The Curious Case of Refugees: Why Did Medicaid Participation Fall Following the 1996 Welfare Reforms?

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Abstract

This paper examines the fall in refugees' Medicaid participation rates following the 1996 welfare reforms in the United States. Using repeated cross-sections of the March supplement to the Current Population Survey, years 1993 to 2001, I attempt to disentangle two potential and contrasting reasons for the subsequent fall in refugees' Medicaid participation rates: one the fall was an unintended effect of the welfare reforms; and two the fall in participation rates were driven primarily by the improving economy of the time. My findings suggest that about seventy percent of the drop in Medicaid participation among refugees can be explained by the improving local economy of the time and the remainder can be explained by changes in individual and household level demographics and those in federal expenditures on refugees. Finally I find suggestive evidence that the high levels of Medicaid take up rates among refugees and their responsiveness to local economic conditions may be driven by federal and local resources invested in to refugee resettlement programs.

1 Introduction

The assimilation process of refugees[1] in the United States is of particular interest, given that the country has historically accepted more refugees for resettlement than all others combined (Migration Policy Institute, 2004). This underscores the importance of factors that contribute to the assimilation of refugees over time. Public assistance programs, in this context, may serve a dual purpose; increased levels of program participation, by itself, can be seen as assimilation (Klopfenstein, 1998), or participation may serve as means to assimilate refugees. In both the cases changes to levels of program participation can have conflicting underlying reasons. A fall in participation can be the result of successful assimilation and improved economic conditions or it might reflect barriers to participation. The experience of refugees in the post-1996 welfare reform[2] period mirrors exactly such a situation. In the period between 1994 to 1999 Medicaid participation rates among low-income, working age, adult refugees fell by 58% compared to 8% and 23% for their native and non-refugee immigrant counterparts, respectively (Fix and Passel, 2002). In this paper I try to determine why Medicaid participation fell among refugees, and whether this reflects assimilation or an unintended effect of the welfare reform.

Title IV of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) is of special relevance when analyzing its impacts across groups with different immigration status. In accordance with title IV post-reform, all documented immigrants entering the country after August 1996 were made ineligible for welfare for their first five years in the country (Chin et.al, 2002). This rule is commonly referred to as the "five-year bar" and even after this period documented immigrants' use of welfare is still subject to deeming and public charge restrictions (Fix and Passel, 1999). Refugees and asylees are the exceptions to this rule and thus remain eligible for welfare programs regardless of their time of entry. Amidst the more usual concerns of moral hazard and welfare dependence, the decrease of program participation among potentially eligible groups is somewhat puzzling at the outset.

The current literature provides no consensus and little guidance to the potential causes behind the fall in refugees' Medicaid participation in the post-reform period. Fix and Passel (1999) document the fall and point to new time limits on eligibility, set by the reform for non-naturalized refugees, as potential source for the fall in participation. They conclude that behavioral changes wrought by the reform as opposed to changes in family structure and demographics are responsible for the fall in refugees' participation in Medicaid. Bollinger and Hagstrom (2008), in an analysis of refugees' participation in the Food Stamp program,

[1] Refugee is defined as someone who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality, and is unable to, or owing to such fear, is unwilling to avail himself of the protection of that country" (1951 Refugee Convention, UNHCR)

[2] Also referred to as the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), the welfare reforms decentralized the former federal entitlement programs with Temporary Aid for Needy Families (TANF), a block grant distributed and regulated at the state level. Federal TANF regulations included new work requirements and time limits on cash assistance. The overarching nature of reforms under PRWORA included provisions for Supplemental Security Income (SSI) eligibility, child support enforcement, child protection, childcare, marriage promotion, and abstinence education. (Takahashi, unpublished manuscript)

argue that improvements in local employment opportunities are primarily responsible for lowering Food Stamp participation rates. Another potential cause includes "chilling," which refers to the non participation of eligible groups due to fear generated either directly or indirectly by an icy policy climate. While there is a sizeable literature focusing on chilling among immigrants in general, (Borjas, 1994; Borjas and Hilton, 1996; Loftstrom and Bean, 2002; Mazzaolari and Gordon, 2004; Watson, 2010; etc.) only one paper (Tripodi, 2004) investigates chilling as a possible cause for the drop in welfare usage, specifically among refugees. Using panel data on refugees residing in the US for less than five years, and thus eligible before and after the reforms, Tripodi (2004) finds no evidence of chilling among refugees on grounds that their fall in welfare usage precedes the 1996 welfare reforms.

In this paper I analyze the fall in Medicaid participation among refugees, relative to non-refugee immigrants and natives. By examining the refugee experience in the periods before and after the welfare reform, relative to a base native group and including Metropolitan Statistical Area (MSA) level unemployment rates as proxies for local economic conditions, I attempt to isolate the two potential and contrasting reasons for the fall in Medicaid participation among refugees. I use the Immigration and Naturalization Service (INS) data available from 1972 till 2000 to impute refugee status for immigrants identified in the March supplement of the CPS for years 1994 to 2001. The strategy for identifying refugees draws on the approach in Bollinger and Hagstrom (2008 and 2011). My main findings suggest that about 70% of the drop in Medicaid participation among refugees can be explained by the improving local economy of the time and the remainder can be explained by changes in individual and household level demographics and changes to federal level spending on refugees. I find no evidence that refugees were differentially impacted by the 1996 welfare reforms or that refugees may have been chilled by the icy policy environment of the time.

2 Motivation

Over two and half million refugees have been resettled in the US in the period between 1980 and 2010 (INS, 2010). Refugees are distinct from other non-refugee immigrants because refugees either cannot or do not want to return to their home countries for fear of persecution (Cortes, 2004). This difference likely influences the courses of action taken by the two immigrant groups in their time in the US. Most comparative studies between the native and immigrant experiences of the welfare reforms fail to distinguish between refugee and non-refugee immigrants (e.g., Mazzaolari and Gordon 2004, Watson 2010, Borjas and Hilton 1996). This failure to distinguish between the two immigrant types can have important implications. For instance, the pattern of welfare usage between the two groups may differ systematically due to differences in their observable characteristics and access to welfare. This paper demonstrates that the refugee experience during the reforms stands in stark contrast to that of other immigrants and also that of natives.

The topic at hand relates to three broad strands of existing literature; the first two, impact of the welfare reforms on immigrants' welfare participation (Borjas, 1994; Borjas and Hilton, 1996; Loftstrom and Bean, 2002; Mazzaolari and Gordon, 2004) and determinants of take-ups of means tested programs, have both been widely researched. Mazzaolari and

Gordon (2004) find that, in the post-reform period, a sizable difference in the relative drop in welfare participation between citizens and eligible non-citizens remains even after controlling for various demographic and economic factors. This unexplained drop for non-citizens is attributed to a "chilling effect." An example of chilling effects among immigrants is the misguided fear of becoming a public charge, and being denied citizenship, for using federal welfare. Failure to understand the complicated eligibility requirements could also act as deterrence for certain eligible groups. In attributing the residual drop in participation to chilling, Mazzaolari and Gordon (2004), however, is silent in regards to the source of the chilling.

More recently, Watson (2010) identifies federal immigration enforcement as a possible source for this chilling effect. In looking at Medicaid participation among children, Watson finds that participation among children with non-native parents is highly sensitive to enforcement levels. She argues that changes in enforcement levels and not those in welfare laws are responsible for chilling eligible population from participating in Medicaid. The impact of Federal immigrant enforcements on refugees *a priori* is unclear. On the one hand, enforcement levels should not be a source of chilling for refugees who do not face the same naturalization process as other legal non-citizens. If, however, federal immigrant enforcement levels are driven by an underlying overall anti-migrant sentiment, then it is quite possible that refugees maybe deterred from participating as well.

The modeling of take-up of welfare benefits goes back to Moffit (1983). In his model, an individual maximizes her utility, a function of hours of work (a bad), private income sources, and welfare benefits, subject to a budget constraint. The model also includes disutility from participating in a welfare program which can be thought of as transaction costs and or any stigma associated with being a welfare recipient. Consequently, individuals participate if the increase in utility, derived from welfare benefits, outweighs the related costs of participation. Currie (2004) provides a comprehensive survey on the determinants while Stuber and Kronebush (2004) focuses specifically on take up of TANF and Medicaid. Currie (2004) identifies social stigma associated with participating in welfare programs and transaction costs in the form of time, effort, and energy spent on acquiring knowledge and applying for such programs as being the main predictors of enrollment, or lack thereof. Given the focus on stigma and transaction cost, the refugee sub-population is of special interest as refugees arrive in the US from a varied number of disadvantaged backgrounds for the sole purpose of resettlement. At least initially, it seems plausible that stigma may not be a large deterrent to participation in welfare programs. Over time, however, successful assimilation may, in part, rely on refugees reducing participation in welfare programs and garnering respect in society. Stigma, as such, may play an increasingly larger role in deterring participation over time. Refugees also benefit from the assistance of local community organizations[3] when they first arrive in the country. These organizations help refugees in their relocation and also

[3]In addition to federal agencies, ten regional offices across the country and state partners the US Office of Refugee Resettlement (ORR) includes nine voluntary organizations that work directly with refugees at the local level. Per the ORR webpage these local community organizations include: Church World Service, Ethiopian Community Development Council, Episcopal Migration Ministries, Hebrew Immigrant Aid Society, International Rescue Community, US Committee for Refugees and Immigrants, Lutheran Immigration and Refugee Services, United States Conference of Catholic Bishops and World Relief Corporation

help with their enrollment in related welfare programs, thus lowering any transaction cost associated with program participation. All other things being equal, given the lower transaction costs and arguably lower importance of stigma, one can expect higher take-up rates among refugees during their early years in the country. Welfare participation rates among refugees can also be linked to Cortes (2004), where the author provides, both theoretical and empirical, evidence that investments in human capital are inversely related to the probability of an immigrant returning to her country of origin (close to zero for refugees). To the extent that welfare participation may complement investment in human capital, results from Cortes (2004) would support higher levels of welfare participation among refugees.

