AN APPLE A DAY? ADULT FOOD STAMP ELIGIBILITY AND HEALTH CARE UTILIZATION AMONG IMMIGRANTS

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Abstract: In this study, we document the effect of Food Stamp access on adult health care utilization. While Food Stamps is one of the largest safety net programs in the U.S. today, the universal nature of the program across geographic areas and over time limits the potential for quasi-experimental analysis. To circumvent this, we use variation in documented immigrants' eligibility for Food Stamps across states and over time due to welfare reform in 1996. Our estimates indicate that access to Food Stamps reduced physician visits. These findings have important implications for cost-benefit analyses of the Food Stamp program, as reductions in physician visits due to Food Stamps may offset some of the program's impact on the overall government budget due to the existence of government-provided health insurance programs such as Medicaid.

Keyworks: Food Stamps, Health Care Utilization, Immigrants, Office Visits, Supplemental Nutrition Assistance Program

JEL Codes: H51, H53, H75, I11, I18, Q18

I. Introduction

The Supplemental Nutrition Assistance Program (SNAP), previously named the Food Stamp Program, is one of the largest safety net programs in the United States.[1] Over 43 million individuals, approximately 13 percent of the U.S. population, received benefits from the program in 2016, at a cost of roughly 70 billion dollars (United States Department of Agriculture 2017). However, the program has an uncertain future. For example, the 2017 executive budget proposed cutting Federal spending on the program by 190 billion dollars over 10 years through a mix of stricter eligibility requirements and shifting the costs of the program to state level expenditures (Office of Management and Budget 2017).[2] Moreover, immigrants' access to Food Stamps was recently debated under the "public charge" rule (Parrott, Gonzales, and Schott, 2018).

If a federal policy objective is to reduce eligibility for Food Stamps with the goal of lowering federal spending, then the impact of program eligibility on participants' health care utilization is vital to cost-benefit analysis. Food Stamps can reduce health care utilization through two main channels: 1) direct improvements in health, because of improved nutrition and increased consumption, and, 2) because of increases in household resources, which could change demand for medical care and other related goods, as well as directly affect health. Thus, tightening eligibility requirements could cause costs to rise in other safety net programs, such as Medicaid, undermining the government's cost savings from limiting Food Stamps. In this study,

[1] We use the name Food Stamps throughout, as this was the name of the program at the time period of our study.

[2] Several proposals for the 2018 Farm Bill sought to limit spending under the Food Stamp program via work requirements.

we ask if such a relationship exists. Specifically, does Food Stamp eligibility have an impact on adult health care utilization?

We estimate the contemporaneous impact of Food Stamp eligibility on adult health care utilization by taking advantage of changing eligibility rules due to the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which created plausibly exogenous variation in Food Stamp eligibility for immigrant populations. PRWORA made most documented non-citizen immigrants ineligible for Food Stamps, an action that was gradually reversed by state and federal laws between 1998 and 2003. We study the effects of this reversal over the period 1998 to 2007.[3]

Previous work has shown that the PRWORA-related policy changes had a large effect on both Food Stamp participation and benefit amount received (for example Borjas 2004, East 2018b). Several studies have also examined the health effects of these policy changes. Kaushal (2007) finds no immediate impact of adult immigrants' Food Stamp eligibility on their body mass index (BMI). East (2018a) documents that immigrants' eligibility improves *children's* health; specifically, an additional year of parental eligibility among U.S.-born children of immigrants before age 5, improves their health outcomes at ages 6-16. In this paper, we use an empirical strategy similar to studies by East (2018a; 2018b), which takes advantage of differing eligibility criteria across states and over time. We begin our analysis by verifying with the Current Population Survey (CPS) that there were large effects on Food Stamp receipt among immigrant adults, and we then extend the analysis using data from the National Health Interview

[3] Data limitations prevent us from extending the analysis to years before 1998. Undocumented immigrants were never eligible for Food Stamps and were therefore unaffected by these changes.

Survey (NHIS) to estimate the impact of eligibility on adults' short-run health care utilization and related outcomes.

This paper contributes to the existing literature on Food Stamps and health in three ways. First, previous studies on Food Stamps and health, including East (2018a), have primarily focused on *children's* health, so we contribute to this literature by focusing on *adult* health outcomes.[4] Adults are the largest group of Food Stamp recipients, accounting for 51 percent of all recipients (Hoynes and Schanzenbach 2015); thus, understanding the effects on this population's outcomes is crucially important.

Our second contribution is to focus on the short-run effects of Food Stamps on adult health care *utilization*, in addition to health outcomes, the latter of which has been the focus on much of the existing literature. Health care utilization is a relevant short-run outcome from a theoretical perspective: Food Stamps can plausibly impact utilization in a shorter time frame than it can impact health outcomes such as obesity, as in Kaushal (2007). Further, health care utilization is important from a policy-perspective: any effects of Food Stamps on *adult* health care utilization could have a large impact on health care expenditures, since adults have far greater health care expenditures per capita than children do, once children are out of early childhood.[5]

[4] Hoynes, Schanzenbach and Almond (2016) found that childhood access to Food Stamps during the initial rollout of the program in the 1960-70s improved health outcomes in adulthood. Additionally, a number of papers use structural modelling techniques, for example see Kreider et al. (2012).

[5] In 2017, the U.S. spent 1.6 thousand dollars per capita on health care for female children aged 5 to 9, as opposed to 7.2 thousand dollars per capita on health care for female adults aged 45 to 49 (Institute for Health Metrics and Evaluation 2017). For males, the per capita expenditures on health care were 1.9 thousand dollars for children age 5 to 9, and 5.5 thousand dollars for adults age 45 to 49.

Our final contribution is methodological; our study is the only one that we are aware of to identify the reduced form, causal impact of adult Food Stamp eligibility on adult health care utilization using quasi-experimental techniques based off of policy variation.[6] This has been challenging to do in the literature because Food Stamps is a federal program with little variation across states or over time in recent years (Currie, 2003). Exploiting the policy changes in immigrants' eligibility requires us to limit our analysis population to immigrants, which may limit the generalizability of our findings to the full population, and results in relatively small sample sizes that reduce the precision of our estimates. However, since immigrants are a large and policy relevant sub-population—10% of pre-PRWORA Food Stamp participants were foreign-born (East 2018b)—we view this as a worthwhile tradeoff to generate credible quasi-experimental evidence.

We find that one year of Food Stamp eligibility decreases the likelihood of multiple physician office visits within a year among low-educated immigrants. This main result is robust to the addition of a wide variety of state by year controls, including measures of safety net

[6] There is a small existing literature examining the impact of Food Stamps on adult health care utilization. Meyerhoefer and Pylypchuk (2008) estimate the impact of Food Stamps on medical expenditures using a structural model with instrumental variables and find Food Stamp receipt to be associated with increased expenditure levels. Additionally, Berkowitz et al. (2017) and Samuel et al. (2018) document that Food Stamp participation is negatively correlated with adult health care utilization; both of these studies rely on matching models requiring rather strong assumptions for a causal interpretation. There is also a literature that looks at the impact of Food Stamp receipt timing within the benefit month and various health and behavioral impacts. This literature is informative to our research question, but is also fundamentally different, as the variation used within that literature is conditional on eligibility, whereas we student the effects of variation in eligibility rules. We will review this literature only as directly applicable to our central research question.

program generosity, and is also robust to including natives as a control group in a triple difference model. We find suggestive negative effects on other measures of health care utilization—emergency department (ED) visits and hospitalizations—albeit with large confidence intervals.

We explore whether the reductions in utilization could be due to improvements in health outcomes, and find no consistent evidence that Food Stamp eligibility improved self-reported physical or mental health. We do, however, find suggestive evidence that Food Stamp eligibility's impact on frequency of doctor visits is disproportionately driven by individuals living in places with a high prevalence of common diseases (cold and stomach illness). This might operate through better nutrition improving the ability to resist infection without seeking medical attention, making this mechanism a potentially fruitful avenue for future study.

Finally, we consider whether changes in household resources might explain our main findings. Increases in household resources would predict an increase in demand for medical care, because it is a normal good, the opposite of the direction of our main estimate. However, there could also be increases in consumption for other goods that would affect physician visits as well. We find reductions in the likelihood single low-educated women report needing specialty medical care but not being able to afford the care (not including routine physician office visits), which could be interpreted as evidence of this household resource effect.[7] Consistent with our main result, there is no change in the affordability of routine medical care.

Our estimates imply that government spending on health care may have been significantly impacted by PRWORA. At the time Food Stamp eligibility was restored to most immigrants, 44% of adult immigrants who received Food Stamp benefits were also covered by

[7] Since specialty care may be related to office visits, this may contribute to the decline in office visits.

the Medicaid program, so a reduction in physician visits due to restored Food Stamp eligibility likely decreased Medicaid expenditures for this population.[8]

II. Food Stamp Eligibility and Health Care Utilization

As noted above, eligibility for Food Stamps may influence health care utilization in two main ways: first, Food Stamps can directly affect health outcomes through changes in food consumption and nutrition; and, second, Food Stamps may affect health care utilization (and health) by expanding household resources. We consider these expected effects in light of the existing literature next and use this to motivate the outcomes we focus on in our analysis.

