered with a 1 through 5, 1 corresponding to strongly agree and 5 corresponding to strongly disagree. For the questions asking whether it is justifiable to engage in certain behaviors (like claiming government benefits to which the individual is not entitled or cheating on taxes), survey respondents answered with a 1 through 10, 1 corresponding with never justifiable and 10 corresponding to always justifiable. We note that not all questions are asked in all countries in all years, but by using as many years as possible, we use as much information as we can about norms from each country.

measure. Interestingly, the importance of work norms seem to be driving the results, since the estimated coefficient on the interaction between the unemployment rate and average SSDI take-up is found to be insignificant while the estimated coefficient on the work norms interaction remains the same.

In Panel B of Table 5, we consider the survey questions regarding cheating the government. The results in the first column suggest that indeed immigrants from countries where people tend to strongly disagree with the statement that it is humiliating to receive money without having to work for it are more likely to go on disability in response to a worsening labor market. Interestingly, however, immigrants from countries where people respond that claiming government benefits to which the individual is not entitled is always justifiable (column 2) or that cheating on taxes is always justifiable (column 3) are not especially likely to go on disability in response to bad economic conditions and neither estimate is statistically significant. In column 4, we use the index constructed from a principal components analysis of the three government-related questions, and again the estimated coefficient on the interaction between the index and the unemployment rate is statistically insignificant. Finally, in column 5, we include the unemployment rate interaction with both the work norms and the government-related principal components analysis indices in the model at the same time. The work norms estimate remains statistically significant while the government related norms estimate remains insignificant in this model.

We conclude from these findings that values and norms related to work appear to be an important factor in determining SSDI take-up rates during recessions. Unfortunately, the ACS does not contain an explicit measure of information sharing within ethnic networks, and so we cannot test this channel directly. However, our results suggest that it does not play a significant role in immigrants' decisions to apply for benefits in response to bad economic times.²¹ We also cannot rule out the possibility that norms regarding claiming government benefits influence overall rates of SSDI take-up; our estimates only imply that these estimates do not seem to influence the decision to go on disability specifically during recessions.

²¹ Armour (2018) shows that in response to being sent the Social Security Statement, a document providing information about current SSDI coverage status and potential SSDI benefits, people previously reporting a work limitation became twice as likely to apply for SSDI, suggesting that information is an important driver of take-up decisions in general.

8 Conclusion

Policy makers often struggle with the design of social insurance policies. With overly stringent eligibility criteria, people in need may not receive important benefits. On the other hand, easy application processes and overly lenient criteria may not only be very costly to taxpayers but could also create perverse work incentives. To address the latter concern while still making it possible for the most disabled applicants to qualify if they apply, many social insurance programs rely on an overly complicated application processes (see Kleven and Kopczuk 2011) or people's own notions of ethical behavior regarding take-up to keep take-up rates low. If this is the case, then people in social circles with stronger taboos against take-up or less information about the programs may face higher application costs. To gain some sense of the importance of these social costs, we examine decisions regarding the take-up of disability insurance, a program meant to insure against the risk of a work-preventing disability. We focus specifically on increases in take-up during difficult economic times, when there is no particular reason to expect higher rates of disability, in order to identify the role of social costs on conditional applicants.

Using past average SSDI take-up rates to measure social costs, we show that immigrants in high SSDI take-up countries of origin are more sensitive to economic conditions than immigrants from low take-up groups. Further analyses suggest that our baseline findings are indeed driven by differential social costs of participation by origin group as opposed to differences in experienced severity of recessions or eligibility rates. We also show that a similar pattern exists among second generation immigrants, hinting that our results might be generalizable to natives as well.

We end the paper by exploring how social connections influence the SSDI take-up decisions of people. Using data from international surveys of people's values, we show that immigrants from countries that place a lot of emphasis on the importance of work are less likely to go on disability when times are tough. Interestingly, taboos against cheating the government do not seem to influence the relationship between economic conditions and SSDI take-up. Moreover, when we run a horse race of our work norms interaction variable against the average SSDI take-up rate variable, the work norms variable wins.