Finally, the third stream of related literature pertains to the assimilation experience of refugee immigrants in the United States. The lack of identifiers for refugees, as a distinct subset of immigrants, in national census datasets (CPS, SIPP, ACS and others) makes this area of research relatively scant. Previous work on refugees has involved classifying all migrants from a list of refugee prone countries as refugees (Borjas, 2002; Cortes, 2004). Such *ad hoc* measures fail to take into account that refugee and non-refugee immigrants can have the same country of origin, and that over time refugees have come from many different countries. Measurement errors resulting from miss-classifying certain refugees as non-refugees and vice versa render the slope estimates from regression analysis unreliable. Addressing this measurement issue, Bollinger and Hagstrom (2008 & 2011) use a statistical matching technique to assign probabilities among migrants for being a refugee. The authors use INS data which includes a universe of all migrants that entered the US and then applied for legal permanent residence (including refugees). The data set also includes key demographics about the applicants like their year of entry, age, country of origin and gender. Using a probit regression, where the dependent variable is an indicator variable for refugee and the independent variable is age, for each country in a given time period, the authors calculate separate probabilities for male and female immigrants. The end result is that for every immigrant in the CPS dataset there is a probability of being a refugee. This probability by construction is directly related to an immigrant's year of entry into the US, country of origin, gender and age. These probabilities are then matched to the CPS data where immigrants and their date of entry into the US are noted. Bollinger and Hagstrom (2008) argue that this approach minimizes the measurement errors and allows for the specific analysis of refugees. Using this technique the authors analyze refugees' participation in the food stamp program. They find refugees' participation to be three times more responsive to local employment conditions than those of non-refugee migrants. Furthermore, they find no evidence of refugees being chilled.

The methodology and identification strategy in the present study borrows from the approach in Bollinger and Hagstrom (2008). The obvious difference, in the current paper and that of Bollinger and Hagstrom (2008), is that the previous authors look at food stamp participation at the household level while I analyze Medicaid participation at the individual level. Although both are welfare programs, they differ in eligibility requirements and the manner in which they are utilized within a household. Food stamps, though provided individually, are likely to be more fungible in that access to food stamps among any family members will likely spill over to others in the family. Furthermore looking at participation

at the household level fails to capture any fall in participation among members within the household. Medicaid on the other hand is individual specific and non transferable within a family. An individual level study for the latter is consequently more appropriate.

There are additional reasons for thinking that Medicaid participants may differ from food stamp participants. Multiple changes have occurred in Medicaid eligibility rules since the mid 1980s which means that eligibility is not strictly based on income levels and assets. Medicaid has grown continuously through the period in question, mainly due to growth in the price of medical care, extensions of program eligibility, and other reforms, resulting in caseload growth (Gruber, 2003). Consequently, Medicaid participants include even those above the official 185% of poverty level cutoff mark. These include children, pregnant mothers, and individuals above the poverty cutoff point but with exceptionally large medical expenses. Compared to Food Stamp participants, those belonging to the Medicaid program are likely to be more heterogeneous.

Furthermore Stuber and Kronebush (2004) estimate that among non participants, almost 70% believe there is a negative perception of individuals enrolled in welfare (including the Food Stamp program) whereas only 33% of non-participants believe the same about Medicaid. Confusion about eligibility is a larger concern with Medicaid, suggesting that the factors determining enrollment for Food Stamp and Medicaid may differ systematically. It is therefore plausible that the impact of the welfare reforms in 1996 may have been different for the two programs.

Also important are the policy changes that have occurred since the 1996 welfare reforms, mainly the 1998 Agriculture Research Extension and Education Reform Act and the 2002 Farm Bill. The former restored Food Stamp benefits for selected immigrants, including pre-enactment children, elders, and the disabled. The Farm Bill added low-income immigrant children, disabled legal immigrants who arrived after August 1996, and legal immigrants with five years of residency to the list of those eligible (Capps et al, 2004). In contrast no such policies have been enacted with regards to Medicaid eligibility, which necessitates a separate analysis for the impact on Medicaid participation among refugees and non-refugee immigrants before and after the welfare reforms. Finally, a side by side comparison of time series plots of Food Stamp and Medicaid participation rates in *figure 1* provides further impetus for the analysis at hand. Both overall and refugee Food Stamp participation rates show a clear downward trend that precedes the welfare reforms of 1996. This calls in question any causal link between the welfare reforms and refugees' Food Stamp participation rates. Medicaid participation rates, in contrast, were rising just before the welfare reforms and fall right after. In this regard the present Medicaid analysis maybe more fitting to the difference in difference framework utilized here and in Bollinger and Hagstrom (2008).

3 Data and Methods

The empirical findings of the paper are based on data gathered from multiple sources. I use publicly available individual level data from the March supplement of the Current

Population Survey (CPS, 1994- 2001) for information on Medicaid enrollment, related demographics, and economic characteristics. Immigration and Naturalization Services (INS) data titled "Immigrants Admitted to the United States," which is available for years 1972 through 2000, is used for identifying refugees in the CPS. Local unemployment rates are extracted from the Bureau of Labor Statistics (BLS) website. The INS statistical year books, and The New Immigrant Survey (NIS) 2003 cohort are used to compare different imputation techniques for assigning refugee status to immigrants. The INS statistical year books are also used to calculate the state by year flow of refugees into the US. Finally I use the Consolidated Federal Funds Report (CFFR) to approximate year by state expenditures on refugees in the US.

The choice of years in the CPS is constrained by two factors. Immigrants and their country of origin are not identified in the CPS prior to 1994, and refugee status for immigrants can only be estimated between 1950 and 2001 using the INS data. Beginning in 1994 the CPS asks respondents about the country they were born in and the year[4] they came to the US. The CPS data consists of nationally representative repeated cross-sections corresponding to the years 1993 to 2000. The dataset includes a wide range of demographic and welfare related individual level information. The dependent variable analyzed here is Medicaid participation, which is an indicator variable that equals one if an individual is enrolled in Medicaid and zero otherwise. A complete list of variables analyzed in the paper can be found in the appendix section, *table A1.*

For the purpose of the study at hand, immigrants are defined as those admitted to the US for permanent residence. To avoid the endogeniety issue of immigrants naturalizing in order to receive welfare benefits, those who have naturalized since coming to the US are still considered immigrants. Owing to the paucity of data and given the length of stay in the country, those who came to the US before 1950 are considered natives. Refugees are a distinct subset of immigrants and identified using imputation techniques explained below. This includes those who naturalized after 1950. Finally natives are those born in the US or a US territory and immigrants who arrived before 1950. The CPS may include immigrants who are not admitted for permanent residence, such as foreign students, guest workers, or even undocumented immigrants. The inclusion of these immigrants who are categorically ineligible for Medicaid likely lowers the participation rates of immigrants. Following common practice in the related literature, I take some measures to address this in the regression analysis section. For the descriptive analysis in the next section, it is important to keep in mind that, to some extent, the lower participation rates of immigrants is owing to the inclusion of the aforementioned non-resident immigrants. This is especially apparent when comparing the different imputation techniques used for identifying refugees.

The INS data are used to estimate the probability that a given immigrant in the March CPS is a refugee. There are two types of immigrants captured in each one of the twenty seven INS datasets. The 1972 INS dataset, for instance, contains all immigrants that arrived in the year 1971 and 1972 and applied for permanent residency at entry. The same dataset

[4]The peinusyr variable in the CPS identifies 16 different periods of entry, prior to 1950, 1950-1959, 1960-1964, 1965-1969, 1970-1974, 1975-1979, 1980-1981, 1982-1983,... 1996-1997, 1998-2001

also contains other immigrants who arrived at various years before 1971 and for some reason waited till 1972 to adjust their status to permanent residents. For both types of immigrants, the INS dataset provides information on the year and immigration status at initial entry into the US. Immigration status at entry can be used to identify refugees in the datasets. The 27 INS datasets also include useful demographic data on country of origin, year of entry into the US, age at entry, and gender, all of which are utilized to impute probabilities for immigrants being refugees.

The period of study coincides with improving economic conditions of the 1990s which is an important control variable. The CPS datasets identify states and Metropolitan Statistical Areas (MSA) of residence and unemployment rates at this level make for viable proxies of local economic conditions. Lower unemployment rates proxy for better economic conditions and vice versa. I use the Bureau of Labor Statistics (BLS) web site to obtain yearly, unadjusted unemployment rates for the years 1993 till 2000.

The CFFR lists all yearly federal expenditures; I use data from 1993 to 2000 to approximate all year and state specific federal expenditures on refugees. From the INS statistical year books I calculate total year and state specific flow of refugees for the years 1993 to 2000[5]. I then divide the federal expenditure variable by the refugee flow variable to construct a state and year specific per head expenditure on refugees. This variable proxies for federal resources available to refugees and is adjusted for the varying number of refugees in each state.

Finally, the New Immigrant Survey (NIS), 2003 Cohort is a nationally representative dataset on legal immigrants in the US which Includes identifiers for refugee status. The dataset however only has 40 refugees in the group of immigrants who entered the country before 1998. Also, given the time period spanned by the data, it cannot be used to answer the question at hand. I use the NIS dataset to compare the different imputation methods used in the paper.

3.1 Identifying Refugees

I replicate the process outlined in Bollinger and Hagstrom (2008) to estimate the probability that a given immigrant in the CPS dataset is a refugee. I then use these probabilities to impute refugee status to immigrants in the CPS. Each one of the 27, year specific INS datasets includes immigrants admitted to the country in the year and those adjusting their status but who were admitted any time in the past. By combining the 27 different INS datasets I construct a universe of all immigrants admitted to the US, by their year of entry. Next, for each CPS time period, gender, and country group with sufficient observations[6], individual probit regressions are estimated with refugee status as the dependent variable and

[5]Given that the CPS March supplement is carried out earlier in the year, I use the annual 1993 refugee flow data and the annual federal expenditure data for the cps year 1994.

[6]Probit regressions were estimated for country, year and gender groups with at least 4 refugees and 4 non-refugee immigrants.

age and square of age as the independent variables. Out of a total of 6162 country, time, and gender groups, 1541 of them yield valid slopes and intercepts. The relationship between age and refugee status is typically negative. Groups without a valid slope or intercept are either because there are no refugees from that country in the given period or because all the immigrants are refugees. In order to accommodate for countries where all or too few immigrants came as refugees, I also calculated, for each time period, gender, and country group, individual ratios of refugees to total immigrants. Finally the slope, intercept, and refugees to immigrants ratios are merged with the CPS dataset by immigrants' gender, time period of entry, and country of origin. Estimates of age at entry[7] for each immigrant in the CPS along with their corresponding slope and intercepts are used to calculate predicted probabilities of refugee status. For those immigrants belonging to time period, gender, and country groups with all, none, or too few refugees, the ratio of refugees to immigrants for the group is used as the probability of being a refugee. I use these predicted probabilities to impute refugee status. Those immigrants with predicted probabilities equal to or greater than 0.5 are imputed as refugees[8]. The mean probability for those imputed as refugees with this imputation technique is 0.83. For the remainder of the paper this imputation type is referred to as the BH method.

For comparative purposes I also use an alternative method of imputing refugee status. Following Borjas (2002) and Cortes (2004), this imputation method is based on the 13 main refugee sending countries (henceforth referred to as the Borjas method). All immigrants from the following countries regardless of their time or age at entry are imputed as refugees: Afghanistan, Cuba, the Soviet Union, Ethiopia, Cambodia, Laos, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Thailand, and Vietnam. The relative performance of the two imputation strategies is discussed in Appendix B.