Food Stamps may have a direct impact on health care needs because of increased food consumption, a reduction in the likelihood of a household being food insecure, and thus an

[8] Author's calculations using the 2004-2007 Current Population Survey. We note that the effects on affordability of specialty care for women suggest that women may have increased the use of specialty care. However, we do not observe utilization of specialty care, so are unable to test this directly. Therefore, for women in particular, the effect on Medicaid expenditures may be ambiguous.

improvement in nutrition.[9,10] Evidence suggests that Food Stamps increase consumption of food and decrease food insecurity (see for example: Wilde and Nord (2005), Ratcliffe, McKernan and Zhang (2011), Kreider et al. (2012) and reviews by Hoynes and Schanzenbach (2015) and Gregory, Rabbitt and Ribar (2015)).[11] Moreover, Borjas (2004) documents that food insecurity increased after PRWORA for immigrants relative to natives, and attributes this to PRWORA-induced reductions in safety net program participation among immigrants. Food insecurity has been identified in the medical and public health literatures as a predictor of increased health care utilization.[12]

[9] Using the Food Security Supplement to the CPS from 2001-2007, described in detail in the Appendix, we first replicate our main effects on Food Stamp Participation (Appendix Table B1 Column 1). Then, we document suggestive, but imprecise evidence that immigrants' eligibility for Food Stamps increases their food consumption (Appendix Table B1 Column 2), similar to the findings in East (2018a). This lack of precision may be due to the smaller sample sizes and limited sample period—the sample includes about 1000 low-educated immigrants after our sample restrictions, which are described in more detail below. Given small sample sizes, we do not examine the effects on low-educated single women in this analysis.

[10] It is difficult to predict if children or adults would be more sensitive with regards to health care consumption due to a change in Food Stamp eligibility. While children may be more sensitive to a lack of nutrition than adults, they may also be more likely to be sheltered from the loss of family resources at the expense of adults in the household.

[11] There is mixed evidence with regards to the impact of Food Stamps on the composition of food consumed. Some studies document modestly lower quality diets when individuals are eligible for Food Stamps (see for example Hastings, Kessler, and Shapiro (2018), Franckle et at. (2017), Gregory et. al. (2013), and a review by Andreyeva et al. (2015)), whereas other studies find no noticeable change or slight improvements in diet (see for example Yen (2010), and Todd and Ver Ploeg (2014)).

[12] See for example work by Nelson, Brown and Lurie (1998), Cook et al. (2004), and Weiser et al. (2013). For a more extensive literature review of food insecurity and health see Gundersen and Ziliak (2015).

Improved nutrition and food consumption can have direct effects on health through multiple channels. First, this can affect nutrition-related health outcomes such as hypoglycemia and BMI. Seligman et al. (2014) document that hospital admissions for hypoglycemia increased noticeably for likely low-income individuals at the end of the month, when Food Stamp benefits (which are allocated monthly, often at the beginning of the month) are more likely to have run out. The same pattern did not occur for likely high-income individuals.[13] However, nutrition-related health outcomes, such as BMI, may take time to be affected. Indeed, much of the literature estimates the effect of *past* Food Stamp receipt on current obesity, measuring the impact of prolonged Food Stamp receipt, rather than the contemporaneous effect of the program. Moreover, the study utilizing methods closest to our own finds no immediate impact of immigrants' Food Stamp eligibility on their body mass index (BMI) (Kaushal, 2007).[14] This is not surprising because if Food Stamps affect BMI though a change in nutrition, such a change

[13] There are other studies that find results supporting reductions in health care utilization on the days of benefit receipt. Cotti, Gordanier, and Ozturk (2016) find reductions in drunk driving fatalities, and Cotti, Gordanier and Ozturk (2018) find reductions in emergency room utilization around the time of benefit receipt. There is, however, also evidence that ED utilization decreases at the end of the benefit month for two-parent households, perhaps due to families reallocating money from medical care towards food (Farkhad, Meyerhoefer and Dearden 2019). Other changes in utilization could be due to increases in domestic violence at the end of the benefit month (Carr and Packham 2018).

[14] There are several studies that find Food Stamps increase the likelihood of obesity (Townsend et al. 2001; Gibson 2003; Gibson 2004; Chen, Yen and Eastwood 2005; Meyerhofer and Pylypchuck 2008; Baum 2011). We also investigate whether the same is true in our sample period described below, which is slightly different than that in Kaushal (2007) and thus uses slightly different policy variation. Along this dimension, our paper builds upon Kaushal's (2007) findings by analyzing a longer time frame and a wider range of outcome variables.

would take time before it shows up, and perhaps even longer before it subsequently affects health care utilization.

In addition to directly affecting nutrition-related health outcomes, if Food Stamps improve household nutrition, then recipient individuals may reap benefits in the form of improved immune response. The medical literature has demonstrated a link between better nutrition and infection resistance (see for example reviews by Scrimshaw and SanGiovanni (1997), Katona and Katona-Apte (2008), and Bhattacharjee and Hand (2018)). This suggests that, to the extent households have improved nutrition because of Food Stamps, they may become less susceptible to common infections, and thus less likely to need to utilize physician services.

The second main mechanism through which Food Stamps may affect health care utilization is through an increase in household resources. Though Food Stamps are an in-kind transfer, participants could substitute dollars that would have been spent on food to other purposes.[15] Medical care is a normal good, and as such, a positive income shock would be expected to increase utilization of care.[16] Also, as low-income adults are less likely to be

[15] Many studies suggest that Food Stamps are treated the same as an equivalent cash transfer (Moffitt 1989; Currie 2003; Hoynes and Schanzenbach 2009; Bruich 2014; Hoynes, McGranahan and Schazenbach 2015). On the other hand, Beatty and Tuttle (2014) and Hastings and Shapiro (2018) find that Food Stamps may cause individuals to consume more food than they would have if given an equivalent cash transfer. There is a separate and large literature looking at the effect of conditional cash transfer programs (such as Bolsa Família in Brazil) on household consumption of health services. The general finding across multiple countries is of conditional cash transfers increasing health service utilization. See Fiszbein et al. (2008) for a review.

[16] See Newhouse (1992) for a review of estimates of income elasticities of demand for medical care, or Baltagi et al. (2017) for a more recent estimate.

Medicaid eligible compared to children, their health care consumption may be particularly sensitive to an income shock. To investigate this possibility, we examine self-reported affordability of health care.

Additionally, the increase in household resources may improve mental health, which may respond more quickly than physical health (Evans and Garthwaite 2014), and changes in mental health may have immediate health care needs such as suicide prevention counseling. Finally, it is possible that income increases could increase risky behaviors that immediately affect individual health and demand for health care, such as illicit drug use. Pollack and Reuter (2006) find that substance use is higher among benefit recipients than in the general population, and several findings suggest mortality may increase shortly after the receipt of income, in part due to increases in drug use (e.g. Dobkin and Puller 2007; Evans and Moore 2012). However, immigrant populations have been found to be either as likely or less likely than natives to be criminally active (Butcher and Piehl 1998a; Butcher and Piehl 1998b; MacDonald et al. 2013), and less likely than natives of similar demographics to abuse alcohol or have substance abuse disorders (Borges et al. 2011; De La Rosa et al. 2013), which makes it less likely that this mechanism changes the health of our observed population. To explore both of the above possibilities, we will examine physical and mental health metrics.

While the previous literature on *adult* health care utilization is limited, there are a few papers that examine this question for children using quasi-experimental approaches similar to the ones we use here. First, East (2018a) uses very similar variation as we do here and finds that early-life access to Food Stamps has no effect on the likelihood of any doctor visits for children at ages 6-16, but suggestive evidence of reductions in 2+ doctor visits in the past year. This is likely due to improved child health from increased household resources and improved nutrition

when the child was in utero through age 5. Our study differs from this in that we focus on adults, and that we focus on contemporaneous effects, rather than longer-run effects. Second, Bronchetti et al. (2019) find that increases in Food Stamp purchasing power increase the likelihood children had any checkup or doctor visit in the past year, and suggestively decrease the likelihood children go to the ED or delay needed medical care because of concerns about cost in the short run. They find mixed evidence of contemporaneous improvements in health for children, so increases in family resources may be an important mechanism.

Finally, as our study focuses on changes in Food Stamp eligibility for immigrants, it is important to note that the U.S. immigrant population is different than the U.S. general population during this time period along several relevant dimensions. Immigrants during this time period were less likely to have health insurance and less likely to have access to care (see Ku and Matani (2001), or Pitkin et al. (2009) for a wider literature review), although the longer immigrants live in the U.S., the more this gap closes (Akresh 2009). Additionally, Hispanic immigrants, which make up a large proportion of the U.S. immigrant population, have been shown to be healthier than their counterparts in the U.S. population along many dimensions (see for example Markides and Coreil (1986); Antecol and Bedard (2006); Powers (2013); Giuntella (2017)), a phenomenon referred to as the "Hispanic health paradox." This has unclear implications for the sensitivity of health care utilization to Food Stamp eligibility; better initial health could mean that this population is more robust to the loss of benefits, but could also mean that they have more room to deteriorate and expand care utilization along the extensive margin relative to natives.

III. PRWORA and Food Stamp Eligibility

The enactment of PRWORA in 1996 changed the federal Food Stamp eligibility criteria to exclude most documented non-citizen immigrants. States, however, were given the option to fund benefits for the newly federally-ineligible populations. Nine states took this option prior to 2002; these "Fill-In" states were California, Connecticut, Maine, Massachusetts, Minnesota, Nebraska, Rhode Island, Washington and Wisconsin. We refer to the other 41 states and the District of Columbia as "No-Fill-In" states.[17] Later, the 2002 Farm Bill restored federal eligibility to three groups of non-citizen immigrants: the disabled, children, and those who had lived in the United States for at least five years.[18] We show a timeline of the relevant changes to immigrant eligibility in Figure 1.

Loss of eligibility for non-citizen adults in a household did not necessarily cause the household to lose all Food Stamp benefits. U.S. born children have U.S. citizenship, and thus remained eligible for the program, even when their foreign-born parents lost eligibility. Moreover, all foreign-born children were made eligible as part of the Agriculture, Research Extension and Education Reform Act in 1998. As resources within a household can be redistributed amongst its members, loss of individual eligibility is not necessarily equivalent to a loss of access to all Food Stamp benefits. However, when the number of eligible members in the household falls, the benefit amount that can be shared within the household also falls. For

[17] Even though some of the "No-Fill-In" states did restore benefits, they often did so with significant additional strings attached. For example, some states required that immigrants apply for citizenship after receiving Food Stamp benefits, and we do not consider these states to be Fill-in states. We define the presence of a fill-in program based on information from the USDA SNAP Policy Database, the California Department of Social Services, and Bitler and Hoynes (2013).