More generally, our analysis provides further support for the notion that the SSDI program is not being used solely to provide insurance against the possibility of becoming permanently disabled. It seems to also work as insurance against the possibility of job loss for certain groups of people. This is problematic given that once people start receiving disability benefits, they rarely return to the labor force in any meaningful way, even when the economy improves. While a potential policy implication of our analysis is to somehow strengthen importance of work norms, this may be difficult in practice given that norms tend to be remarkably persistent (see, for example, Alesina, Giuliano, and Nunn 2013). However, our finding that social costs matter implies that any policy directly changing the SSDI-related behaviors of even a small number of people might have substantial multiplier effects. Given that the SSDI Trust Fund faces exhaustion in the coming years (Trustees report, 2019), policy makers will need to consider these issues if the program is to survive.

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National Bureau of Economic Research Papers on Retirement Research Center Projects, Cambridge, MA. **Appendix**

Instead of assuming that S is uniformly distributed, assume that it is log-normally distributed, so that:

$$\ln S \sim N(0,1)$$

As a result, S will be right skewed, which likely matches the true distribution of disability severity better than does a uniform distribution. Given the other assumptions made in Section 3, the probability of someone choosing SSDI is now:

$$P(S > S^*) = 1 - \Phi\left(\ln\left(\frac{a(1-U) - D + C}{b(1-U)}\right)\right)$$

where Φ is the standard normal CDF. The derivative of this probability with respect to U is:

$$\frac{\partial P(S > S^*)}{\partial U} = \phi\left(\ln\left(\frac{a(1-U) - D + C}{b(1-U)}\right)\right) \frac{1}{1-U} \frac{D-C}{a(1-U) - D + C} > 0$$

where ϕ is the standard normal PDF. Using the fact that $\phi'(z) = -z\phi(z)$, the second derivative of the take-up probability with respect to U and C is:

$$\frac{\partial^2 P(S > S^*)}{\partial U \partial C} = \phi\left(\ln\left(\frac{a(1-U) - D + C}{b(1-U)}\right)\right) \frac{1}{(a(1-U) - D + C)^2} \left(-(D-C) \ln\left(\frac{a(1-U) - D + C}{b(1-U)}\right) - a \right)$$

The sign of this second derivative will be determined by the sign of the final term in parentheses. Because we have assumed that $D > C$, $-(D-C)$ must be negative. The term inside the log function is actually the expression for the application threshold, S^* , as determined by equation (1). If S^* is greater than the mean of S , which is $e^{0.5}$ given our distributional assumption on S , then $\ln\left(\frac{a(1-U) - D + C}{b(1-U)}\right)$ will certainly be positive. Because a is positive by assumption, the final term in parentheses will be negative. Given that SSDI is received by a relatively small share of the population, it is reasonable to believe that for most people S^* will be greater than the mean disability level in the population.