4 Descriptive Analysis

For the purpose of this study I use repeated cross-sections of the March Supplement of the CPS from years 1994-2001. I focus on children and working age adults below the age of 65[9] and from households below 200% of the poverty line. I use individual March CPS weights in this section thus making the statistics below nationally representative. The resulting sample size consists of 317,984 individuals. Immigrants as defined in this paper make up 13.8% of the sample. Based on the BH (Borjas) imputation method refugees represent 1.1% (1.5%) of the total sample. Unless stated otherwise, statistics on refugees hereafter are based on the BH imputation method. I calculate overall Medicaid participation rates as the ratio of those enrolled in Medicaid divided by total population. An implication of limiting the

[7] Since the CPS identifies periods of entry rather than exact dates I take the mid-point of the time period as the year of entry.

[8] While Imputations based on more stringent (>=0.7) and generous (>=0.3) thresholds were also experimented with the resulting measurement error was the least for the >=0.5 threshold reported in the analysis.

[9] Those above sixty five qualify for Medicare and may also be enrolled in Medicaid as part of their Medicare coverage. The sample is chosen to avoid any mix up between the two programs.

sample to potentially eligible families is that the Medicaid participation rate is likely to be an underestimate of the actual take-up rate. About 30% of the total sample reported being enrolled in Medicaid. That participation rates are the highest among refugees (41%) is consistent with the aforementioned theory that refugees face lower transaction costs in participating in means-tested programs. Just over 60% reported having some form of private insurance. Slightly more than half the sample consists of females; the majority of individuals have less than a high-school level of education and almost three fourth of the sample reside in metropolitan areas. Given that almost 40% of the sample is children, it is not surprising to find that about 60% of the sample consists of individuals who have never married. Those married make 25% of the sample. Race is dominated by whites (72%), followed by 22% of blacks and a sizeable 3.5% of Asians in the mix. Finally 22% of the sample reported having Hispanic roots.

Table 1 provides a summary of the key variables in the pre (1993-96) and post reform period (1997-2000). A comparison of statistics on relevant variables in the two periods is a good starting point in unraveling the curious case of refugees' fall in Medicaid participation. The total number of immigrants in the post-reform period is one percentage point higher than in the pre-reform period. The refugee population remained constant in the two periods. Overall Medicaid participation fell by 1.6 percentage points while private insurance increased by 0.8 percentage points in the post-reform period. This drop in Medicaid participation following PRWORA is consistent with the findings of existing literature, e.g., Fix and Passel (2002), Mazzolari and Gordon (2004).

Changes in overall participation rates are miniscule and not very revealing of the heterogeneous impact the reforms may have had on various groups. *Table 2* provides a summary of changes in Medicaid participation in the two periods for different groups based on immigration status. Participation rates for refugees fell by about 16 percentage points following the reforms of 1996. This stands out especially when compared to the 3 and 1 percentage point drop among non-refugee immigrants and natives respectively. In comparing the mean participation rates among those potentially eligible it seems as though in comparison to the general population, refugees disproportionately failed to take up Medicaid in the post-reform period. Of course a mere comparison of the means in the two periods does not confirm a causal link between participation in Medicaid and the change in welfare laws, but it does confirm a correlation and validate further analysis.

Before proceeding to a regression based analysis, I look at some additional variables that could have caused the fall in refugee Medicaid participation rates. The timing of the welfare reforms coincide with the improving economy of the 1990s. If the drop among refugees is indeed driven by the improved economy and relatively more successful assimilation of refugees than other immigrant groups, then one can expect to find positive and larger changes (relative to non-refugee immigrants and natives) in related variables such as private insurance enrollment, wages, labor force participation and percentage of individuals living in low income families. Lack of changes or any downward trends in any of the above variables can be seen as evidence that the fall in Medicaid participation may have been an unintended effect of the welfare reforms. I exploit the BH imputation method to examine the refugee experience in regards to each one of these related variables.

The graph on the left in *Figure 2* plots the yearly mean Medicaid participation rates for natives, refugees, and non-refugee immigrants. Also superimposed on the graph are the yearly mean unemployment rates for each state. The unemployment rates fall continuously throughout the period of study which is consistent with the improving economy. It is interesting to note from looking at the graph that the overall participation rate and those for natives and non-refugee immigrants seem to be more or less static through the period and most likely uncorrelated with unemployment rates. The participation rates for refugees however is far more dynamic and the subsequent fall in these rates are most likely correlated with falling unemployment rates. The graph on the right in *figure 2* shows the same plot but using the Borjas imputation method. The participation level and the changes in these levels are both dwarfed in comparison to the earlier graph. This is not surprising, as using the Borjas method classifies more non-refugee immigrants as refugees and the former have the lowest participation rates among the three groups analyzed here.

In light of the favorable economic conditions during and after the implementation of the reforms, one possible scenario is that refugees, like natives, had increased access to employment opportunities and subsequently to either private or employer provided health insurance. An increase in private insurance participation as such is a viable explanation for the fall in Medicaid participation (although qualified applicants can always have both). The data however shows very little variance in private insurance participation across gender, marital status, education, and race in the two periods. Post welfare reforms, private insurance participation increased the most for refugees by a total of 2 percentage points compared to the overall increase of 1 percentage point. In *Table 2*, I report changes in private insurance coverage in the two periods among refugees, non-refugee immigrants, and natives. The magnitudes in *table 2* suggest that, while changes in private insurance enrollment may not explain a significant portion of the change in Medicaid participation, the positive trend is consistent with the better economic conditions and successful assimilation story.

The proportions of individuals living in households below 200% of the poverty level (low SES sample) in the pre- and post-reform periods are also reported in *Table 2*. Overall the figures suggest that there were fewer individuals living in poverty across all three groups in the post reform period. The magnitude of the change however is the largest for refugees. Consistent with this finding, in the next set of columns in *table 2,* I find that the increase in full-time labor force participation among the low SES sample is the highest also among refugees. It is interesting to note, however, that in the low SES sample, among all three groups, non-refugee immigrants have the highest proportion of individuals working full time in both periods. The CPS provides data on family earnings, which is different from family income in that the former does not include transfer or welfare receipts. *Figure 3* shows graphs of yearly mean incomes for the three groups. The mean wages for refugees show a clear upward trend with a steeper slope than that for non-refugee immigrants and natives. Refugee wages in the beginning of the study period are the lowest among the three groups but by the end, they almost converge to those of natives. The above three variables collectively support the idea that the refugees assimilated more successfully in the period and made the most of the improved economic conditions.

Another reason for a fall in Medicaid participation among refugees could be an increased

influx of refugees in the post reform period. The participation rate is measured as a ratio of the number of participating refugees divided by their total population. As such the ratio may decrease if the numerator falls or if the denominator increases. The Annual Flow Report on refugees and asylees (2010) published by the US Office of Immigration statistics confirms that during the period from 1994 to 2002 the number of refugees entering the country fell continuously. Data used for the current analysis also reflects a similar downward trend in the number of refugees by year. Based on these statistics, the changes in the total number of refugees in the US during the period could not have caused a drop in the participation rates. If not the denominator, perhaps the answer lies in changes to the numerator of the participation rate. In *Figure 4* I plot Medicaid participation rates for refugees by their year of entry into the U.S. and their region of origin. The graph on the right provides some suggestive evidence that drop in participation rates may have been driven by refugees from Asia and Europe. Refugees from these two regions also constitute a majority of refugees in the sample. Additionally the more older generation of refugees also belong to these two regions. The graph on the left in *Figure 4* shows that, while the drop in Medicaid participation for refugees arriving in the 1990s precedes the welfare reforms, the drop in participation for the 1980s arrival cohort begins in the post reform period. In fact the 1995 refugee report to U.S. congress explains a change in refugee resettlement policy, at around the time of the welfare reforms, to restrict efforts to the newly arriving refugees (those in the country for 5 years or less). In *figure 5*, I graph participation rates for new and older refugee and non-refugee immigrants. All the time series plots, except for participation rates among older refugees, show clear trends that precede the welfare reforms. It is only for refugees who have been in the country for longer than 5 years that there is a clear break in the trend in the post reform period. As such it is likely that the break in the overall Medicaid participation rates among refugees, in the post reform period, is driven by changes in the Medicaid participation rates among older refugees.

5 Regression Analysis

The descriptive analysis in the previous section suggests that economic conditions may have been responsible for the fall in Medicaid participation among refugees. The analysis however is silent on the magnitude of these impacts and also on potential impacts that the welfare reforms may have had on refugees' Medicaid participation. Addressing these questions requires a regression based analysis where one can tease out marginal effects of individual variables while holding other relevant factors constant. There are a few obstacles in resorting to a regression model that need to be addressed.

Foremost, Medicaid eligibility rules regarding immigrants in the post-reform period vary considerably across clusters of states and are not successfully captured by state fixed effects[10]. Post reform Medicaid eligibility for even natives varies considerably across groups of

[10]In summary of State Programs for Immigrants; 50 states offer federally funded coverage for pre 8/22/96 qualified immigrants and 42 states offer the same for post 8/22/96 qualified immigrants after the five-year bar. During the five-year bar 22 states offer state-funded program for immigrants. Only 19 states offer state-funded programs for children during the five-year bar through Medicaid, SCHIP or both. Families,

states. Historically, the majority of Medicaid participants were automatically enrolled for the program if they were already enrolled in Aid to Families with Dependent Children (AFDC). Among other things, welfare reform decoupled Medicaid and cash assistance. New eligibility categories were established based on state specific AFDC eligibility standards in effect on July 16, 1996. Section 1931 of the Social Security Act was established as part of the 1996 welfare reform law which requires states to cover at least those families with incomes below the 1996 AFDC income limits, regardless of whether they receive cash assistance. Section 1931 also allows states greater flexibility to extend eligibility to more low-income families via income disregards, asset disregards, or increasing income and asset limits by as much as the increase in inflation since July 1996 (Medicaid Section 1931). As such it is necessary to include additional controls that capture clusters of states with similar eligibility or resort to analyzing a subset of states. Inclusion of illegal immigrants in the CPS who are categorically ineligible for Medicaid further complicates the situation. It is important to purge the sample of any illegal immigrants. Finally, the lack of refugee identifiers is another confounding factor. Identification of refugees in the paper is based on using country of origin, gender, and age at entry as instruments which yields probabilities for immigrants being refugees. As pointed out by Bollinger and Hagstrom (2008), these probabilities should not be directly used as regressors, and as such, the model for Medicaid participation needs to be adjusted appropriately. Each one of these three issues is addressed below.