[18] This discussion drawn primarily from Zimmermann and Tumlin (1999), Capps (2004), and Bitler and Hoynes (2013).

example, for a household of three, with one eligible child and two ineligible immigrant parents, benefits could have fallen by almost 66% ($2,400 annually in 1998 dollars). Because this decrease in the benefit amount for households with children was large, in practice these households may have behaved as if they had lost eligibility entirely and stopped participating all together if the small benefit amounts no longer outweighed the costs of participating (Daponte, Sanders and Taylor 1999). Existing evidence indicates this may have been the case (Van Hook and Balistreri 2006), so, to simplify the analysis to follow, we focus on the eligibility of adults in the household and do not differentiate between households with and without children, or based on the country of birth of children.

There were several groups of non-citizen immigrants who were unaffected by the changes in eligibility criteria contained in PRWORA. Immigrants who had worked in the U.S. for 40 quarters and met minimum earnings requirements in each quarter, those who had served in the military, or those who were refugees, asylees, or naturalized citizens remained eligible.[19] We define our primary sample of interest as those who were born outside the U.S. and U.S. territories, and who report coming to the U.S. "to stay" less than 15 years, but more than 5 years before the survey.[20] We call this group "treated immigrants." These restrictions on year of entry are intended to capture the group of immigrants likely to be affected by the changes in Food

[19] Holders of temporary visas and undocumented immigrants were not eligible pre-PRWORA and remained ineligible post-PRWORA.

[20] We focus on 5-15 years as proxies for being subject to these policy changes. We choose 15 instead of 10 years both because immigrants may not work, or earn enough, in every quarter of every year they live in the U.S. and because there is measurement error in the year of arrival variable. See a detailed discussion of this measurement error in footnote 25 below.

Stamp eligibility, as they have lived in the U.S. long enough to qualify for the Farm Bill restoration, but not long enough to qualify via the 40 quarters of work exemption or by gaining citizenship. Importantly, given our focus on health care utilization, this group of treated immigrants was *not* subject to changes in public health insurance eligibility over this time.[21]

IV. Empirical Strategy

To identify the effect of Food Stamp eligibility on Food Stamp benefit receipt, health care utilization and related outcomes, we estimate the following equation:

$$y_{ist} = \alpha + \beta\, T.I.Elig_{st} + \gamma_1 X_{ist} + \gamma_2 Z_{st} + \nu_s + \lambda_t + \epsilon_{ist} \quad (1)$$

where y_{ist} is the relevant outcome for individual *i* living in state *s* and observed in time *t*. The variable $T.I.Elig_{st}$ indicates the fraction of the 12 months prior to the month of the survey that treated immigrants are eligible for Food Stamps. We use this as our primary measure of eligibility since the reference period for the main health care utilization outcome variables is the 12 months prior to the survey. Therefore, β indicates the effect of having a full year of eligibility on the outcome of interest. We do not condition on participation in the Food Stamp program, so β captures an intent to treat effect. Given our sample period of 1998-2007, we exploit both the state decisions to fill-in in 1997-1998, as well as the federal restoration of eligibility in 2003.

[21] Immigrants who entered the U.S. after the passage of PRWORA in 1996 were subject to restrictions on eligibility for Medicaid/SCHIP, Supplemental Security Income (SSI), and Temporary Assistance for Needy Families (TANF, formerly Aid to Families with Dependent Child, AFDC) for at least their first five years of residence in the U.S. (unless their state of residence provided these benefits with state funds). Our definition of treated immigrants excludes immigrants who were subject to these restrictions on other government assistance, such as Medicaid, because they had not lived in the U.S. for five years.

We explore robustness to using only federal policy variation, which is discussed in more detail below.

We remove the effect of time invariant state characteristics by including a vector of state fixed effects, ν_s. We remove the effect of common national-level shocks over time with λ_t: a vector of survey year and calendar quarter fixed effects, which also remove any seasonal effects (such as flu-season).[22] We also include X_{ist}, a vector of individual controls for gender, age, race/ethnicity, year of entry to the U.S., number of children under age 5, number of children, number of children born outside the U.S., educational attainment, and marital status. Z_{st} is a vector of state by year controls for the state unemployment rate, state Medicaid/SCHIP program generosity,[23] as well as whether the state had implemented an electronic benefit transfer (EBT) program for Food Stamps and state Food Stamp outreach spending, since both Food Stamp policies many influence participation in the Food Stamp program. We cluster our standard errors by the state of residence.

The identifying assumption in this model is that there are no other changes occurring across states and over time that are correlated with the Food Stamp eligibility criteria changes and that affect our outcomes of interest as well. East (2018a) finds no evidence that state fixed demographic or political characteristics predict whether a state has a fill-in program; however,

[22] The CPS data is only available annually, so we omit the calendar quarter controls when using those data.

[23] Specifically, we control for the state by year eligibility thresholds (expressed as a fraction of the federal poverty line) for infants, children age 6, and children age 16 since this was a period of rapid expansion in childhood eligibility for these programs. In robustness checks below we also include controls for adult Medicaid eligibility thresholds. We do not control for features of the WIC program as it does not vary over this time period and as such its effect is differenced out of our analysis.

these characteristics are absorbed by the state fixed effects. More importantly, East (2018a) also documents the presence of a fill-in program is not correlated with changes in state's economic conditions or other measures of safety net generosity over time. Additionally, East (2018a) and Kaushal (2005) provide evidence that these state policies did not influence the state immigrants choose to reside in.

As an additional test of the identification strategy, we examine how Food Stamp eligibility is correlated with the observable characteristics of our sample. A consistent pattern of an observable characteristic predicted by eligibility could be seen as suggestive evidence that our results are driven by changes in the sample composition. There are no consistent patterns with the observable characteristics in our sample as shown in Appendix Table B2. Additionally, we look directly at the correlation between Food Stamp eligibility and the likelihood that an individual is a likely undocumented immigrant in the final row of Appendix Table B2. Since we cannot observe documentation status, we follow the literature (for example Passel and Cohn (2014)) and proxy for undocumented status by defining "likely undocumented" immigrants as those who are Hispanic, have at most a high school degree, and entered the U.S. after the Immigration Reform Control Act (IRCA) of 1986, which granted 2.7 million immigrants living in the U.S. legal permanent residence in the U.S. (Orrenius and Zavodny, 2015). We find no relationship with likely documentation status.

V. Data

We draw most of our data from the National Health Interview Survey (NHIS), which provides information regarding health care and related outcomes. We use survey years 1998-

2007, which span the period of restoration of Food Stamp eligibility for most immigrants.[24] The survey covers roughly 35,000 households annually and is nationally representative. Demographics and some health information are collected for every individual in the household; these data are contained in the "Person File". The NHIS also chooses an adult at random from each household and asks additional detailed questions about their health and health care; these data are contained in the "Sample Adult File". We use outcomes from both files; outcomes obtained from the Sample Adult File have smaller sample sizes.

Importantly, the NHIS collects information on the country of birth and year of entry for every foreign-born person, which we use to construct our measure of "treated immigrants" and potential control groups. There are, however, a number of measurement issues with reported year of entry to the U.S.; therefore, this year of entry restriction should be interpreted as only a rough proxy for those likely to have experienced Food Stamp eligibility changes.[25] Our primary sample is adult heads of household and their spouses, for whom the head of household (male if present, otherwise female) has a high school education or less. This low-educated group is more likely to be affected by Food Stamp policy changes because, prior to welfare reform, they participated in

[24] The survey format of the NHIS changes prior to 1998, so we restrict the sample to begin in 1998.

[25] Year of entry information is based off a question about when foreign-born individuals came to the U.S. "to stay" and previous research has documented that for only about 50% of respondents does the year they report they came to the U.S. "to stay" coincide with year that they became legal permanent residents. The latter of which is the relevant year for determining Food Stamp eligibility (U.S. Department of Agriculture Food and Nutrition Service, 2011). Often, this reported year of entry coincides instead with the date of either their first or most recent spell of time spent in the United States. For more information on these measurement issues see Redstone and Massey (2004) and Lubotsky (2007). We assume there are not systematic changes in this measurement error that is correlated with Food Stamp eligibility.

the program at higher rates (East 2018b).[26] We follow the Food Stamp policy definition of "adults" and keep individuals ages 18-59 in our sample. If the head of household is married, we restrict both spouses to be treated immigrants. Later, we also use U.S.-born adults as a control group in alternative analyses.

To measure health care utilization, we include measures of whether each adult, within the 12 months preceding the survey month, had any physician office visits, any ED visits, or any overnight hospitalizations. It is important to note that "office visit" includes times seeing a doctor or health care professional at a doctor's office, clinic, or other place and does *not* include ED visits, overnight hospitalizations, or telephone calls, so these outcomes are mutually exclusive. The number of physician office visits is coded as a categorical variable in the NHIS, so, to capture intensive margin changes in utilization, we also create a binary variable indicating whether the individual had 2 or more physician office visits in the past year. In addition, before 2000, the question text included dental visits and beginning in 2000 excluded these visits, so we test the robustness of our results to using data from 2000-2007 only.