Figure 1. Costs and Benefits of SSDI Take-Up by Disability Severity

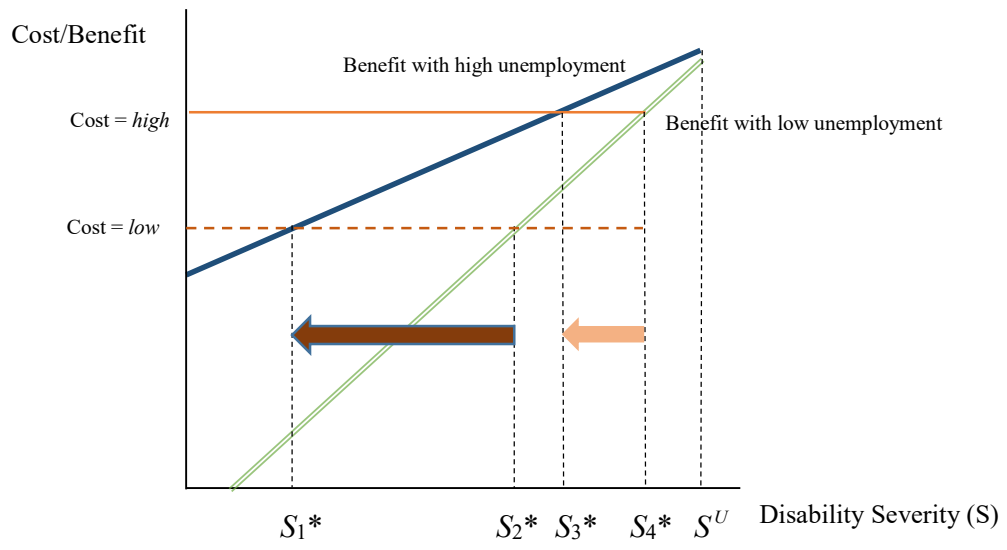


Table 1. Summary Statistics for the ACS Sample (2001-2016)				
	Mean	Standard deviation	Minimum	Maximum
Disability Insurance Receipt (SSDI)	0.014	0.119	0	1
Average origin group SSDI in 2000	0.016	0.006	0	0.043
Lagged unemployment in state-year cells	0.067	0.022	0.023	0.137
Age	42.018	9.794	25	61
Male	0.505	0.500	0	1
Hispanic	0.509	0.500	0	1
White non-Hispanic	0.161	0.367	0	1
Black non-Hispanic	0.073	0.261	0	1
Asian non-Hispanic	0.256	0.436	0	1
Other race non-Hispanic	0.015	0.121	0	1
Children	0.641	0.480	0	1
Married (spouse-present)	0.647	0.478	0	1
Less than high school	0.272	0.445	0	1
High school	0.263	0.440	0	1
Some college	0.196	0.397	0	1
College degree or more	0.269	0.444	0	1
Cognitive difficulty	0.020	0.139	0	1
Ambulatory difficulty	0.033	0.179	0	1
Independent living difficulty	0.020	0.141	0	1
Self-care difficulty	0.010	0.101	0	1
Hearing/vision difficulty	0.020	0.141	0	1
Years in the U.S.	20.093	10.727	5	62
Observations		2,537,827		

Notes. Our sample consists of non-widowed, non-institutionalized immigrants, aged 25-61, who have lived in the United States for at least five years. Only naturalized citizens and non-citizens are included meaning that Puerto Ricans and people from other U.S. territories as well as individuals born abroad of American parents are dropped from the sample. We also exclude individuals whose countries of origin are not clearly specified in the data. SSDI is a dummy variable that equals one if the person receives Social Security income. The variable, average origin group in 2000, is constructed using the 5% sample of the 2000 U.S. Census. The lagged unemployment variable is obtained from BLS's Local Area Unemployment Statistics program. Estimates are weighted using the appropriate person-level weights provided by the ACS.

Table 2. Business Cycles and SSDI Benefit Receipt (ACS 2001-2016)

	(1)	(2)	(3)	(4)
Average origin group SSDI in 2000 × Lagged unemployment in state-year cells		2.4268*	1.7604+	2.3206*
		(1.076)	(1.025)	(0.967)
Lagged unemployment in state-year cells	0.0189+	-0.0705**		
	(0.010)	(0.022)		
Average origin group SSDI in		0.2196**	0.2626**	
		(0.077)	(0.074)	
Male	0.00005	0.00009	0.00009	0.00006
	(0.000)	(0.000)	(0.000)	(0.000)
Hispanic	0.0003	-0.0036**	-0.0036**	0.0002
	(0.001)	(0.001)	(0.001)	(0.001)
White	-0.0003	-0.0010	-0.0010	-0.0005
	(0.001)	(0.001)	(0.001)	(0.001)
Black	0.0006	-0.0015	-0.0015	0.0005
	(0.002)	(0.001)	(0.001)	(0.001)
Asian	-0.0031*	-0.0005	-0.0005	-0.0032**
	(0.001)	(0.001)	(0.001)	(0.001)
Child	-0.0011*	-0.0011**	-0.0011**	-0.0011**
	(0.000)	(0.000)	(0.000)	(0.000)
Married (Spouse present)	-0.0052**	-0.0051**	-0.0051**	-0.0052**
	(0.000)	(0.000)	(0.000)	(0.000)
High school degree	-0.0029**	-0.0026**	-0.0026**	-0.0029**
	(0.001)	(0.000)	(0.000)	(0.000)
Some college	-0.0057**	-0.0052**	-0.0052**	-0.0057**
	(0.000)	(0.000)	(0.000)	(0.000)
College degree or more	-0.0085**	-0.0076**	-0.0076**	-0.0085**
	(0.001)	(0.000)	(0.000)	(0.000)
Cognitive difficulty	0.0650**	0.0650**	0.0650**	0.0649**
	(0.007)	(0.003)	(0.003)	(0.003)
Ambulatory difficulty	0.0803**	0.0805**	0.0805**	0.0804**
	(0.003)	(0.002)	(0.002)	(0.002)
Independent living difficulty	0.0655**	0.0656**	0.0659**	0.0658**
	(0.011)	(0.003)	(0.003)	(0.003)
Self-care difficulty	0.0490**	0.0488**	0.0488**	0.0488**
	(0.004)	(0.004)	(0.004)	(0.004)
Hearing/vision difficulty	0.0143**	0.0142**	0.0142**	0.0142**
	(0.003)	(0.002)	(0.002)	(0.002)
Age fixed effects	Yes	Yes	Yes	Yes
Years in the U.S. fixed effects	Yes	Yes	Yes	Yes
Country of origin fixed effects	Yes	No	No	Yes
Year fixed effects	No	Yes	No	No
State fixed effects	No	Yes	No	No
Year-state fixed effects	No	No	Yes	Yes
Observations	2,537,827	2,537,827	2,537,827	2,537,827
Adjusted R-squared	0.076	0.076	0.076	0.076
Dependent variable (mean)	0.0144	0.0144	0.0144	0.0144