To address the issue of varying eligibility in general and those specifically for immigrants across states, I use the Zimmerman and Tumlin (1999) categorization of state generosity towards immigrants. I also include in my regressions state-level identifiers for two reform related policies. Strategies to divert families from relying on cash assistance developed as part of states' welfare reform efforts. Two such strategies in particular might have resulted in lowering Medicaid participation rates. Lump sum payment programs are one time cash payments for families in need of temporary financial assistance. Job search completion requirements apply to cash assistant applicants. Both these strategies could potentially result in an immediate raise in income, making applicants ineligible for transitional Medicaid assistance (The Kaiser commission on Medicaid and the uninsured). Post-reform states could choose whether they adopted these strategies and also to disregard income from these sources in their eligibility assessment of applicants. Two state level variables were created to capture clusters of states with similar policies. The first of the two state level indicator variables has value one if a state offered a one time lump sum payment and did not disregard this income in assessing income eligibility for Medicaid and value zero otherwise. Similarly the second variable has value one if states require applicants to complete job search and do not disregard income from the first three months of work and value zero otherwise. These two variables serve a dual purpose. To some extent they capture the eligibility differences across clusters of states, and they also proxy for the 1996 welfare reforms. As in the descriptive section, the sample is further reduced to those 200 percent and below the poverty level. This again helps to restrict the sample to those potentially eligible. To overcome potential

seniors and people with disabilities, during the five-year bar, are supported by state-funded programs in 14 states. Ninteen states offer state-only funded program for pregnant women during the five-year bar. Finally,13 states offer state-funded programs to all legal immigrants ineligible for Medicaid or SCHIP during the five-year bar

complications that may result from undocumented workers in the CPS, I exclude Central American immigrants and those from Mexico who are above forty years old and have less than a high-school education. Standard in previous literature, the above step attempts to purge the sample of illegal immigrants based on undocumented immigrant profiles.

Finally, as in the descriptive analysis section, I use the predicted probabilities to impute refugee status. Those immigrants with predicted probabilities equal to or greater than 0.5 are imputed as refugees[11].

5.1 Theoretical Framework and Model Specification

I estimate a reduced form of the model proposed in Moffit (1983) where labor supply, income, and participation are functions of demographic characteristics and are also potentially related to policy changes. The reduced form of the model is further modified to accommodate for the choices individuals have with respect to health insurance types. At the outset, it is unclear whether a fall in Medicaid participation is a good or bad thing. More people acquiring private health insurance may be evidence of a positive outcome. A drop in Medicaid participation followed by an increase in the uninsured population, on the other hand, implies the opposite. Therefore instead of modeling Medicaid participation as a binary outcome, I model health insurance as a choice between private, Medicaid and none. I estimate the following multinomial logit model for health insurance type:

$$Pr\{y_i = Medicaid|\mathbf{W}_i\} = \frac{\exp\left(\mathbf{W}_i\boldsymbol{\beta}_{medicaid}\right)}{1+\exp\left(\mathbf{W}_i\boldsymbol{\beta}_{private}\right)} \tag{1}$$

Where on the left hand side of the equation is the probability of an individual participating in Medicaid. The matrix $\mathbf{W}_i\boldsymbol{\beta}$ on the right includes the following set of variables and related coefficients:

$$\mathbf{W}_i\boldsymbol{\beta} = \gamma I_i + \delta R_i + \lambda reform + \alpha\left(R_i * reform\right) + \mathbf{X}_i \tag{2}$$

I_i is a dummy variable indicating an immigrant, and R_i is another indicator variable for refugee status. The variable $reform$ is an indicator for the post reform period followed by the interaction term between refugee status and the reform variable. The vector $\mathbf{X}_i$ includes a list of control variables. The model allows for the estimation of two sets of coefficients, one for Medicaid participation and another set for private health insurance, both relative to no insurance. I use the BH imputation methods to identify refugees in the above model.

The above models represent a difference-in-difference specification, where I examine the Medicaid participation among refugees in the periods before and after the 1996 welfare reform, relative to natives. Analyzing the behavior of refugees relative to a base of native workers helps to overcome any biases that may result from the effects of temporal changes in aggregate labor market conditions. The use of a comparison group helps to net out any such aggregate effects. Natives, more so than non-refugee immigrants, make a good comparison

[11]For comparative purposes I also estimate the samples using refugee identifiers based on the Borjas immputation method. The qualitative results remain the same but coefficient estimates on refugee realted variables are biased downwards.

group because natives and refugees face similar eligibility requirements before and after the reforms. One key assumption in the above specification is that after controlling for observable characteristics, natives make a valid comparison group.

I first estimate a pair of base models, one with no control variables and another with only individual demographic characteristics as control variables. In the next set of models I add potentially relevant variables to the list of controls, one at a time. The final model is the full model which includes all the variables explored.

In the base model, absence of variables that could impact Medicaid participation and also be correlated with the independent variables of interest is also likely to bias the corresponding estimates. The addition of omitted variables in the form of controls and relevant interaction terms hopefully remedies this bias. In the full model I include individual, and family level demographic variables, local MSA or PMSA level unemployment rates, state fixed effects, state level TANF diversion programs, federal expenditures on refugees and a measure of state generosity towards immigrants. Identification here relies on the assumption that once the appropriate demographic and economic variables are controlled for, the parameter estimates of γ, δ, λ and α are unbiased and close to the true parameters. If the estimates of λ and α are no longer significant after the inclusion of controls in the second set of models, it can be concluded that any difference in Medicaid participation between refugees and other groups can be explained using individual, family-level, and state-level characteristics. If however these parameters are persistently negative and statistically and quantitatively significant, even after the inclusion of additional controls, then we cannot reject the hypothesis that the fall in participation among refugees was in part due to the welfare reforms of 1996 or that refugees may have been chilled from participating in Medicaid.

5.2 Results

I report estimates for marginal effects of participating in Medicaid relative to no insurance in *table 3*. The first two models are the base models with none and only individual demographics and state fixed effects as controls, respectively. In Model 3, I include unemployment rates and related interaction terms. Each one of the models, 4 through 6, are extensions of the second base model and include separate, additional demographic and economic variables. Models 4 through 6 include TANF diversion tactics, family earnings, and an interaction term for refugee and annual state federal expenditure per refugee, respectively. I only report here parameter estimates of primary concern[12]. Marginal effects from the first base model points to a 10.5 percentage point raw difference in Medicaid participation rates between refugees and natives in the post reform period. In the second model, even after controlling for demographic variables and state fixed effects, a post reform fall of 8.7 percentage points remains among refugees' Medicaid participation. All else the same, estimates from the full model suggest that refugees are, on average and relative to having no health insurance, 34 percentage points more likely to participate in Medicaid, than natives.

[12]The same models are also estimated using the Borjas immputation method but not included in the paper. In general the coefficient estimates on refugee related variables obtained using the Borjas imputation method are smaller in magnitude compared to the BH method.

In both the base models there is a 1 percentage point fall in overall participation in the post-reform period and large negative and significant coefficients on the interaction term between the post-reform period and refugee status. These estimates, however, are likely to be biased, and this is confirmed when looking at the models 3 through 7. After including demographic characteristics, local unemployment rates, state identifiers, and relevant interaction terms, the coefficient estimate $\widehat{\alpha}$ significantly decreases in magnitude. In fact including just the unemployment rates in Model 3 results in the loss of both magnitude and statistical significance of $\widehat{\alpha}$ which suggests that the difference in Medicaid participation among refugees in the periods before and after the reform arose from individual, household, demographic, and state-level observables and local economic conditions. Including the TANF diversion tactics in model 4 have no impact on the estimate $\widehat{\alpha}$. I do find, however,that in general those who were offered a one time lump sum payments instead of being enrolled into TANF were also less likely participate in Medicaid. Including family earnings in model 5 has the same effect as including local unemployment rates. A yearly increase in family earnings of a thousand dollars lowers Medicaid participation rates in general by about 2 percentage points. It is likely that unemployment rates affect Medicaid participation by increasing individual and family earnings. Including the interaction between refugee status and the annual per head federal expenditures by states does explain a portion but not all of the fall in refugees' Medicaid participation in the post reform period.

In the interaction terms of refugee indicators with time spent in the United States and local unemployment rates, the local unemployment variable is a deviation from the mean unemployment rate while the duration in the US is zero for all natives[13]. I also use deviations from the mean annual per head federal expenditures by states in the related interaction term with refugee status. The re-parameterizations allow for easier interpretations of the refugee indicator variable. The interaction terms are included in the model because it is suspected that time spent in the US, federal expenditures on refugees, and local unemployment rates affect Medicaid participation differently for refugees than for non-refugee immigrants and natives respectively. The coefficient on the refugee indicator variable after the re-parameterization is a measure of the relative propensity to participate for a refugee, compared to a native, at the mean unemployment rate and mean state specific per head federal expenditures on refugees. It is interesting to note that on average unemployment rates are quantitatively insignificant predictors of Medicaid participation. This is consistent with the finding that unlike Food stamp participation rates, those for Medicaid (on average) are not cyclic with respect to economic conditions. Refugees' Medicaid participation however remains fairly responsive to unemployment rates. The estimates suggest that given mean unemployment rates and all else the same, refugees are about 24 percentage points more likely to participate in Medicaid than natives. As for per head federal expenditures on refugees, the model estimates that a 10% increase in the per head expenditures would lower total Medicaid participation by 0.008 percentage points. The coefficients estimates on the interaction between refugee and duration in the U.S. suggest that refugees in comparison to non-refugee immigrants are more likely to stop participating in Medicaid over time. Every additional year in the country reduces refugee participation rates by 0.7 percentage point

[13] As such the variable for duration in the country should be understood as an interaction between an immigrant (both refugee and non refugee) dummy and time in the US.

more than that for non-refugee immigrants.

In *table 4*, I report marginal effects of participating in private health insurance relative to having no insurance. The estimates here provide further evidence that the fall in Medicaid participation may not have been detrimental to refugees. Estimates for model 2 suggest that in the post reform period refugees' private health insurance participation increased by 8 percentage points more than that for natives during the same period. I also find that refugees are more likely to participate in private insurance over time than non-refugee immigrants.

5.3 An Accounting Exercise

While the results above provide important information regarding factors contributing to the fall in Medicaid participation among refugees in the post-reform period, they are silent in regards to the individual contribution of each set of covariates in explaining the fall. It would be helpful to know how much of the fall in the participation in the two periods resulted from local economic conditions or changing demographics and other related factors. This accounting task is achieved by using the conditional decomposition method outlined in Gelbach (2009). An accounting exercise as such is typically done by sequentially adding the related covariates and observing the corresponding estimates. Gelbach (2009) informs us of the perils of such an approach, mainly that the relationship between the variables in the base model and the set of controls may be sensitive to the order in which the variables in the control set are sequentially added to the full model. In light of this knowledge I proceed with the above accounting exercise by utilizing the decomposition method presented in Gelbach (2009). The conditional decomposition, which utilizes coefficients from the base and full model[14], is economically and econometrically grounded and order invariant. Econometrically the decomposition is based on a least-squares identity, which presents the coefficient estimate of the base model as a function of the coefficient from the full model plus a bias term.

$$\widehat{\beta}_1^{base} = \widehat{\beta}_1^{full} + (X_1'X_2)^{-1}X_1'X_2\widehat{\beta}_2 \tag{3}$$

In the above expression $\widehat{\beta}_1^{base}$ is the estimate from the base model, likewise $\widehat{\beta}_1^{full}$ is the estimate from the full model. The base model includes only variables in X_1 and the full model includes both those in X_1 and X_2. The matrix pre-multiplying $\widehat{\beta}_2$ in the above equation consists of coefficients from projecting the columns of X_2 on X_1. The decomposition then involves explaining the difference between $\widehat{\beta}_1^{base}$ and $\widehat{\beta}_1^{full}$ as components related to variables included in the full model but not the base model. This accounting exercise helps to answer the following important question: how much of the change in α from the base to the full model can be separately attributed to improved economic conditions, state, individual and household level variations.