To investigate the importance of household resources as a mechanism, we also include measures of the affordability of medical care, and four types of specialty health care: mental care, dental care, glasses, or prescription medicines. To avoid issues of multiple hypothesis

[26] We stratify by educational attainment rather than income, because income is endogenous to Food Stamp availability due to labor supply responses. East (2018b) documented that immigrant eligibility caused married immigrant men to move from full-time to part-time work and single immigrant women to drop out of the labor force. If, for example, less healthy immigrants are more likely to reduce their labor supply in response to Food Stamp eligibility compared to healthier immigrants, then we would expect to see a less negative effect on health care utilization for lower income groups than in the absence of selection.

testing, we create a summary index that captures the 4 types of specialty care affordability (Anderson, 2008). The index is constructed as a weighted sum of z-scores of the component outcome variables. To create the z-scores of each outcome variable, we calculate the mean and standard deviation for each outcome among treated immigrants living in No-Fill-In states before 2002 (who were not eligible for Food Stamps). The weights are constructed using the inverse of the group of outcomes' variance-covariance matrix. This method makes efficient use of the information within the measures, as outcomes that are highly correlated are given a lower weight. We then subtract each outcome's mean and divide by its standard deviation.

We also examine several summary health outcomes to test for additional possible mechanisms; we use self-reported measures of overall health, as well as mental health, and obesity/overweight status. The measure of overall health is on a scale of 1 to 5, with 1 denoting "excellent" health and 5 denoting "poor" health. While this is a subjective measure, self-reported health is a good predictor of mortality (Idler and Benyamini 1997; DeSalvo et al. 2006). We also create a binary variable to ease interpretation, which takes on a value of one if the individual reports to be in "very good" or "excellent" health. There are six mental health questions, so we create a summary index of the corresponding six variables, similar to the one described above for affordability. These six questions ask how often, in the past 30 days, the individual has felt "sad", "nervous", "restless or fidgety", "hopeless", "that everything was an effort", or "worthless".[27]

State of residence is only available in the restricted-use version of the NHIS, so we access this through permission from the National Center for Health Statistics. We use state of residence

[27] Note that while the reference period for these questions is different, we still use a measure of Food Stamp eligibility over the past 12 months.

to merge in Food Stamp policy rules and state-year level control variables including the state unemployment rate and generosity of other safety net programs. These control variables and data sources are described in more detail in the Appendix. Table 1 provides summary statistics for the key demographic characteristics that we draw from the NHIS.

We use additional data from the March Current Population Survey (CPS) for 1998-2007 (Flood et al. 2015). We use the same demographic and geographic variables as the NHIS to construct our sample, and we focus on two outcomes of interest: a binary variable for Food Stamp receipt in the past year and the annual dollar value of the Food Stamp benefits received. This information on Food Stamp receipt is collected at the household level, so we cannot distinguish which household members received the benefits. We use the NHIS and CPS-provided weights throughout to account for survey oversampling and nonrandom nonresponse (National Center for Health Statistics, 2005; Flood et al., 2015).

VI. Results

A. PROGRAM PARTICIPATION

Before examining the effect of eligibility on health care utilization, we demonstrate that eligibility indeed influenced program participation for treated immigrants. Table 2 reports estimation results for equation (1) using the variables taken from the CPS. Panel A shows the results for the full sample of all low-educated adults, and Panel B shows the results only for low-educated single women, who participated in Food Stamps at double the rates of all low-educated adults (12% vs. 24%). A full year of Food Stamp eligibility increases the likelihood of receiving food stamps by 4.4 percentage points (36% relative to the sample mean), and increases the average annual benefit received by approximately $86 for treated immigrant adults with high

school education or less. The point estimates roughly double when the sample is further restricted to low-educated single women, although the average rates of participation among this group are also roughly double those of the main sample. These results are similar to the direction and magnitude of the findings from Haider et al. (2004) and East (2018b), who also found that eligibility caused immigrants to participate in Food Stamps at higher rates.[28] However, when interpreting these results, it is important to note that Food Stamp receipt is underreported in the CPS (Meyer, Mok and Sullivan 2009). If the underreporting is random, measurement error will result in an underestimate of the effect on program take-up. So, we view these estimated effects as lower bounds and we therefore do not use these to calculate treatment on the treated effects, since these effects would be overestimated (Stephens and Unayama 2015).

B. UTILIZATION

We next examine how access to Food Stamps affects health care utilization in Table 3. Again, Panel A shows the results for the full sample of all low-educated adults, and Panel B shows the results only for low-educated single women. The effect of a year of Food Stamp eligibility on the likelihood of having any office visits in the previous year is not significant at conventional levels (Column 1), however, the point estimate is negative for both all adults and single women, with the latter result having a point estimate that is large relative to the mean (a 23 percent reduction). This provides weakly suggestive evidence that, for single women, Food

[28] Haider et al. (2004) estimate that welfare reform reduced immigrants' participation in the Food Stamp program by 27% nationally, relative to natives' participation (but did not take account of state variation in eligibility). We are using a slightly different sample than East (2018b) in terms of survey years and sample restrictions based on demographic characteristics. However, the results are similar: East (2018b) finds declines in Food Stamp participation of between 1 and 8 percentage points.

Stamp eligibility may reduce the need for any physician care. Column 2 demonstrates that a full year of Food Stamp eligibility does cause a statistically significant decline in the likelihood of going to more than one office visit in the past year of 14 percentage points for all adults, and 20 percentage points for single women (both estimates have $p < 0.01$). This provides strong evidence that Food Stamps reduce the amount of care consumed, conditional on using some care (this is reinforced by a strong estimated impact of eligibility on the likelihood of multiple office visits conditional on any visits, shown in Column 4). The results on the intensive margin have the same direction as responses on the intensive margin for outpatient care when individuals are given Medicaid, as found by Finkelstein et al. (2013). However, it is difficult to directly compare to the magnitudes of the estimates in Finkelstein et al. (2013), because the utilization variables in their data are continuous and the variables in our data are categorical.

Column 3 shows that for all adults, these effects are larger for the second or third annual visit compared to the fourth and beyond, whereas, for single women, the effects persist for larger numbers of annual visits. Looking at whether individuals have any overnight hospitalizations or any ED visits, we obtain point estimates that are consistently negative, though with large standard errors (Columns 5-6). For any ED visits on the full sample (Panel A Column 6), the estimate is marginally insignificant, suggesting that there may have been important reductions in ED visits. If the reduction in the number of doctor visits is due to better case management among people with chronic conditions, we would expect to see changes in hospital or ED utilization, similar to Seligman et al. (2014) and Cotti, Gordanier, and Ozturk (2018), however, ED and hospital visits are quite rare in the data relative to doctor visits, which may explain the

imprecision of our results on these outcomes.[29] Additionally, we find no consistent evidence of reductions in multiple ED visits (shown in Column 7).

The estimates on two or more physician visits imply intent to treat effects of 44-45%, which are quite large. However, there are several reasons to take caution when interpreting these estimates. First, the confidence intervals on the estimates are wide, which is not dissimilar to the large confidence intervals in other studies utilizing similar methods such as Borjas (2004) and Kaushal (2007). Additionally, we are cautious about interpreting the sample mean as the counterfactual incidence rate of two or more physician visits, because Food Stamp participants are likely to be more disadvantaged than the full sample. For example, in the NHIS, 3.6% of treated immigrants who have income below the poverty line report being diagnosed with diabetes, relative to 2.3% for the non-poor. Similarly, the rates of heart disease, hypertension, and overweight/obesity, as well as the incidence of heart attacks, are all much higher among the poor relative to the non-poor sample.

As a check on our main results, we re-estimate the same models using data from 2000-2007 only. There are two advantages of using this shorter time period: 1) given the change in the inclusion of dental visits in the physician office visit variable between 1999 and 2000, demonstrating that the results are similar when the question is consistent across years is important, and 2) with this shorter time period the only policy change we exploit in identification is the federal policy change, so this allows us to confirm the results are robust to using this more limited variation. These results are shown in Appendix Table B3 and both the effects on Food

[29] We have also examined whether the number of ED visits, conditional on any visits, is affected and find no statistically detectable evidence that it is.

Stamp participation in Column 1, and the effects on health care utilization in Columns 2 to 8, are very similar to the baseline estimates.

C. AFFORDABILITY

To understand the reason for the change in the intensity of doctor visits, we examine several possible mechanisms. First, we test whether Food Stamps affected the affordability of general medical care as well as four types of specialty care (prescription medication, mental health care, dental care, eyeglasses). Note that increases in the demand for medical care overall would go in the opposite direction of our main estimate. However, if Food Stamps allow individuals to afford better care or specialty care - e.g. medication to better manage chronic conditions - this may reduce the need for doctor office visits. As shown in Table 4, there is no evidence that Food Stamps affect the likelihood of reporting needing medical care but not being able to afford it (Column 1). However, for single women, eligibility for Food Stamps reduces the likelihood of not receiving needed specialty care because of affordability issues (Column 2).[30] This is similar to the suggestive evidence for *children* found in Bronchetti, Christensen, and Hoynes (2017), who document that higher-value Food Stamp benefits reduce unaffordability of children's health care. Looking across the columns, the effect on the summary index of specialty care appears to be driven primarily by an increase in the affordability of mental and dental care, although the estimates on all types of specialty care are negative.[31] This suggests one potential pathway for reduced doctor visits is through improved affordability of needed specialty care. It is

[30] The effect on the affordability of specialty care index for single women is similar using data in 2000-2007 only. Using this subset of years, the coefficient is -1.067 and the standard error is 0.614.

[31] Our measure of doctor visits does not include dental care in most years. Therefore, we are unable to test if these individuals actually received more dental care because of Food Stamps.

important to note, however, that the affordability of mental health care may be driven by changes in health, as well as changes in affordability, because the question refers to care that is "needed [but not received] because you couldn't afford it." Therefore, we next examine if Food Stamps directly affect short-run mental and physical health outcomes.

D. SELF-REPORTED HEALTH

Table 5 includes results for four summary variables of overall physical and mental health. The first column examines the categorical measure of self-reported overall health, and the second column transforms this variable into a dummy variable to ease interpretation—this variable is equal to one if the individual reports being in "Excellent" or "Very Good" health. Across both outcomes, we find no significant effect of Food Stamp eligibility on self-assessed health, and all point estimates actually suggest self-reported health is *worsening,* so this is unlikely to drive the result of decreased doctor visits. There is also no statistically significant effect on the likelihood of being overweight or obese in the short-run, confirming the findings of Kaushal (2007). Finally, we find no significant effect on mental health, suggesting the change in affordability of mental health care found in the previous section (reported in Table 4) for single women is not due to a change in whether mental care is perceived to be needed.[32] However, we note that many of these estimates are accompanied by large standard errors.