Notes. See Table 1 for information on sample restrictions. Coefficients are estimated using linear probability models. In column 1, we cluster the standard errors by state-year cells and in columns 2-4, we cluster the standard errors by state, year, and country of origin cells. Estimates are weighted using the appropriate person-level weights provided by the ACS. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table 3. Robustness Checks (ACS 2001-2016)

Dependent Variable:	Sample: Working Age Individuals					Sample: Workers	Sample: Individuals Age 62 and Above
	SSDI	SSDI	SSDI	SSDI	SSDI	Log Hourly wage	Retirement Benefits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Average origin group SSDI in 2000 × Lagged unemployment in state-year cells	2.9814* (1.265)					-10.5559 (7.360)	
Average origin group SSDI in 2000 × ACS Lagged unemployment in state-year cells		2.2938* (1.024)					
Average origin group SSDI in 2000 × ACS Lagged unemployment in state-year-country of birth cells			0.2981* (0.135)				
Average origin group SSDI in 2000 × ACS Lagged unemployment in state-year-education cells				0.8924** (0.247)			
Average origin group SSDI in 2000 × ACS Lagged unemployment in state-year-occupation cells					0.6247** (0.097)		
Average origin group SSDI in 2000 × Lagged unemployment in state-year cells							-7.4582 (4.879)
Observations	2,537,827	2,537,827	2,189,894	2,189,894	2,189,894	1,276,014	787,399
Adjusted R-squared	0.076	0.076	0.032	0.032	0.032	0.382	0.286
Dependent variable (mean)	0.0144	0.0144	0.0144	0.0144	0.0144	2.931	0.659

Notes. See Table 1 for information on sample restrictions and Table 2 (column 4) for information on the control variables and fixed effects included. In column 1, interactions between the state-year unemployment rate and average years of schooling, average age, and average number of years in the United States are included in the model. Column 2 replicates column 4 of Table 2 but replaces the BLS state-year unemployment rate with the state-year unemployment rate constructed using ACS data. Columns 3-5 are estimated on a smaller number of observations because lagged unemployment rates were not available for some people in narrowly defined cells. For ease of comparison, in columns 3 to 5 we restrict the sample to individuals with non-missing information on all three measures of the unemployment rate. In column 6, we restrict the sample to workers who worked in the past 12 months. In column 7, we restrict the sample to individuals old enough to receive retirement benefits. Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the ACS. We cluster the standard errors by state, year, and country of origin cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table 4. Immigrants' Connection to Their Ethnic Communities (ACS 2001-2016)

Dependent variable: SSDI receipt	Sample: Fluent in English	Sample: Not fluent in English	Sample: Share same country of origin in state below median	Sample: Share same country of origin in state above median
	(1)	(2)	(3)	(4)
Average origin group SSDI in 2000 × Lagged unemployment in state-year cells	0.8041 (1.132)	4.0717* (1.661)	1.4494 (1.185)	4.0268* (1.645)
Observations	1,268,502	1,269,325	1,317,339	1,220,488
Adjusted R-squared	0.086	0.073	0.076	0.078
Dependent variable (mean)	0.0126	0.0161	0.0146	0.0142