[14]The primary interest in this exercise is to try and explain how much of the total change in Medicaid paritipcation can be attributed to specific factors (groups of variables) in the control. As such for this exercise alone I use a different model specification, The base and full model include the same variables as models 1, 3 and 7 but are estimated as linear probability models with an indicator variable for Medicaid participation as the dependent variable.

I estimate two versions of the above decomposition which vary in their choice of the full model; model 1 is the base model in both cases. In both cases I estimate contributions to the change in the estimate of α from local economic condition, family income, demographic, and state level components. In *table 5*, I report estimates of the decomposition using model 3 as the full model. The total change from the base to full model is that of about 12.2 percentage points; about 70% of this fall is explained by improving local economic conditions. About 20% of the change in estimate of α is attributed to changes in individual and family demographics. The state level components which include state identifiers explain less than 10% of the change in Medicaid participation rates among refugees in the two periods. Table 6 reports the same decomposition but with the more saturated model 7 as the full model. The total change from the base to full model is that of 13.7 percentage points. Combining contributions from changes to family earnings and local economic conditions again accounts for just under 70% of the change in the estimate of α. State level factors which now include changes in per head federal expenditures on refugees accounts for just over 15% of the total change. Finally demographic variables account for the remaining 15%. Collectively estimates from both decompositions are consistent with descriptive statistics on refugees' improving economic situation.

6 Concluding Remarks

The findings in this paper point to a number of important details regarding both the refugee Medicaid experience in the pre- and post-1996 reform period and also refugees' Medicaid take up in general. In contrast to what initially may have seemed like an unusual case of eligible refugees not participating in Medicaid or even being chilled, the findings here suggest that the fall in participation was largely due to the improving economy and changing demographics. The improving economy accounted for 70% of the fall in participation. These results support the earlier findings in Bollinger and Hagstrom (2008) regarding the refugee experience with Food Stamp. With respect to refugee Medicaid participation in general, I find evidence supporting the theory that owing to lower transaction costs of participating and lower importance of stigma when refugees first arrive in the country; participation rates among refugees are much higher than non-refugee immigrants and natives. Furthermore, to the extent that participation in welfare programs like Medicaid can be seen as means to assimilating into life in the United States, the findings also support the claim that, on average, refugees assimilate to life in the US more successfully than non-refugee immigrants. It is also likely that assimilation to a degree necessitates the importance of stigma associated with being on welfare over time. Consistent with this idea, I find that unlike non-refugee immigrants, refugees tend to wean themselves off Medicaid over time.

It remains unclear as to why refugees' welfare participation is more responsive to local economic conditions. One possible reason is the involvement of local community organizations that work with refugees when they first arrive in the country. Further work is required to understand the roles that local community organizations play in the determinants of welfare take up among refugees. The lack of individual level data on the interaction between refugees and community social workers limits a thorough analysis in this area. The fall in

Medicaid participation with increasing per head expenditures on refugees lends some support to the above idea in that part of the federal expenditures involve the funding of these local community organizations. Finally including refugee identifiers in national surveys as well as data collection on local community partners that work with refugees can help to shed light on the matter.

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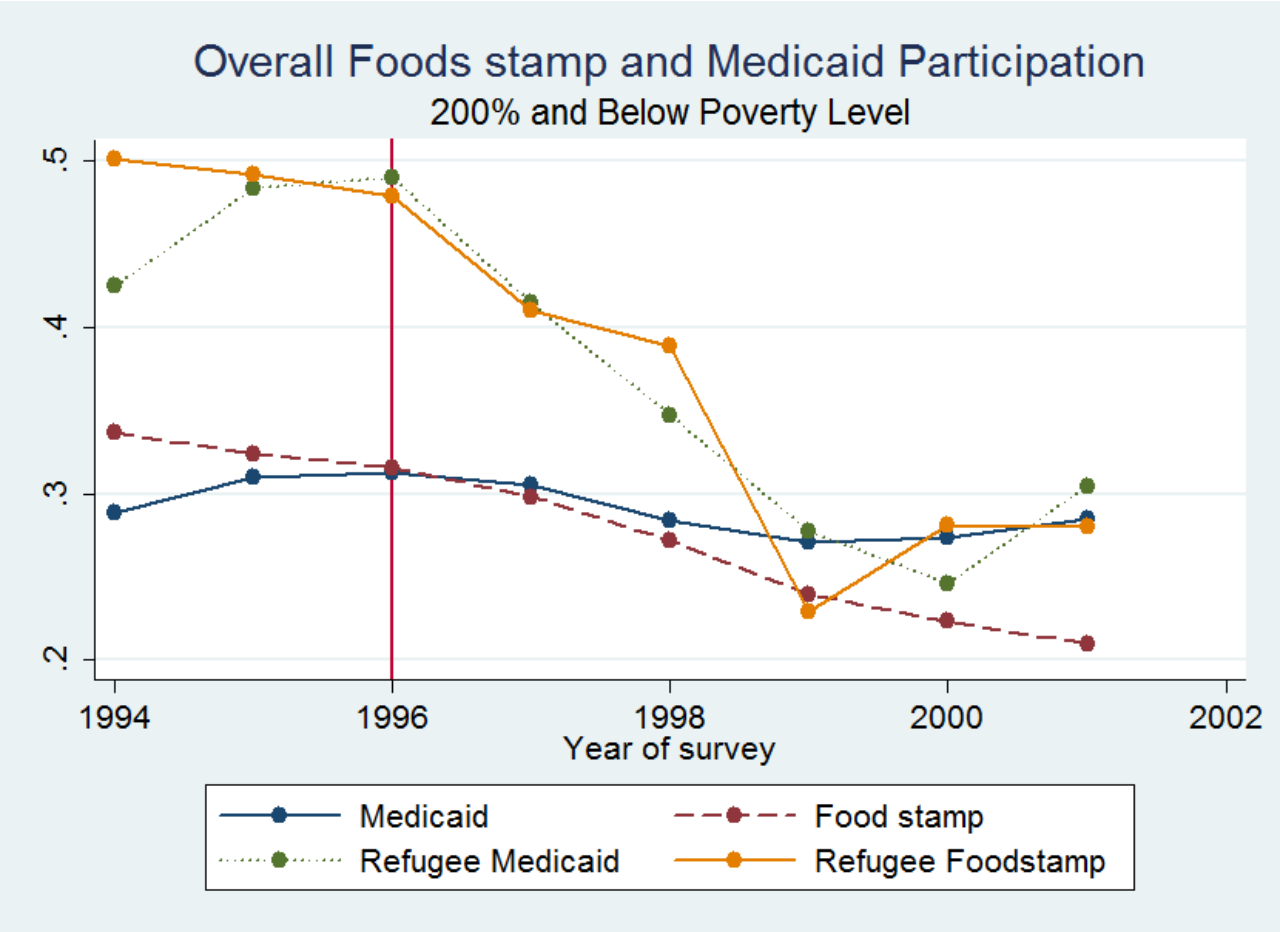
Figure 1:



Notes: Unemployment rates plotted in the above graph are yearly averages for Metropolitan Statistical Areas (MSA), when identified and states otherwise. The other two graphs represent yearly overall participation rates for Medicaid and Food Stamp programs.

Source: Current Population Survey- March Supplement, Bureau of Labor Statistics

Figure 2:

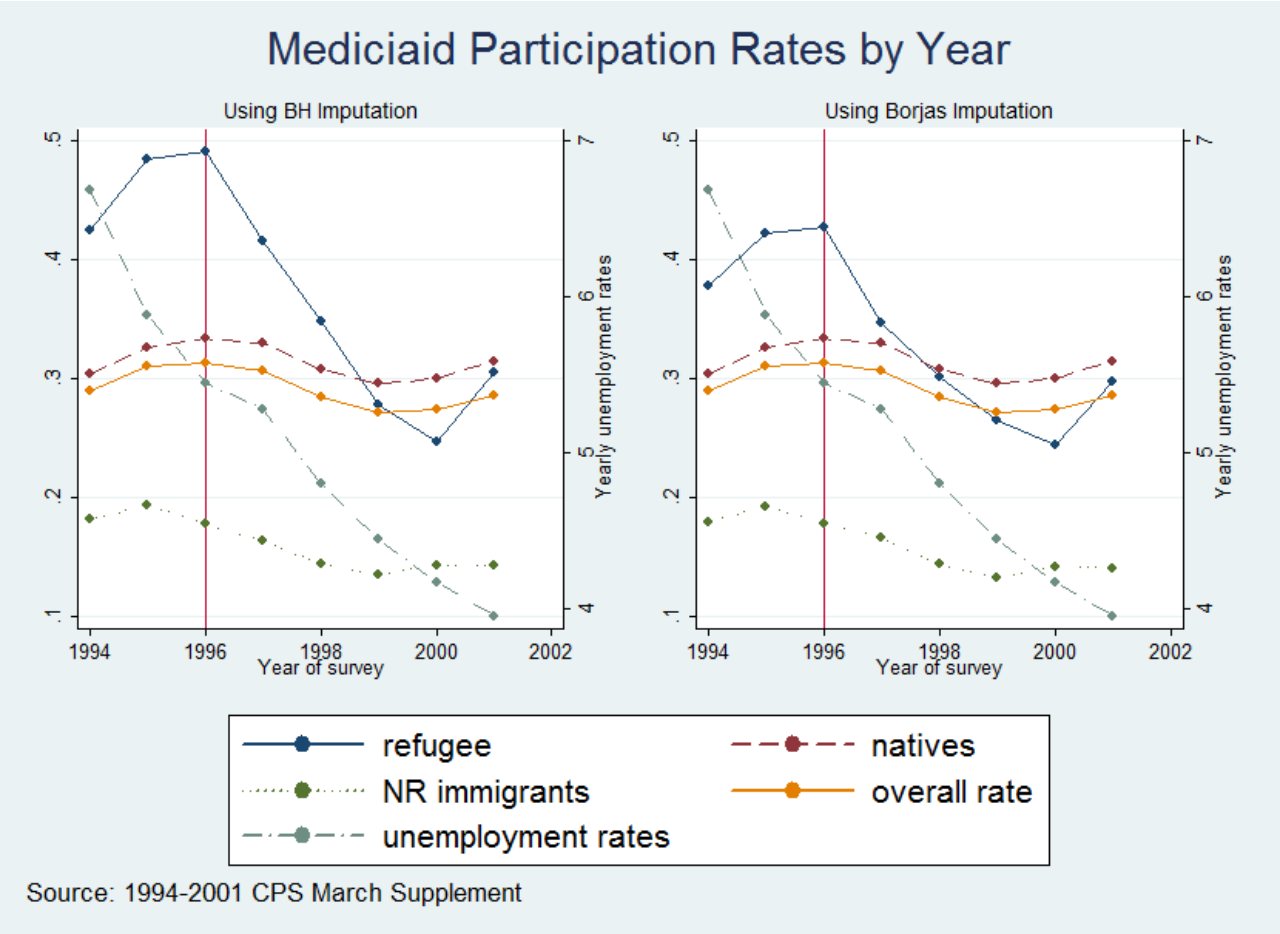
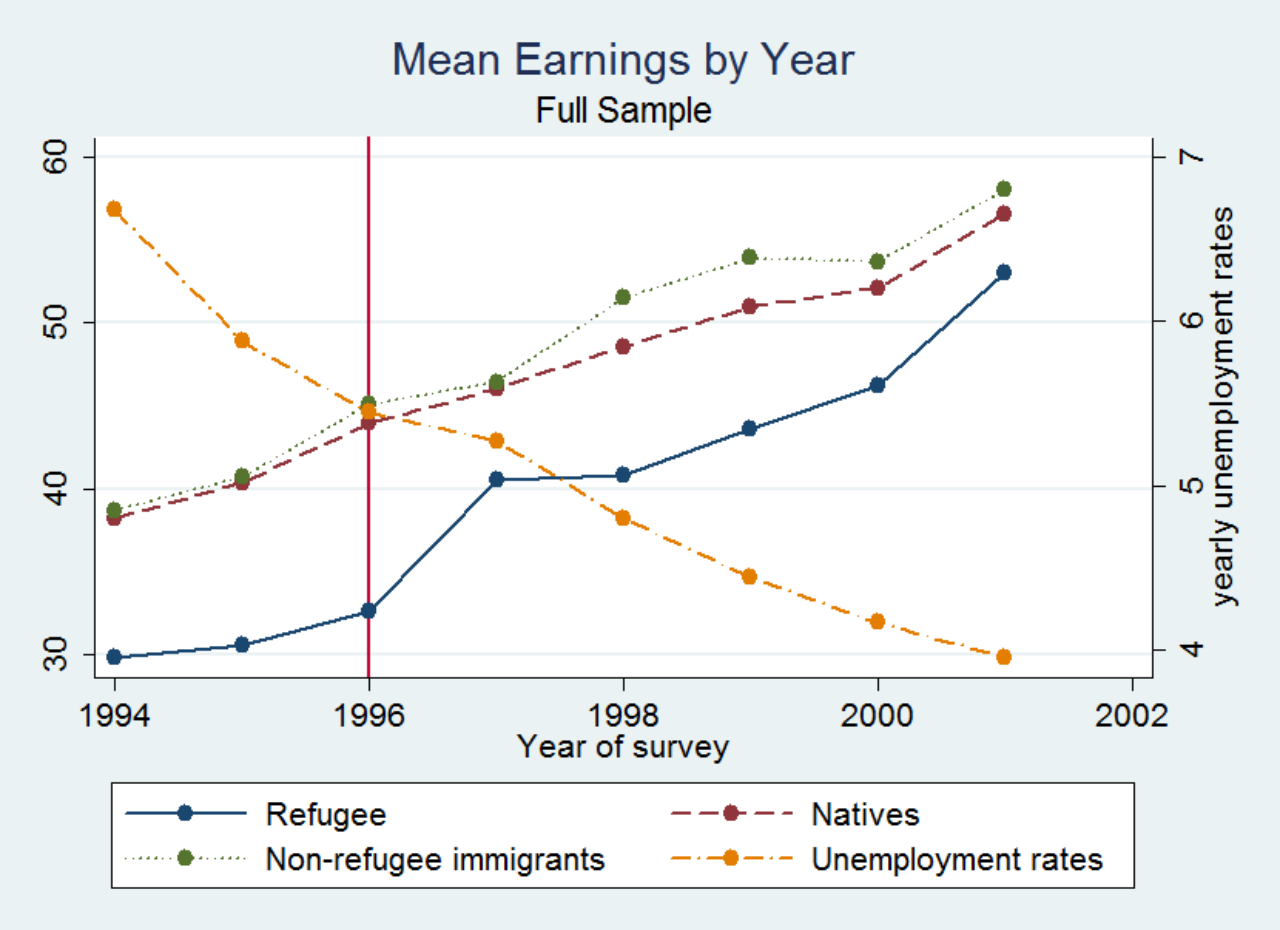

Mediciaid Participation Rates by Year
Using BH Imputation
Using Borjas Imputation
.1
.2
.3
.4
.5
4
5
6
7
Yearly unemployment rates
1994
1996
1998
2000
2002
Year of survey
refugee
natives
NR immigrants
overall rate
unemployment rates
Source: 1994-2001 CPS March Supplement

Figure 3:



Notes: The above figure graphs yearly mean family earnings for refugees, non-refugee immigrants and natives in thousands of dollars. The figure above is based on the full sample including those above the 200% poverty level
Source: 1994-2001 CPS March Supplement.

Figure 4:

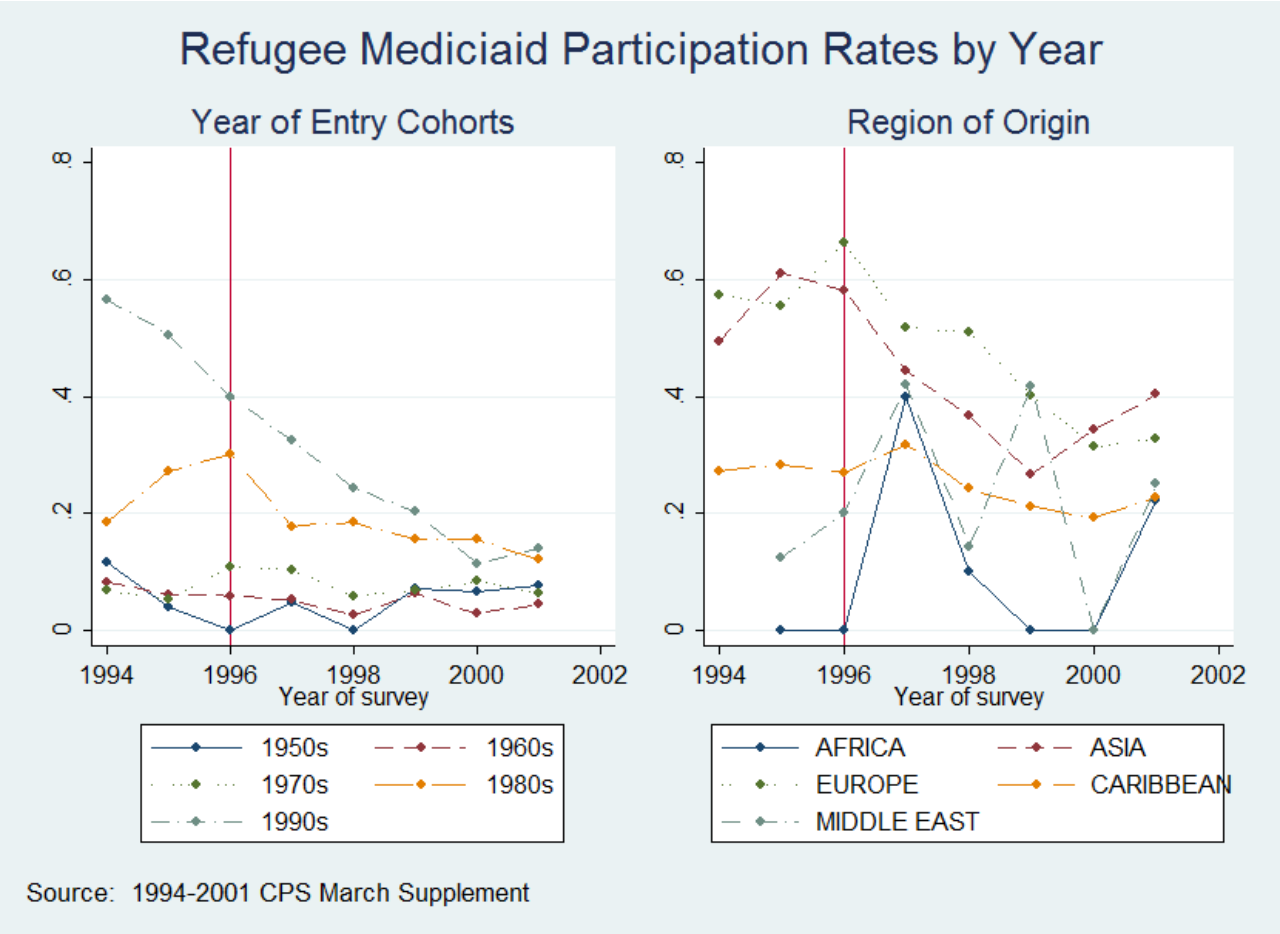
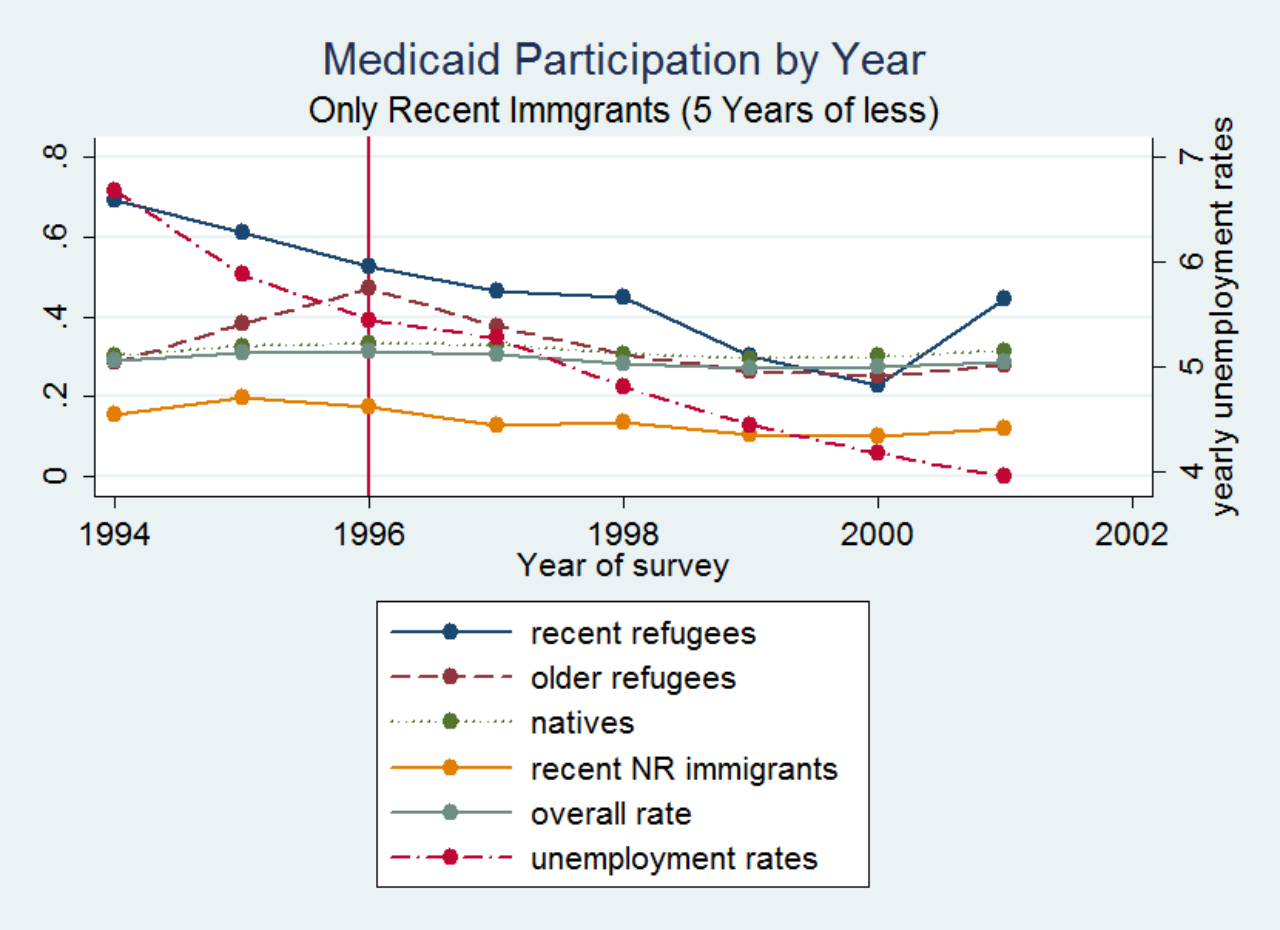