E. COMMON AND CHRONIC ILLNESS

[32] Note that time period of the affordability question and mental health questions are not the same: affordability refers to the previous year, whereas the mental health reference period is the past 30 days. It is possible that increased affordability of mental health care improves mental health, but that not enough time has elapsed from the increase in mental health care utilization to see changes in reports of mental health.

We next explore the possibility that Food Stamps decreased health care utilization by allowing existing patients to either improve their management of chronic illnesses or better weather more common diseases. To accomplish this, we stratify the sample by overall disease prevalence as well as individual-level chronic illnesses, and again estimate equation (1) focusing on the outcome of two or more office visits in the past year, since this was the outcome for which we estimated the strongest and most precise effects.

We proxy for prevalence of common disease by constructing a state by year-quarter measure of the prevalence of colds and stomach illness among children. Specifically, we calculate the fraction of children aged 0-17 who report (or their parents report) they had a cold or stomach illness in the two-week period prior to the survey in the NHIS. In Table 6, we split the sample by above and below mean common disease prevalence (mean prevalence of colds is 17% and mean prevalence of stomach illness is 5%). The results provide suggestive evidence that the reductions in multiple doctor visits may have been due to Food Stamps improving individuals' ability to avoid common illnesses: across both types of illness, and both demographic groups. The point estimates are larger (more negative) in the high illness prevalence samples (Columns 3 and 5), compared to low prevalence samples (Columns 2 and 4), although confidence intervals on the estimates overlap.[33]

Next, to measure chronic illnesses, we look at any reported chronic illness (heart disease, obesity, diabetes, or hypertension), and self-reported "poor" or "fair" health, which can be viewed as a catch-all that is likely correlated with chronic illness. These measures are uncommon, so these subsamples are unlikely to be driving our main results, and this is

[33] To more directly look at common illnesses, we examined the effect of eligibility on the likelihood adults reported 5+ or 10+ days in the past 12 months "sick in bed." We found negative, but very imprecisely estimated effects.

confirmed by the results in Table 7; there is show no consistent evidence of larger effects among the small subsamples with chronic illness.

To summarize, we find evidence that Food Stamp eligibility reduces the likelihood of two or more doctor visits in the past year, as well as needing specialty care but not receiving it due to affordability issues for single women. We find no evidence that these changes in health care utilization and health care affordability are driven by changes in physical or mental health, or due to individuals with chronic conditions needing less care. However, the results do suggest these effects may be in part driven by individuals living in states and year-quarters with high prevalence of common diseases, so a potential mechanism may be improved management of general health (as opposed to chronic conditions), due to increased resources, or improved nutrition.

VII. Robustness and Specification Checks

One way to test the validity of our identifying assumption is to implement a triple difference model with low-educated U.S.-born adults as a control group. To do this we estimate a model similar to equation (1) above, but here we also include control/treatment status fixed effects (that indicate whether the individual is a "treated immigrant" or U.S.-born), as well as state by control/treatment status fixed effects, and year by control/treatment status fixed effects. We also interact the state by year controls, Z_{st}, with whether the individual is in the control or treatment group to allow for differential effects of economic conditions and state policy on immigrants and natives. Finally, we include the same measure of treated immigrants' eligibility $T.I.Elig_{st}$ as in equation (1), as well as this measure interacted with whether the individual is in the treatment group: $T.I.Elig_{st} * Treated\ Immigrant_i$.

If the identifying assumption is correct, we expect the coefficient on treated immigrants' eligibility to be close to zero, as this captures the effect of treated immigrants' eligibility on natives' outcomes. Additionally, the coefficient on the interaction term should be similar to our baseline estimates. In this, and all other robustness and specification checks, we focus on the outcome of two or more doctor visits, as this was the most precisely estimated and consistent result. The result of this robustness check is reported in Column 2 of Table 8 and confirms both predictions. The triple difference model also provides a falsification test: in the first row of Column 2, there is no effect of immigrant-specific Food Stamp eligibility on natives' outcomes. Additionally, we can push this triple difference model even further by including state by year fixed effects, which flexibly absorb any common shocks to health care that affect both natives and treated immigrants. In this model, we drop the un-interacted measure of treated immigrants' eligibility. These results are shown in the third Column of Table 8 and provide similar estimates as the baseline model.[34]

The main limitation of the triple difference model is that natives may not be an ideal control group for treated immigrants. So, an alternative test of the identifying assumption is to directly control for other state-by-year policies and characteristics. We do this in Columns 2-5 of Table 9. First, we include controls for adult Medicaid eligibility, specifically the eligibility thresholds of adults and parents expressed as fraction of the federal poverty line, and the results are nearly identical to the baseline. Moreover, explicit tests of Food Stamp eligibility on Medicaid enrollment, as well as private insurance coverage and the likelihood of being uninsured, show no effect (these results are reported in Appendix Table B5). Accounting for

[34] We also conduct this analysis for the outcome of affordability of health care among single women and find a similar pattern of results. These findings are reported in Appendix Table B4.

other state safety net generosity (maximum TANF benefits, presence of a SCHIP program or a state EITC), and state attitudes towards immigrants do not substantively change the results. The inclusion of additional state SNAP options - online application, Broad-Based Categorical Eligibility, time requirements for re-eligibility certification, face-to-face interview and recertification requirements, fingerprint requirements, and vehicle exemptions - cause the coefficient for single women to no longer be statistically significantly different from zero; this is due to an increase in standard error, as well as a slight decrease in the magnitude of the estimate, and the estimate is well within the confidence interval of the baseline result. The results remain similar for all adults. A final concern with the identifying assumption is that Fill-In states may have had different trends in health care than No-Fill-In states, which may bias the results. To account for this, we include state linear time trends in Column 6 and the results are similar to the baseline.

We also conduct several specification checks on the main results, shown in Columns 7-9 of Table 9. First, we drop all observations from California, as California is by far the largest Fill-In state, and the results remain similar. Next, we include census region-by-year fixed effects to account for differences across regions and time in health care utilization (for example, a large flu epidemic in the south in one year). This causes the standard errors to increase and the coefficients to shrink slightly, so the point estimates are no longer statistically different from zero, however, qualitatively the results are similar to the main estimates. Finally, we include calendar month-by-year fixed effects. The policy changes occur at the year and month level, so there is still identifying variation left after inclusion of these controls; however, this is a demanding specification. Nevertheless, the results remain similar.

We next examine the effects on several subgroups based on educational attainment and number of years immigrants have been living in the U.S. Specifically, we break down the samples into four disaggregate education groups: less than high school, high school, some college, and college or more. Additionally, we look at the effect on immigrants who have lived in the U.S. more than 20 years, because the longer immigrants have been in the U.S., the less likely will be affected by the Food Stamp eligibility changes, as they are more likely to either have become naturalized citizens, or to have earned 40 quarters of qualifying work in the U.S. These subgroup results are shown in Figure 2 where Panel (a) includes all adults and Panel (b) includes single women only. The x-axis plots the effect on Food Stamp participation for each subgroup and the y-axis plots the effect on two or more doctor visits for each subgroup. We expect for groups with larger effects on Food Stamp participation, there will also be a stronger negative effect on doctor visits, which is indeed what we see. Moreover, we see very little effect on either outcome for groups which are expected to be unaffected: those with a college degree (who participate in Food Stamps at very low rates) and those living in the U.S. more than 20 years.[35]

VIII. Conclusion

This study provides quasi-experimental evidence about the effects of the Food Stamp program on adults' contemporaneous health care utilization. We find a reduction in the number

[35] For these "placebo" groups, the coefficients are not statistically different from zero for either outcome. In the full sample (Panel (a)) there is a large effect on doctor visits in the "wrong" direction for those with some college, although this estimate is not statistically different from zero. All of the regression estimates shown in Figure 2 are reported in Appendix Tables B7 and B8.

of office visits per year and the results suggest that improved ability to weather common illnesses may be an important mechanism behind this effect. For single women, access to Food Stamps also increases the affordability of specialty medical care, which may explain some of the effects we find on doctor visits for this subgroup.

The reduction in physician visits represents an important channel through which providing Food Stamps may reduce health care expenditures. Notably, about 44% of Food Stamp recipients in our population also received health insurance coverage through the Medicaid program, so this reduction in health care expenditure accrues to the government, as well as to the individuals receiving the benefits who pay out of pocket and to private insurers.[36] To gauge the magnitude of these savings, we take an estimate of the Colorado Medicaid payment for a 15-minute office visit: $64 in 2017 (Colorado Department of Health Care Policy and Financing 2017). This is the most commonly billed type of visit, and many visits include additional billable procedures not included in the office visit component of the bill, so we view this as a lower bound for expenditures. If we further assume most individuals who reduce the intensive margin of office visits are moving from two office visits per year to one office visit per year, the point estimate in Table 3 indicates that providing Food Stamps reduces health care expenditures by $9 per person (.144*64). This conservative lower bound is about 4% of total expenditures on Food Stamps per capita, indicating that a significant portion of government expenditures on Food Stamps may be recovered just through reductions in office visits for adults.[37]

[36] However, we also note that we do see suggestive evidence of increases in specialty health care utilization for single women which may also be financed by Medicaid.

[37] Expenditures on Food Stamps in 2014 were 74.1 billion (Hoynes and Schanzenbach 2015) and the total U.S. population in this year was 318.6 million. Converted in 2017 dollars, this is a cost of $243 per person.