Notes: See Table 1 for information on sample restrictions and Table 2 (column 4) for information on the control variables and fixed effects included. Column 1 is restricted to individuals who speak only English or speak English very well. Column 2 is restricted to individuals who speak English well, speak English but not well, or do not speak English. Column 3 is restricted to individuals who live in states with share from the same country of origin below the median (below .008) and column 4 to those individual living in states with share from the same country of origin below the median (above .008). Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the ACS. We cluster the standard errors by state, year, and country of origin cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table 5. Business Cycles and SSDI Benefit Receipt in the CPS Samples (2001-2017)

Dependent variable: SSDI receipt	Sample: First Generation		Sample: Second Generation
	(1)	(2)	(3)
Average origin group SSDI in 2000× Lagged unemployment in state-year cells	6.2444 (4.2553)	7.2474+ (4.1415)	
Average SSDI receipt among those from the parent's birth country × Lagged unemployment in state-year cells			13.8536* (7.2419)
Health status controls	No	Yes	Yes
Observations	116,945	116,945	47,290
Adjusted R-squared	0.023	0.062	0.120
Dependent variable (mean)	0.0113	0.0114	0.0211

Notes: See Table 1 for information on sample restrictions and Table 2 (column 4) for information on the control variables and fixed effects included. Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the CPS. We cluster the standard errors by state, year, and country of origin cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table 6. Business Cycles and SSDI Benefit Receipt in the CPS First Generation Sample by Health Status (2001-2017)

Dependent variable: SSDI receipt	Sample: Health excellent	Sample: Health very good	Sample: Health good	Sample: Health fair	Sample: Health poor
	(1)	(2)	(3)	(4)	(5)
Average origin group SSDI in 2000× Lagged unemployment in state-year cells	-0.9209 (4.1936)	1.8835 (3.4904)	20.677** (8.8251)	40.4971 (28.4379)	-36.2008 (77.2192)
Observations	30,548	38,645	35,807	9,021	2,541
Adjusted R-squared	0.030	0.015	0.033	0.061	0.087
Dependent variable (mean)	0.0019	0.0029	0.0090	0.0489	0.1361

Notes: See Table 1 for information on sample restrictions and Table 2 (column 4) for information on the control variables and fixed effects included. Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the CPS. We cluster the standard errors by state, year, and country of origin cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table 7. Social Norms and SSDI Receipt (ACS 2001-2016)

Dependent variable: SSDI receipt	(1)	(2)	(3)	(4)	(5)
Panel A. Importance of Work Norms					
“Work duty” × Lagged unemployment in state-year cells	1.5566** (0.442)				
“Talent develop” × Lagged unemployment in state-year cells		0.5283+ (0.321)			
“Turn lazy” × Lagged unemployment in state-year cells			0.9865** (0.339)		
PCA work norms × Lagged unemployment in state-year cells				0.0100** (0.003)	0.0108** (0.004)
Average origin group SSDI in 2000 × Lagged unemployment in state-year cells					-0.9247 (1.423)
Observations	1,819,199	1,797,117	1,797,117	1,797,117	1,797,117
Adjusted R-squared	0.078	0.078	0.078	0.078	0.078
Dependent variable (mean)	0.0135	0.0135	0.0135	0.0135	0.0135
Panel B. Taboos Against Receiving Government Benefits					
“Humiliating to receive money” × Lagged unemployment in state-year cells	0.4255* (0.188)				
“Cheating on taxes” × Lagged unemployment in state-year cells		0.3196 (0.231)			
“Always justifiable claiming government benefits” × Lagged unemployment in state-year cells			-0.0389 (0.122)		
PCA government benefits × Lagged unemployment in state-year cells				0.0041 (0.003)	-0.0032 (0.004)
PCA work norms × Lagged unemployment in state-year cells					0.0116** (0.004)
Observations	1,819,199	2,149,366	2,150,519	1,819,199	1,797,117
Adjusted R-squared	0.078	0.076	0.076	0.078	0.078
Dependent variable	0.0135	0.0138	0.0138	0.0135	0.0135

Notes. See Table 1 for information on sample restrictions and Table 2 (column 4) for information on the control variables and fixed effects included. Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the ACS. We cluster the standard errors by state, year, and country of origin cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Panel A: In column 1, the interaction variable is the product of the share of home country WVS/EVS respondents who strongly disagree that work is a duty towards society (“Work duty”) and the lagged unemployment rate. In column 2, the interaction variable is the product of the share of home country WVS/EVS respondents who “strongly disagree” that to develop talents you need to have a job (“Talent develop”) and the lagged unemployment rate. In column 3, the interaction variable is the product of who strongly disagree that people who do not work turn lazy (“Turn lazy”) and the lagged unemployment rate. In column 4, the interaction variable is the product of the first principal component of the above three work norm variables and the lagged unemployment rate. Coefficients are estimated using linear probability models. The number of observations differs across specifications because not all questions are asked in origin countries. Out of the 132 origin countries in the ACS sample, we are able to match 69 countries in column 1 and 68 countries in columns 2 and 3.