Refugee Mediciaid Participation Rates by Year
Year of Entry Cohorts
Region of Origin
0
.2
.4
.6
.8
1994
1996
1998
2000
2002
Year of survey
1950s
1960s
1970s
1980s
1990s
AFRICA
ASIA
EUROPE
CARIBBEAN
MIDDLE EAST
Source: 1994-2001 CPS March Supplement

Figure 5:



Source: 1994-2001 CPS March Supplement.

Table 1: Weighted statistics on key variables pre and post-reform

	Pre-reform (1993-1996)	Post-reform (1997-2000)	Total
Variables	Col %	Col %	Col %
Medicaid			
Not covered by Medicaid	69.6	71.2	70.6
Covered by Medicaid	30.4	28.8	29.4
Private Health Insurance			
No private insurance	39.6	38.8	39.1
Private insurance	60.4	61.2	60.9
Gender			
Male	47.1	46.7	46.9
Female	52.9	53.3	53.1
Marital status			
Married	25.7	24.4	24.9
Widowed	1.9	2	2
Divorced	8	8.4	8.3
Separated	3.4	3	3.2
Never Married	61.1	62.1	61.7
Education			
Less than high-school	59.7	58.9	59.2
High-school graduate	22	22	22
Some college	10.8	10.9	10.9
Associate degree or higher	7.5	8.1	7.8
Residential Location			
Not MSA	25.4	23	24
MSA	74.6	77.0	76
Race			
White	72.1	72.3	72.2
Black	22.3	22.2	22.2
American Indian	1.2	1.7	1.5
Asian	3	3.8	3.5
Other	1.5	0	0.6
Hispanic			
Not of Hispanic origin	79.3	77	
Of Hispanic origin	20.7	23	22.1
Immigration Status			
Refugee	1.1	1.1	1.1
Non-refugee Immigrant	12	13.2	12.7
Native	86.8	85.7	86.1
Total (n=317,984)			

***Notes*:** The figures above are weighted using individual March CPS weights, and thus nationally representative. The above sample includes individuals, who are at the time of the interview below 65 years of age and below poverty level. The sample size reported here is different from the one used in the regression analysis, since the latter is not weighted.

Source: Current Population Survey- March Supplement

Table 2: Weighted Statistics Before and After Welfare Reforms by Immigration Status

	Proportionate change in Medicaid participation		Proportionate change in those covered by private insurance		Proportionate change in households living below 200% of poverty level		Full labor force participation among households below 200% of Poverty Level	
Immigration Status	pre-reform (1994-1996)	post-reform (1997-2001)	pre-reform (1994-1996)	post-reform (1997-2001)	pre-reform (1994-1996)	post-reform (1997-2001)	pre-reform (1994-1996)	post-reform (1997-2001)
Refugee	0.51	0.35	0.39	0.41	0.54	0.42	0.28	0.37
Non-refugee Immigrant	0.18	0.15	0.38	0.38	0.51	0.44	0.43	0.46
Native	0.32	0.31	0.64	0.65	0.33	0.30	0.26	0.26
Total (n=317,984)	0.30	0.29	0.6	0.61	0.35	0.31	0.28	0.29

Notes: The table shows proportionate changes in some key variables in the period before and after the welfare reforms of 1996. The figures above are weighted and thus nationally representative. The sample used in the table above is the same as Table 1.

Source: Current Population Survey- March Supplement

Table 3: Marginal Effects at the Mean for Medicaid Participation from Multinomial Logit Models

Variable	Base Model 1	Base Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Non-refugee(NR) Immigrants	-0.125***	-0.103***	-0.125***	-0.100***	-0.085***	-0.102***	-0.102***
	(0.007)	(0.011)	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)
Refugees	0.141***	0.374***	0.245***	0.375***	0.347***	0.678***	0.252***
	(0.022)	(0.027)	(0.038)	(0.027)	(0.035)	(0.023)	(0.045)
Post Welfare Reform Period	-0.010***	-0.012***	-0.000	-0.009	0.027***	-0.011***	0.030***
	(0.003)	(0.003)	(0.004)	(0.006)	(0.003)	(0.003)	(0.006)
Post Reform and Refugee Interaction	-0.105***	-0.087***	0.027	-0.088***	-0.031	-0.063***	0.043
	(0.019)	(0.023)	(0.035)	(0.023)	(0.037)	(0.026)	(0.039)
Deviations from mean unemployment rate			0.008***				0.003***
			(0.001)				(0.001)
NR Immigrants and Unemployment Interaction			0.015***				0.017***
			(0.004)				(0.004)
Refugees and Unemployment Interaction			0.059***				0.030***
			(0.009)				(0.010)
Refugee and Duration in US interaction		-0.011***	-0.011***	-0.011***	-0.011***	-0.011	-0.011***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
State is generous to immigrants				0.013*			0.025***
				(0.007)			(0.007)
Requires TANF applicants to conduct job searches				-0.003			-0.022**
				(0.011)			(0.011)
Offers lump sum payment diversion				-0.016***			-0.014**
				(0.007)			(0.007)
Family earning (in 1000 of $)					-0.021***		-0.021***
					(0.000)		(0.000)
Refugee and annual state federal expenditure per refugee interaction						-0.081***	0.064**
						(0.011)	(0.030)
Demographic variables	NO	YES	YES	YES	YES	YES	YES
State fixed effects	NO	YES	YES	YES	YES	YES	YES
N	283602	283602	283602	283602	283602	281806	281806

Notes: The marginal effects reported above are in reference to the probability of being covered by Medicaid, relative to no insurance. Demographic variables in the control include age, number of children and indicators for residence in metropolitan area, marital status, education levels, veteran status, race, Hispanic origin and gender. The sample excludes all individuals living in the state of Wyoming, and immigrants from Central America and Mexico who are 40 years or older and have less than high school level of education. The latter criterion for exclusion attempts to purge the sample of undocumented immigrants. **The** Respective standard errors for the estimates are reported directly below in parenthesis. *** denotes significance at the 1% level, ** at 5% and * at 10% significance level

Table 4: Marginal Effects at the Mean for Medicaid Participation from Multinomial Logit Models

Variable	Base Model 1	Base Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Non-refugee(NR) Immigrants	-0.064***	-0.013	0.029	-0.008**	-0.026	-0.008	0.008
	(0.008)	(0.011)	(0.013)	(0.012)	(0.012)	(0.012)	(0.013)
Refugees	-0.211***	-0.345***	-0.249***	-0.349***	-0.339***	-0.330***	-0.276***
	(0.017)	(0.019)	(0.032)	(0.021)	(0.021)	(0.023)	(0.038)
Post Welfare Reform Period	0.007***	0.015***	0.002	-0.008	-0.030***	0.011***	-0.034***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.006)
Post Reform and Refugee Interaction	0.066***	0.080***	-0.053	-0.060**	-0.008**	0.042	-0.068
	(0.027)	(0.027)	(0.038)	(0.028)	(0.032)	(0.031)	(0.040)
Deviations from mean unemployment rate			-0.009***				-0.005***
			(0.001)				(0.001)
NR Immigrants and Unemployment Interaction			-0.020***				-0.023***
			(0.004)				(0.004)
Refugees and Unemployment Interaction			-0.058***				-0.028**
			(0.010)				(0.012)
Refugee and Duration in US interaction		0.010***	0.010***	0.010***	0.010***	0.010***	0.010***
		(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)
State is generous to immigrants				-0.008			-0.022***
				(0.007)			(0.007)
Requires TANF applicants to conduct job searches				0.008			0.027**
				(0.011)			(0.011)
Offers lump sum payment diversion				0.011*			0.009
				(0.007)			(0.007)
Family earning (in 1000 of $)					0.021***		0.021***
					(0.000)		(0.000)
Refugee and annual state federal expenditure on refugees interaction						0.042	0.049
						(0.031)	(0.031)
Demographic variables	NO	YES	YES	YES	YES	YES	YES
State fixed effects	NO	YES	YES	YES	YES	YES	YES
N	283602	283602	283602	283602	283602	281806	281806

Notes: The marginal effects reported above are in reference to the probability of being covered by private insurance, relative to no insurance. The above estimates are from the same models estimate in table 3. *** denotes significance at the 1% level, ** at 5% and * at 10% significance level

Table 5: Gelbach Decomposition Estimates for Model 3

Medicaid	Coef.	Std. Err.	z	P>|z|	[95% Confidence Interval]	
Refugee * Reform			Model 3			
State Level Variables	-0.009	0.004	-2.480	0.013	-0.016	-0.002
Demographic	-0.025	0.008	-3.250	0.001	-0.041	-0.010
Local Unemployment	-0.088	0.011	-7.730	0.000	-0.110	-0.065
Total Change	-0.122	0.014	-8.770	0.000	-0.150	-0.095

Notes: The above Gelbach decomposition estimates explain how much of the total change in the refugee Medicaid participation in the post reform period can be attributed to changes in the above factors. The estimates above use Model 1 as the base model and Model 3 as the full model.