Our findings also have important implications for the U.S. health care system more broadly and we illustrate this is two ways. First, we calculate how many office visits would be saved if Food Stamps was extended to all recent immigrants (those who have lived in the U.S. for less than 5 years), who remain ineligible federally.[38] Using the 2017 ACS, we estimate there are 1,475,937 recent immigrants aged 18-59 who are likely be eligible for Food Stamps based on their household resources (family income below 130% of the poverty line). Multiplying this by our main estimate on two or more office visits, and assuming all these changes happen on the margin from two to one visit, we predict a reduction of 212,534 (0.144*1,475,937) office visits per year.

As a second illustration, we apply our estimates to the population that is eligible for Food Stamps but do not participate. Not all eligible individuals participate in safety net programs, including Food Stamps, and this participation gap is much higher for immigrants (for example, see Watson (2014) and Alsan and Yang (2018)); the U.S. Department of Agriculture estimates that only 62 percent of non-citizens eligible for the program participate, compared to over 80 percent for the full population (United States Department of Agriculture 2019a; United States Department of Agriculture 2019b). Our estimates imply that closing the participation gap for non-citizens would eliminate over 122,000 office visits per year. Our results show therefore that the Food Stamp program has a strong connection to health care utilization, and this connection has non-trivial implications for the costs and benefits of policy proposals surrounding the program's future.

[38] Some states use their own funds to provide eligibility to these immigrants, but we do not account for this in the above calculation.

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Figure 1: PRWORA Eligibility Timeline

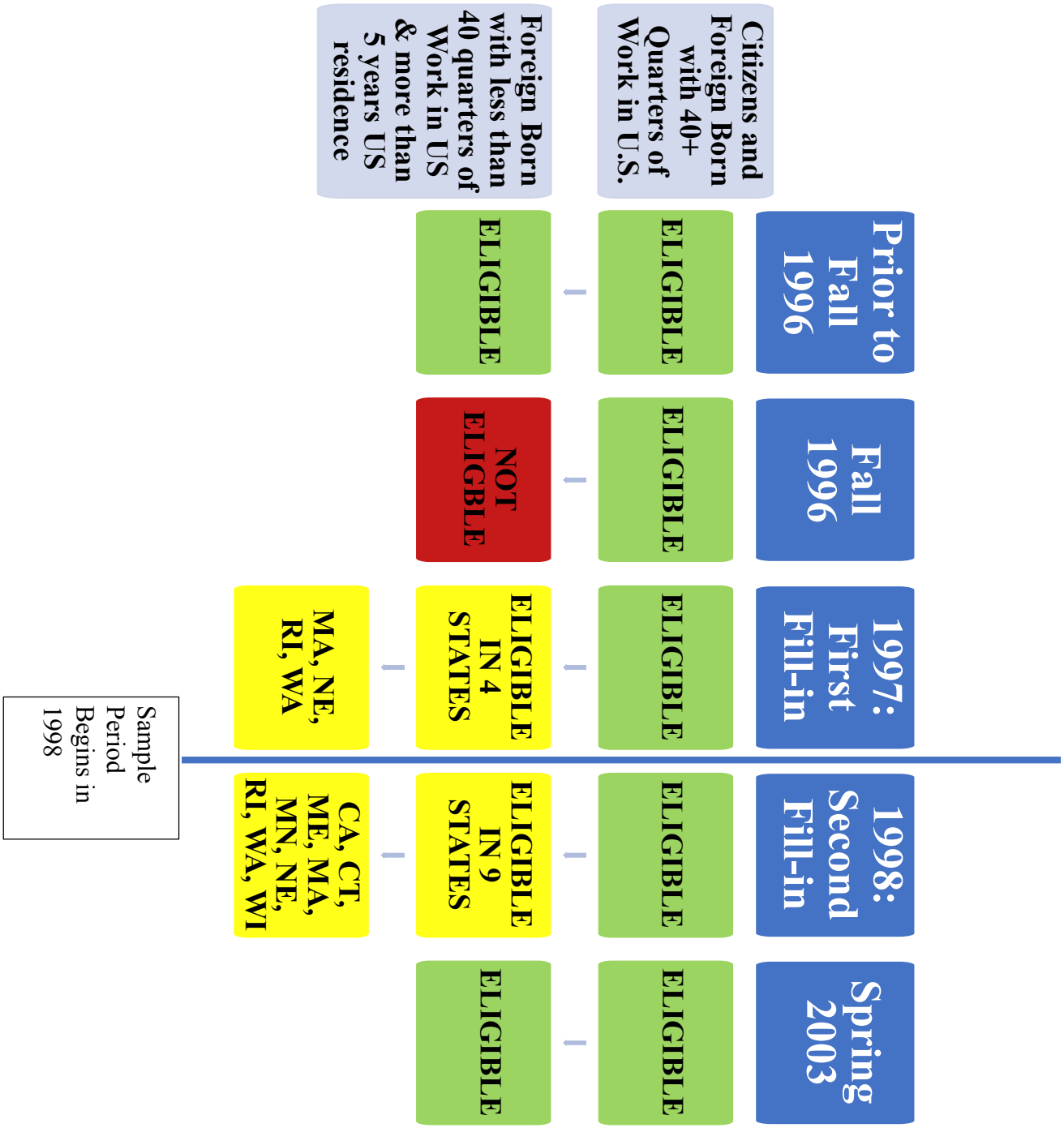
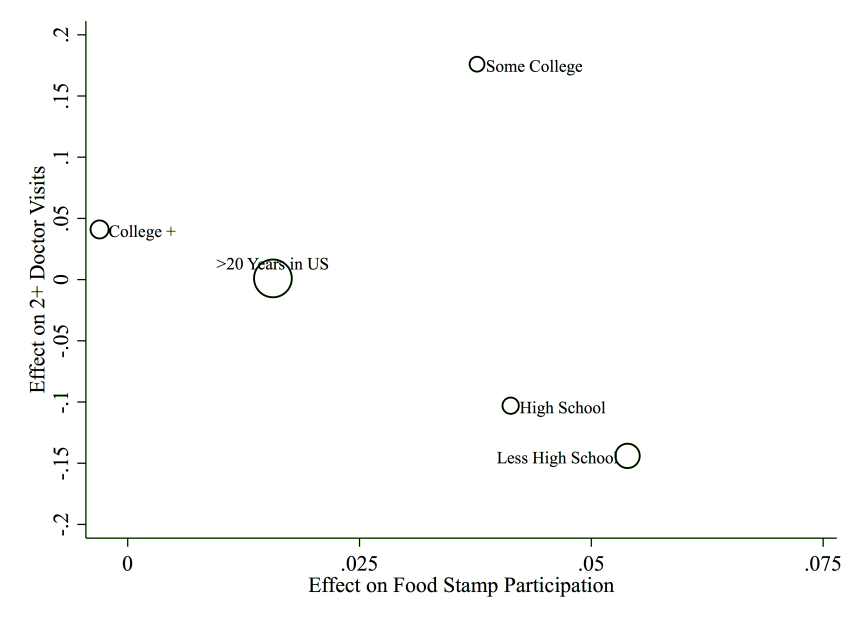
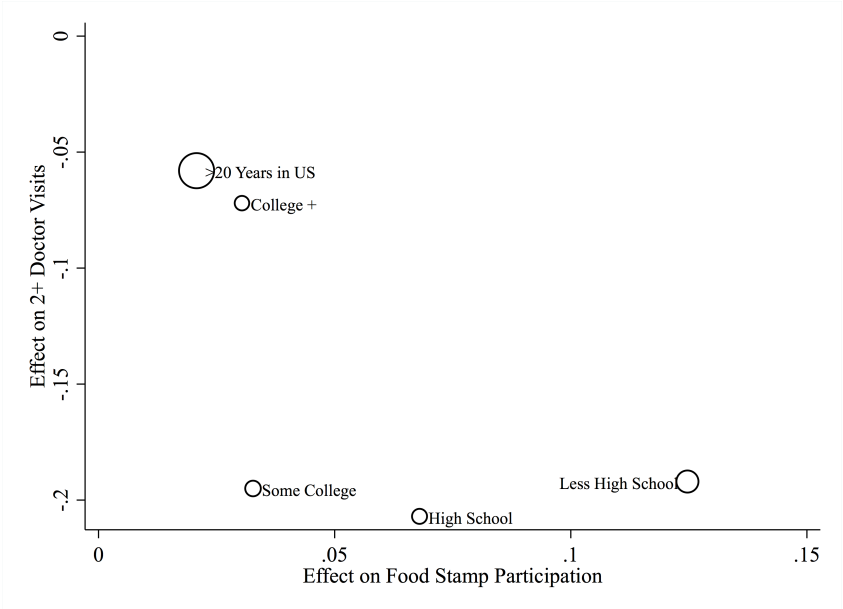


Figure 2: Subgroup Estimates: Food Stamp Participation and Two or More Doctor Visits

(a) All Adults



(b) Single Women



Notes: Estimates on the y-axis are from the 1998-2007 National Health Interview Survey. Estimates on the x-axis are from the 1998-2007 CPS. Panel (a) includes all immigrants aged 18-59 and Panel (b) restricts this further to only single women. The results are weighted using the NHIS and CPS-provided weights. The size of each circle indicates the sample size of each

subgroup in the NHIS sample adult file. All of the regression estimates shown are reported in Appendix Tables B7 and B8.

Table 1. Demographic Summary Statistics - NHIS

	All Adults with High School Education or Less	Single Women with High School Education or Less
Female	0.45	--
Year Entered U.S.	1996	1995
White	0.59	0.52
Black	0.07	0.15
Asian	0.04	0.04
Hispanic	0.75	0.71
Number of Children	1.26	1.12
Married	0.64	--
Less that High School	0.65	0.66
Below Poverty	0.15	0.33
Age	33.6	33.2

Notes: Data come from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. Means weighted using the sample weights.