Panel B: In column 1, the interaction variable is the product of the share of home country WVS/EVS respondents who strongly disagree that it is humiliating to receive money without having to work for it (“Humiliating to receive money”) and the lagged unemployment rate. In column 2, the interaction variable is the product of the share of home country WVS/EVS respondents who say that it is always justifiable to cheat on taxes if you have a chance (“Cheating on taxes”) and the lagged unemployment rate. In column 3, the interaction variable is the product of the share of home country WVS/EVS respondents who say that it is always justifiable to claim government benefits to which you are not entitled (“Always justifiable claiming government benefits”) and the lagged unemployment rate. Out of the 132 origin countries in the ACS sample, we are able to match 69 countries in column 1, 86 countries in columns 2, and 87 countries in column 3.

Appendix Tables

Table A1. Choosing Unemployment Rate Lag Structure (ACS 2001-2016)	(1)	(2)	(3)	(4)
Average origin group SSDI in 2000 × Current unemployment in state-year cells	1.9589* (0.965)			
Average origin group SSDI in 2000 × State unemployment rate one year prior to survey		2.3206* (0.967)		
Average origin group SSDI in 2000 × State unemployment rate two years prior to survey			2.0090* (0.998)	
Average origin group SSDI in 2000 × State unemployment rate three years prior to survey				2.2690* (0.909)
Observations	2,555,884	2,537,827	2,482,421	2,430,645
Adjusted R-squared	0.074	0.076	0.077	0.078
Dependent variable	0.0144	0.0145	0.0145	0.0145

Notes. For information on the sample see Table 1 and Table 2 (column 4) for information on the control variables and fixed effects included. Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the ACS. We cluster the standard errors by state, year, and country of origin cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table A2. SSDI Receipt by Country of Origin Ranked from Highest to Lowest (5% Sample Census 2000)

Country	Average origin group SSDI in 2000	Observations
Cape Verde	0.043	676
Azores	0.040	857
Albania	0.040	380
Yemen Arab Republic (North)	0.038	386
Croatia	0.037	889
Portugal	0.036	6081
Italy	0.035	10340
Hungary	0.032	1710
Yugoslavia	0.030	1907
Paraguay	0.030	263
Cuba	0.029	20965
Greece	0.028	4406
Dominican Republic	0.028	17880
Kosovo	0.028	104
Senegal	0.026	225
Macedonia	0.025	500
Dominica	0.025	426
Byelorussia	0.024	603
Uruguay	0.023	703
Afghanistan	0.023	1160
Jordan	0.023	1390
Barbados	0.023	1455
Republic of Georgia	0.023	147
Panama	0.022	2828
Iraq	0.022	2037
Lithuania	0.022	348
Germany	0.022	16145
Poland	0.022	10272
Bahamas	0.022	639
Eritrea	0.022	440
Spain	0.021	2010
Haiti	0.021	11264
Antigua-Barbuda	0.021	541
Cambodia (Kampuchea)	0.020	4408
Scotland	0.020	1928
Laos	0.020	6137
Czechoslovakia	0.020	678
Nicaragua	0.019	6219
Turkey	0.019	1787
Slovakia	0.019	299
Fiji	0.018	780