Table 6: Gelbach Decomposition Estimates for Model 7

Medicaid	Coef.	Std. Err.	z	P>|z|	[95% Confidence Interval]	
Refugee * Reform			Model 5			
State Level Variables	-0.021	0.008	-2.540	0.011	-0.037	-0.005
Demographic	-0.023	0.010	-2.280	0.023	-0.043	-0.003
Local Unemployment	-0.037	0.011	-3.490	0.000	-0.059	-0.016
Family Earnings	-0.056	0.011	-4.850	0.000	-0.078	-0.033
Total Change	-0.137	0.019	-7.350	0.000	-0.174	-0.100

Notes: The above Gelbach decomposition estimates explain how much of the total change in the refugee Medicaid participation in the post reform period can be attributed to changes in the above factors. The estimates above use Model 1 as the base model and Model 5 as the full model.

7 Appendix A: Robustness of Results

7.1 Empirical Strategy

The robustness of the above results is examined across multiple dimensions and functional forms. a changing demographics of the refugees. One possible area of concern with all the above regression analysis is that one of the main right hand side variables of interest is an imputed variable (refugee status). While I argue that the identification technique used in this paper is a novel addition to the literature, the ramifications of using an imputed variable is still a concern. For completeness, I re-estimate the models for both the samples using the full maximum likelihood specification outlined in Bollinger and Hagstrom (2008). In their model for Food Stamp participation the authors modify a probit specification to make use of the refugee probabilities estimated from the INS dataset itself. As such the regression analysis is free of any imputation. The new estimated model is given by:

$$Pr\{Medicaid = 1\} = F(D_i\beta + \gamma I_i + \delta)Pr\{R_i = 1\} + F(D_i\beta + \gamma I_i)Pr\{R_i = 0\}$$

Where F() is the cdf of a normal and Pr(Ri=1) is the probability of an immigrant being a refugee calculated from the INS dataset. The above model can be estimated using maximum likelihood methodology. Estimates from the model are reported in *table A2*. The coefficients from the above regression are not marginal effects and thus cannot be directly compared to those of the linear probability model. For the purpose of checking the robustness of the results in the earlier section, however, the signs and magnitude of the coefficients in table 9 may be used as guides. The coefficients confirm the same overall findings from the earlier models. The raw difference in refugee Medicaid participation pre- and post-welfare reforms is completely explained by individual, household, local, and state-level observables. Furthermore none of the welfare reform variables is a significant predictor of refugee Medicaid participation.

8 Appendix B: Comparing the Immputation Methods

The BH and Borjas immputation methods classify 7705 and 10604 immigrants from the dataset as refugees, respectively. A total of 342 refugees, identified using the BH method, come from countries other than the 13 used to immpute refugee status in the Borjas method. Finally 3241 of the refugees identified by the Borjas method are classified as non-refugees using the BH method.

In imputing refugee status, there are two types of possible measurement errors; one could impute a non-refugee immigrant as a refugee (henceforth referred to as type 1) or incorrectly classify a refugee as a non-refugee immigrant (type 2). In the following exercise, I demonstrate that both types of errors are lower for the BH imputation method compared to the Borjas method. *Table A3* shows a list of countries that are considered to be refugee-sending countries based on one or both the imputation methods for the time period 1986-87.

The second and third columns list the number of immigrants that are imputed as refugees using the BH and Borjas methods respectively. The fourth column lists the country-specific means of predicted probabilities for immigrants being refugees. The fifth column is derived from the statistical yearbooks published by the INS. It lists the ratio of refugees to total immigrants from a given country in the given time period. Poland, for instance, was the source country for the 78 immigrants who came to the US in 1986-87 and were interviewed in the CPS. Based on columns four and five, roughly 40% of the immigrants from Poland in the time-period arrived as refugees. Using the Borjas method all 78 immigrants are classified as refugees even though more than half were likely to be non-refugee immigrants. The BH imputation method, which takes into account the year, age at entry, and gender classifies only 15 of the immigrants from Poland as refugees, thus reducing the type 1 error. Again, based on columns four and five, almost forty percent of the immigrants from Iran were refugees. The Borjas method fails to identify any one of sixty-two Iranian immigrants in the CPS as refugees. The BH method on the other hand identifies seven refugees from the country which suggests that compared to the BH method there is relatively greater type 2 errors in the Borjas method[1]. The impacts of the differences in relative measurement errors between the two immputation methods are evident in the descriptive and regression analysis sections.

[1] An additional test was conducted on the performance of the two imputation methods using the NIS dataset. The two imputation techniques were used to predict refugee status and then compared to the actual refugee identifier in the dataset. The low number of refugees present in the NIS dataset led to both methods over predicting the number of refugees in the dataset. In relative terms however the BH method was more accurate than the Borjas method. These results are not presented in the paper but are available upon request.

Table A1: List of Variables

Variable	Definition
Individual Level observables	
Insurance	Categorical variable equals 1 if individual is covered by Medicaid, 2 if by private insurance and 3 if by no insurance.
Age	Age of the individual
Square of age	Square value of the individual's age
Marital Status	Categorical variable indicating marital status
Education	Categorical variable indicating an individual's completion of less than high-school, high-school, some college and associate college or higher level of education
Army veteran	Dummy variable equals 1 if individual is an Army veteran
Race	Categorical variable indicating White, Black, American Indian, Asian or some other race
Of Hispanic origin	Dummy variable equals 1 if individual identifies being of Hispanic origins.
MSA	Dummy variable equals 1 if individual leas in an MSA
length of stay in the US	Continuous variable derived the CPS, estimates the number of years since immigration for international immigrants.
Female	Dummy variable equals one if the individuals is a female
Probability of being a refugee	The estimated probability that a given immigrant in the March CPS is a refugee
Refugee probability greater than or equal to 0.5	Dummy variable equals 1 if a given immigrants is considered a refugee using the BH imputation method.
Refugee status by Borjas Method	Dummy variable equals 1 if a given immigrants is considered a refugee using the Borjas imputation method.
Immigrant	Dummy variable equals 1 if the individual arrived in the US form a foreign country of birth after year 1950.
Non-refugee immigrant (BH method)	Dummy variable equals 1 if individual is an immigrants but not a refugee per the BH method

Non-refugee immigrant (Borjas method)	Dummy variable equals 1 if individual is an immigrants but not a refugee per the Borjas method
Total number of children under six	Continuous variable measuring number of children in the family.
Family level variables	
Total number of children between 7 and 18	Continuous variable measuring number of children in the family between the ages of 7 and 18
Below 200% of poverty level	Dummy variable equals 1 if the family income levels place the family 20% below the poverty level
Family income level	Categorical variable with 16 ranges of family Income values
State and local level variables	
Local unemployment levels	Yearly Unemployment rates at the local Metropolitan Statistical Area level
State requires TANF participants to complete job search	Dummy variable equals 1 if a given state requires TANF participants to complete job search. This variable is zero prior to reform.
State provides temporary lump sum amount to financially struggling families	Dummy variable equals 1 if a given state provides a temporary lump sum to financially struggling families. This variable is zero prior to reform.
State is considered generous	Dummy variable equals 1 if availability of immigrant safety nets in a given sate is considered to be "most available" or "somewhat available" and 0 if "less available" or "least available."

Source: **Current Population Survey- March Supplement**

Table A2: Regression Results from the MLE Model

MLE	Base line Models		Full Model	
Variable	19 state sample	All states except WY	19 state sample	All states except WY
Non-refugee(NR) Immigrants	**-0.457*** **	**-0.430*** **	**-0.530*** **	**-0.495*** **
	(0.025)	(0.022)	(0.047)	(0.038)
Refugees	**1.272*** **	**0.928*** **	**1.517*** **	**1.154*** **
	(0.084)	(0.061)	(0.145)	(0.105)
Post Welfare Reform Period	**-0.039*** **	**-0.051*** **	**0.105*** **	**0.058*** **
	(0.013)	(0.009)	(0.015)	(0.013)
Post Reform and Refugee Interaction	**-0.626*** **	**-0.417*** **	**-0.173**	**-0.002**
	(0.118)	(0.087)	(0.147)	(0.111)
Deviations from mean unemployment rate			**0.009*** **	**0.003**
			(0.003)	(0.003)
NR Immigrants and Unemployment Interaction			**0.010**	**0.007**
			(0.012)	(0.010)
Refugees and Unemployment Interaction			**0.071** **	**0.111*** **
			(0.030)	(0.027)
Refugee and Duration in US interaction			**-0.045*** **	**-0.038*** **
			(0.007)	(0.005)
Requires TANF applicants to conduct job searches			**-0.324*** **	**-0.031**
			(0.075)	(0.068)
Offers lump sum payment diversion			**-0.052**	**-0.058**
			0.460	0.402
State is generous to immigrants				**0.044** **
				(0.019)
Demographic variables	NO	NO	YES	YES
Unemployment Rates	NO	NO	YES	YES
TANF diversion programs	NO	NO	YES	YES
State fixed effects	NO	NO	YES	YES

Notes: **The regression table above reports coefficient estimates from an alternate MLE specification that utilizes the refugee probabilities. Coefficient estimates above cannot be interpreted as marginal effects. These estimates are used only for a comparative purpose. The magnitude, sign and statistical significance and their respective changes between the base and full models are consistent with the LPM models used in the main results.**

Estimates in the above table are printed in bold and their respective standard errors are reported directly below in parenthesis. * denotes significance at the 1% level, ** at 5% and * at 10% significance level.**

Source: **Current Population Survey**

Table A3: Comparing Imputation Methods

			Immigrants to the US (1986-1987)	
Country of Birth	Number of refugees by type 1 imputation	Number of refugees by type 2 imputation	Mean Refugee Probability	Total number of immigrants
Hungary	8	8	0.69	8
Poland	15	78	0.38	78
Romania	25	25	0.68	25
Soviet Union	44	44	0.8	44
Armenia	3	-	0.53	5
Cambodia	16	16	0.92	16
Laos	44	44	0.97	44
Afghanistan	1	1	0.88	1
Iran	7	-	0.39	62
Thailand	8	23	0.35	23
Vietnam	95	95	0.81	95
Malaysia	1	-	0.11	6
Ethiopia	5	7	0.59	7
Pacific Islands	2	-	0.17	15
Cuba	22	55	0.51	55
total	296	396		