Table 2. Effect of Food Stamp Eligibility on Food Stamp Receipt

	(1) Received Food Stamps Last Year	(2) Benefit Amount Received
	A: All Adults with High School Education or Less	
Fraction of Past Year T.I. Eligible for Food Stamps	0.044***	85.750***
	(0.013)	(39.828)
Mean Outcome Variable	0.12	289.06
N	11,674	11,674
	B: Single Women with High School Education or Less	
Fraction of Past Year T.I. Eligible for Food Stamps	0.096***	201.132***
	(0.032)	(78.151)
Mean Outcome Variable	0.24	611.17
N	2,785	2,785

Notes: Data from the 1998-2007 CPS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 3. Effect of Food Stamp Eligibility on Health Care Utilization

	In the Past 12 Months…						
	(1) Any Office Visits	(2) 2+ Office Visits	(3) 4+ Office Visits	(4) 2+ Office Visits (Conditional on Any)	(5) Any Overnight Hospitalization	(6) Any ED Visits	(7) 2+ ED Visits
				A: All Adults with High School Education or Less			
Fraction of Past Year T.I. Eligible for Food Stamps	-0.022	-0.144***	-0.048	-0.244***	-0.015	-0.065	0.003
	(0.058)	(0.051)	(0.057)	(0.073)	(0.017)	(0.039)	(0.021)
Mean Outcome Variable	0.492	0.320	0.162	0.651	0.074	0.165	0.004
N	3,026	3,026	3,026	1,498	6,644	3,041	3,041
				B: Single Women with High School Education or Less			
Fraction of Past Year T.I. Eligible for Food Stamps	-0.142	-0.199***	-0.125*	-0.192**	-0.017	-0.031	-0.009
	(0.108)	(0.072)	(0.066)	(0.091)	(0.045)	(0.072)	(0.032)
Mean Outcome Variable	0.611	0.442	0.144	0.724	0.112	0.188	0.070
N	764	764	764	478	1,218	770	770

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 4. Effect of Food Stamp Eligibility on Health Care Affordability

	In the Past 12 Months…					
	(1) Needed Medical Care but not could not Afford	(2) Summary Index of Needing Specialty Care but could not Afford	(3) Needed Prescription Medication but could not Afford	(4) Needed Mental Care but could not Afford	(5) Needed Dental Care but could not Afford	(6) Needed Eyeglasses but could not Afford
			A: All Adults with High School Education or Less			
Fraction of Past Year T.I. Eligible for Food Stamps	0.009	-0.093	0.001	-0.024	-0.011	0.002
	(0.026)	(0.160)	(0.028)	(0.021)	(0.028)	(0.022)
Mean Outcome Variable	0.097	0.038	0.067	0.017	0.099	0.037
N	6,643	2,732	3,050	3,051	3,050	2,732
			B: Single Women with High School Education or Less			
Fraction of Past Year T.I. Eligible for Food Stamps	0.026	-0.847*	-0.084	-0.098**	-0.149*	-0.147
	(0.054)	(0.442)	(0.096)	(0.046)	(0.084)	(0.091)
Mean Outcome Variable	0.133	0.296	0.121	0.030	0.196	0.070
N	1,218	681	771	771	771	681

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 5. Effect of Food Stamp Eligibility on Physical and Mental Health

	(1) Overall Health (1="Excellent" … 5="Poor")	(2) In "Excellent" or "Very Good" Health (binary)	(3) Overweight or Obese (binary)	(4) Z-Score Summary Index of Mental Health
	A: All Adults with High School Education or Less			
Fraction of Past Year T.I. Eligible for Food Stamps	0.064	-0.026	-0.081	0.020
	(0.066)	(0.033)	(0.051)	(0.060)
Mean Outcome Variable	2.173	0.614	0.583	0.016
N	6,649	6,649	2,883	3,017
	B: Single Women with High School Education or Less			
Fraction of Past Year T.I. Eligible for Food Stamps	0.207	-0.055	-0.018	0.220
	(0.129)	(0.059)	(0.117)	(0.207)
Mean Outcome Variable	2.311	0.556	0.503	-0.307
N	1,218	1,218	727	761

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 6. Effect of Food Stamp Eligibility on the Likelihood of Two or More Doctor Visits by Common Disease Prevalence

		Stratify by Disease Prevalence			
	(1)	(2)	(3)	(4)	(5)
	Baseline	Below Mean Cold Prevalence	Above Mean Cold Prevalence	Below Mean Stomach Illness Prevalence	Above Mean Stomach Illness Prevalence
Outcome: 2+ Office Visits in Past Year					
	A: All Adults with High School Education or Less				
Fraction of Past Year T.I. Eligible for Food Stamps	-0.144***	-0.056	-0.239**	-0.082*	-0.219**
	(0.051)	(0.063)	(0.095)	(0.048)	(0.081)
N	3,026	1691	1335	1764	1262
Outcome: 2+ Office Visits in Past Year					
	B: Single Women with High School Education or Less				
Fraction of Past Year T.I. Eligible for Food Stamps	-0.199***	-0.225	-0.282*	-0.063 (0.070)	-0.160
	(0.072)	(0.173)	(0.144)		(0.207)
N	764	437	327	454	310

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 7. Effect of Food Stamp Eligibility on the Likelihood of Two or More Doctor Visits for Individuals with Chronic Illness

		Stratify by Chronic Illness			
	Baseline	Without Heart Disease, Obesity, Diabetes or Hypertension	With Heart Disease, Obesity, Diabetes or Hypertension	Self-Reported "Good" "Very Good" or "Excellent" Health	Self-Reported "Poor" or "Fair" Health
Outcome: 2+ Office Visits in Past Year					
	A: All Adults with High School Education or Less				
Fraction of Past Year T.I. Eligible for Food Stamps	-0.144***	-0.163***	-0.134	-0.181***	0.502*
	(0.051)	(0.050)	(0.171)	(0.056)	(0.264)
N	3,026	2,719	307	2,784	242
Outcome: 2+ Office Visits in Past Year					
	B: Single Women with High School Education or Less				
Fraction of Past Year T.I. Eligible for Food Stamps	-0.199***	-0.284***	0.548	-0.187**	0.851
	(0.072)	(0.072)	(0.721)	(0.073)	(1.756)
N	764	672	92	677	87

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 8. Triple Difference Specification Check of the Effect of Eligibility on the Likelihood of Two or More Doctor Visits

		Triple Difference	
	(1) Baseline	(2) Without State by Year Fixed Effects	(3) With State by Year Fixed Effects
Outcome: 2+ Office Visits in Past Year			
	A: All Adults with High School Education or Less		
Fraction of Past Year T.I. Eligible for Food Stamps		-0.005	
		(0.010)	
Fraction of Past Year T.I. Eligible for Food Stamps x Treated Immigrant	-0.144***	-0.135**	-0.137**
	(0.051)	(0.052)	(0.054)
N	3,026	65,900	65,900
Outcome: 2+ Office Visits in Past Year			
	B: Single Women with High School Education or Less		
Fraction of Past Year T.I. Eligible for Food Stamps		0.022	
		(0.023)	
Fraction of Past Year T.I. Eligible for Food Stamps x Treated Immigrant	-0.199***	-0.232***	-0.237***
	(0.072)	(0.073)	(0.075)
N	764	19,951	19,951

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. In the triple difference specifications, the sample also includes all U.S.-born individuals aged 18-59 whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Triple difference specifications in Columns 2 and 3 also include state by immigrant status, and year by immigrant status fixed effects, as well as the state by year controls interacted with immigrant status. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table 9. Robustness and Specification Checks of the Effect of Eligibility on the Likelihood of Two or More Doctor Visits

				State by Year Controls				Specification Checks	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline	Adult Medicaid Generosity	Other Safety Net Program Generosity	Attitudes towards Immigrants	Other State SNAP Options	State Linear Time Trends	Drop California	Include Region by Year Fixed Effects	Include Year by Calendar Month Fixed Effects
Outcome: 2+ Office Visits in Past Year									
				A: All Adults with High School Education or Less					
Fraction of Past Year T.I. Eligible for Food Stamps	-0.144***	-0.146***	-0.155***	-0.159***	-0.142**	-0.219**	-0.160*	-0.107	-0.130***
	(0.051)	(0.051)	(0.057)	(0.057)	(0.061)	(0.082)	(0.086)	(0.069)	(0.044)
N	3,026	3,026	3,026	3,026	3,026	3,026	2,259	3,026	3,026
Outcome: 2+ Office Visits in Past Year									
				B: Single Women with High School Education or Less					
Fraction of Past Year T.I. Eligible for Food Stamps	-0.199***	-0.214***	-0.207**	-0.265***	-0.137	-0.331***	-0.192	-0.128	-0.202**
	(0.072)	(0.075)	(0.083)	(0.085)	(0.137)	(0.113)	(0.117)	(0.100)	(0.089)
N	764	764	764	764	764	764	575	764	764

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Appendix A: Data Appendix

We merge on to the NHIS information about states' unemployment rates, whether the state had an EITC program or SCHIP program, maximum welfare benefits, other state Food Stamp policies, and income eligibility cutoffs for Medicaid and SCHIP for children by state and include these as controls. Economic conditions are known to influence adult health and health behavior (see for example Ruhm (2000), Ruhm (2005)), as do safety net programs (see for example Evans and Garthwaite (2014)). We obtain unemployment rates from the Bureau of Labor Statistics. EITC information comes from the NBER TAXSIM. Dates on maximum welfare benefits are from Robert Moffitt (available here: http://www.econ2.jhu.edu/people/moffitt/datasets.html). Information on Food Stamp program changes – the frequency with which applications must be re-certified, whether in-person applications or re-certifications are required, state spending on outreach, Broad-Based Categorical Eligibility, vehicle asset rules, and whether benefits are issued on debit cards, are all obtained from the SNAP Policy Database. The SCHIP program start dates are obtained from Rosenbach et al. (2001) and the Medicaid/SCHIP generosity measures come from Hoynes and Luttmer (2011), which are supplemented with information from the National Governor's Association.