Colombia	0.018	12174
Trinidad and Tobago	0.018	5287
Ecuador	0.018	7571
Romania	0.018	2620
Jamaica	0.018	14603
Costa Rica	0.018	1742
St. Vincent	0.017	546
Ukraine	0.017	3972
France	0.017	3131
Mexico	0.017	238305
Armenia	0.017	1517
Belize/British Honduras	0.017	1115
Honduras	0.016	6662
Brazil	0.016	4051
Ireland	0.016	3587
Bermuda	0.016	223
Peru	0.016	7254
Canada	0.016	18028
Serbia	0.015	195
Argentina	0.015	3052
Somalia	0.015	288
Ghana	0.015	1479
Thailand	0.015	3445
Australia	0.015	1336
Latvia	0.015	405
Moldavia	0.015	302
Israel/Palestine	0.014	3143
Czech Republic	0.014	389
Grenada	0.014	738
Wales	0.014	215
Lebanon	0.014	3172
Austria	0.014	1163
Finland	0.014	460
England	0.014	10537
Egypt/United Arab Rep.	0.014	2866
Tonga	0.014	528
Guatemala	0.013	12707
Norway	0.013	586
Sierra Leone	0.013	480
Japan	0.013	6810
Philippines	0.013	39554
Iran	0.013	8495
Netherlands	0.013	2228

El Salvador	0.012	24318
Denmark	0.012	655
Switzerland	0.012	881
Zimbabwe	0.012	241
Uzbekistan	0.012	361
Sudan	0.012	253
Syria	0.012	1438
Vietnam	0.012	29876
Belgium	0.012	656
China	0.012	22391
Ethiopia	0.012	1546
Uganda	0.011	319
Nigeria	0.011	3172
South Korea	0.011	3726
Indonesia	0.011	1482
South Africa (Union of)	0.011	1456
Venezuela	0.011	2112
Guyana/British Guiana	0.011	5656
Bosnia	0.011	602
Liberia	0.010	787
Korea	0.010	18121
Cameroon	0.010	237
Bangladesh	0.010	1901
Bolivia	0.009	1280
Kenya	0.009	812
Burma (Myanmar)	0.009	921
Singapore	0.009	462
Algeria	0.009	247
Malaysia	0.009	1212
Chile	0.008	2048
Morocco	0.008	797
India	0.008	24606
Cyprus	0.008	299
Hong Kong	0.007	6273
New Zealand	0.007	610
Nepal	0.007	194
Sweden	0.006	1039
Bulgaria	0.006	506
Sri Lanka (Ceylon)	0.006	679
St. Lucia	0.006	345
St. Kitts-Nevis	0.006	328
Azerbaijan	0.005	223
Pakistan	0.005	5415

Taiwan	0.005	9825
Kuwait	0.004	416
Northern Ireland	0.004	283
Tanzania	0.001	282
Saudi Arabia	0.000	185

Notes. Means are weighted using the appropriate person-level weights provided by the 5% public use sample of the 2000 Census.

Table A3. Effects of “Networks” on Disability Insurance Receipt by Ancestry (ACS 2001-2016)

	(1)	(2)
	Natives-Ancestry	Immigrants-Ancestry
Average origin group SSDI in 2000 × Lagged unemployment in state-year cells	2.0471** (0.665)	1.6814* (0.814)
Observations	10,559,408	2,404,329
Adjusted R-squared	0.174	0.081
Dependent variable	0.0293	0.0138

Notes. We use the first self-reported ancestry, variable “ancestr1” in the ACS samples. For information on the sample see Table 1 and Table 2 (column 4) for information on the control variables and fixed effects included. Coefficients are estimated using linear probability models. Estimates are weighted using the appropriate person-level weights provided by the ACS. We cluster the standard errors by state, year, and ancestry cells. Levels of significance: ** p<0.01, * p<0.05, + p<0.1.

Table A4. WVS/EVS Top and Bottom Response Countries

Variables	Top country	Bottom country
Share who strongly disagree with statement:		
<i>Work is a duty towards society</i>	France 10.0% (n=9,980)	Egypt/United Arab Rep. 0.09% (n=9,520)
<i>To develop talents you need to have a job</i>	Belgium 10.2% (n=2,069)	Vietnam 0.12% (n=100,518)
<i>People who do not work turn lazy</i>	France 13.5% (n=9,980)	Turkey 0.15% (n=7,280)
<i>Humiliating to receive money without having to work for it</i>	France 18.9% (n=9,980)	Turkey 1.17% (n=7,280)
Share who say the following are always justifiable:		
<i>Cheating on taxes if you have a chance</i>	Uganda 10.8% (n=1,305)	Ghana 0.13% (n=7,674)
<i>Claiming government benefits to which you are not entitled</i>	El Salvador 12.3% (n=81,050)	Pakistan 0.25% (n=21,513)

Notes. For information on the sample look at Table 1. Shares are constructed using the appropriate person-level weights provided by the EVS/WVS.