Local attitudes regarding immigration may affect immigrants' program participation (Watson, 2014), so we follow Bronchetti (2014) and include two measures of state attitudes: 1) the fraction of individuals reporting they would like immigration decreased from the American National Election Studies (ANES), and 2) the number of deportation court cases per foreign-born individual from Transactional Records Access Clearinghouse (TRAC) Immigration reports. The ANES only includes census region identifiers, so we assign the same values to all states within

the same region. Additionally, the ANES information is only available in "even" years, so we linearly interpolate in the missing years.

In addition, we use the December Food Security Supplement to the CPS in 2001-2007 to directly examine the effects of Food Stamp eligibility on Food Consumption. While the Supplement existed in years before 2001, we begin our sample in 2001 in order to have a consistent measure of food consumption over time. Our measure of food consumption is the sum of household's expenditures on food consumed at home, food consumed away from the home, and purchases made with Food Stamps in the prior week. We follow the sample restrictions in our main CPS analysis with this data set. We further drop observations with (implied) annual food consumption less than $100 or greater than total annual income. We also drop observations with annual income or any component of food consumption missing. The analysis in Appendix Table B1 includes all the baseline controls in equation (1), as well as fixed effects for the number of children, number of adults, and number of elderly, in order to flexibly control for food needs as suggested by Currie (2003).

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Appendix B: Additional Results

Table B1. Effect of Food Stamp Eligibility on Food Stamp Receipt and Food Consumption

	(1) Received Food Stamps Last Year	(2) ln(Food Consumption Last Week)
	All Adults with High School Education or Less	
Fraction of Past Year T.I. Eligible for Food Stamps	0.098*	0.082
	(0.058)	(0.105)
Mean Outcome Variable	0.11	4.99
N	1007	1007

Notes: Data from the 2001-2007 December CPS Food Security Supplement. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children, number of adults, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B2. Correlation of Eligibility with Observable Characteristics

	All Adults, High School Education or Less		Single Women, High School Education or Less	
	Person File	Sample Adult File	Person File	Sample Adult File
Outcome: Female	-0.003	0.066	--	--
T.I. Eligible for F.S.	(0.017)	(0.042)	--	--
Outcome: White	0.059	0.037	0.045	0.140**
T.I. Eligible for F.S.	(0.056)	(0.059)	(0.074)	(0.063)
Outcome: Black	0.005	-0.011	0.002	-0.041
T.I. Eligible for F.S.	(0.028)	(0.037)	(0.089)	(0.097)
Outcome: Asian	-0.016	-0.001	0.003	-0.003
T.I. Eligible for F.S.	(0.021)	(0.031)	(0.031)	(0.033)
Outcome: Hispanic	-0.010	0.005	-0.090	-0.117
T.I. Eligible for F.S.	(0.037)	(0.041)	(0.106)	(0.105)
Outcome: Number of Kids	-0.103	-0.150	-0.133	0.133
T.I. Eligible for F.S.	(0.128)	(0.140)	(0.191)	(0.307)
Outcome: Married	-0.019	-0.069	--	--
T.I. Eligible for F.S.	(0.043)	(0.064)	--	--
Outcome: Less than HS	0.009	-0.037	-0.031	-0.066
T.I. Eligible for F.S.	(0.034)	(0.040)	(0.073)	(0.139)
Outcome: Age	-1.300**	-1.431	-0.944	-0.269
T.I. Eligible for F.S.	(0.639)	(0.859)	(1.453)	(1.744)
Outcome: Likely Undocumented (Hispanic Immigrant Enter U.S. in 1986+)	0.023	0.021	-0.002	-0.107
T.I. Eligible for F.S.	(0.043)	(0.064)	(0.087)	(0.134)

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B3. Effect of Food Stamp Eligibility on Food Stamp Receipt and Health Care Utilization, Data from 2000-2007 only

	(1) Food Stamp Participation	(2) Any Office Visits	(3) 2+ Office Visits	(4) 4+ Office Visits	(5) 2+ Office Visits (Conditional on Any)	(6) Any Overnight Hospitalization	(7) Any ED Visits	(8) 2+ ED Visits
				A: All Adults with High School Education or Less				
Fraction of Past Year T.I. Eligible for Food Stamps	0.042***	-0.024	-0.190**	-0.074	-0.322***	-0.001	-0.102**	-0.016
	(0.012)	(0.074)	(0.072)	(0.067)	(0.084)	(0.018)	(0.050)	(0.027)
N	10228	2429	2429	2429	1186	5341	2442	2442
				B: Single Women with High School Education or Less				
Fraction of Past Year T.I. Eligible for Food Stamps	0.076***	-0.143	-0.262**	-0.228**	-0.308**	0.017	-0.038	0.069
	(0.026)	(0.153)	(0.126)	(0.087)	(0.145)	(0.048)	(0.090)	(0.069)
N	2426	574	574	574	354	936	581	581

Notes: Data from the 2000-2007 CPS and NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B4. Triple Difference Specification Check of the Effect of Eligibility on Health Care Affordability for Single Women

		Triple Difference	
	(1)	(2)	(3)
	Baseline	Without State by Year Fixed Effects	With State by Year Fixed Effects
Outcome: Summary Index of Needing Specialty Care but could not Afford	Single Women with High School Education or Less		
Fraction of Past Year T.I. Eligible for Food Stamps		-0.018	
		(0.081)	
Fraction of Past Year T.I. Eligible for Food Stamps x Treated Immigrant	-0.847*	-0.741**	-0.741**
	(0.442)	(0.325)	(0.340)
N	681	17,917	17,917

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. In the triple difference specifications, the sample also includes all U.S.-born individuals aged 18-59 whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Triple difference specifications in Columns 2 and 3 also include state by immigrant status, and year by immigrant status fixed effects, as well as the state by year controls interacted with immigrant status. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B5. Effect of Food Stamp Eligibility on Health Insurance Coverage

	(1) Medicaid	(2) Private Insurance	(3) No Insurance
	A: All Adults with High School Education or Less		
Fraction of Past Year T.I. Eligible for Food Stamps	-0.020	-0.019	0.041
	(0.029)	(0.027)	(0.041)
Mean Outcome Variable	0.09	0.65	0.23
N	6,634	6,634	6,634
	B: Single Women with High School Education or Less		
Fraction of Past Year T.I. Eligible for Food Stamps	0.059	0.026	-0.081
	(0.044)	(0.043)	(0.052)
Mean Outcome Variable	0.23	0.45	0.28
N	1,217	1,217	1,217

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B6. Robustness and Specification Checks of Effects of Eligibility on Health Care Affordability for Single Women

				State by Year Controls				Specification Checks	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline	Adult Medicaid Generosity	Other Safety Net Program Generosity	Attitudes towards Immigrants	Other State SNAP Options	State Linear Time Trends	Drop California	Include Census Region by Year Fixed Effects	Include Year by Calendar Month Fixed Effects
Outcome: Summary Index of Needing Specialty Care but could not Afford	Single Women with High School Education or Less								
Fraction of Past Year T.I. Eligible for Food Stamps	-0.847*	-0.854*	-0.729*	-0.977*	-0.535	-0.481	-1.587***	-0.442	-0.612
	(0.442)	(0.479)	(0.416)	(0.485)	(0.451)	(0.601)	(0.551)	(0.344)	(0.411)
N	681	681	681	681	681	681	521	681	681

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B7. Effects of Eligibility on Food Stamp Participation and the Likelihood of Two or More Doctor Visits by Subgroup, All Adults

	(1)	(2)	(3)	(4)	(5)
	Less than High School	High School	Some College	College +	>20 Years in US
Outcome: FS Participation					
			A: CPS, All Adults		
Fraction of Past Year T.I. Eligible for Food Stamps	0.054**	0.041**	0.038*	-0.003	0.012
	(0.022)	(0.012)	(0.021)	(0.006)	(0.008)
N	6855	4819	2865	4944	16687
Outcome: 2+ Office Visits in Past Year					
			B: NHIS, All Adults		
Fraction of Past Year T.I. Eligible for Food Stamps	-0.144*	-0.103	0.176*	0.041	0.001
	(0.075)	(0.096)	(0.095)	(0.066)	(0.034)
N	2,115	932	762	1,144	5164

Notes: Data from the 1998-2007 NHIS. The sample is all immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01

Table B8. Effects of Eligibility on Food Stamp Participation and the Likelihood of Two or More Doctor Visits, Single Women

	(1)	(2)	(3)	(4)	(5)
	Less than High School	High School	Some College	College +	>20 Years in US
Outcome: FS Participation					
			A: CPS, Single Women		
Fraction of Past Year T.I. Eligible for Food Stamps	0.125** (0.059)	0.068** (0.028)	0.033 (0.036)	0.030 (0.020)	0.021 (0.016)
N	1584	1201	914	986	5348
Outcome: 2+ Office Visits in Past Year					
			B: NHIS, Single Women		
Fraction of Past Year T.I. Eligible for Food Stamps	-0.192** (0.094)	-0.207 (0.202)	0.195 (0.187)	-0.072 (0.236)	-0.058 (0.068)
N	534	242	261	225	1372

Notes: Data from the 1998-2007 CPS and NHIS. The sample is all single female immigrants aged 18-59 who moved to the US between 5 and 15 years before the survey year, and whose head of household has a high school education or less. All regressions included state and year fixed effects, as well as state by year controls for the unemployment rate, Medicaid/SCHIP generosity, and state SNAP program parameters. They also include the following demographic controls: gender, age, year of immigration, race/ethnicity, marital status, and educational attainment, as well as number of children under 5, number of children, number of children born outside the US, and the number of elderly living in the household. Standard errors are clustered at the state level and all results weighted using the sample weights. * p<.10, ** p<0.05, *** p<.01