

## **Compensation or Retrenchment?**

### **The Paradox of Immigration and Public Welfare Spending in the American States**

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#### **Abstract**

By employing American state-level data from 1999 to 2008, this paper explores how the recent immigrant influx has influenced public welfare spending in the American states. By integrating the race/ethnicity and globalization compensation theory, I hypothesize that immigration will increase welfare spending in states with a bleak job market and exclusive state immigrant welfare policy; in contrast, immigration will decrease welfare spending in states with a good job market and inclusive state immigrant welfare policy. Empirical tests show evidence for both hypotheses, suggesting that the applicability of general political science theories depends on a combination of state policy and economic contexts.

Key words: immigration, public welfare spending, globalization compensation, race and ethnicity, state immigrant welfare policy, state labor market condition

The United States has witnessed an increasing number of immigrants over the past four decades, with its foreign-born population quadrupling from 1970 to 2007 (Census, 1999; Census, 2007). Today, with a 13% foreign-born population, the U.S. continues to receive roughly 1.25 million immigrants each year. The demographic composition of the post-1970 immigrant influx is quite different from the existing American population, with a majority of the newcomers in this wave from Central and Latin America and more than a third of them undocumented and relatively low-skilled (Passel, 2005; see also Card, 2009). This immigration wave has caused profound changes to the economic and political landscapes of the U.S., including the American welfare state.

So far, much of what we know about immigration and the American welfare state is limited by discussions surrounding race and ethnicity (for an example see Hero & Preuhs, 2007). Numerous previous studies have shown that higher proportions of racial minorities such as African Americans are associated with less generous welfare provisions at the state and community levels; an important reason is that white Americans' perception of blacks being overrepresented in the welfare system lowers their support for welfare (Quadagno, 1994; Gilens, 1996, 1999; Alesina & Glaeser, 2004). Immigration influxes in the U.S. with a racial overtone have also reduced welfare generosity in American states (Hero & Prehus, 2007).

What previous American politics literature has largely overlooked is the possibility that American workers exposed to immigration might experience job and income losses and demand more social welfare. Indeed, globalization compensation scholars in Comparative Political Economy (CPE) literature have long suggested that globalization, whether it be trade or international migration, brings workers together from around the globe to compete with one another, causing increased unemployment and income losses for lower-skill workers in developed countries.<sup>1</sup>

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<sup>1</sup> Although existing empirical studies testing globalization compensation theory has primarily focused on trade and capital openness, immigration as an important component of globalization has a similar effect on the labor market in developed countries.

Consequently, these workers will demand more welfare protection, creating more incentives for democratic governments to spend on welfare (Cameron, 1978; Garrett, 1995, 1998; Rodrik, 1998; Burgoon, 2001; Schmitt & Starke, 2011).

An intriguing question remains unanswered: how do the race/ethnicity theory and the globalization compensation theory interact with each other to explain immigration's impact on the American welfare state? On the one hand, race/ethnicity theory suggests a negative association between immigration and welfare spending because Americans fear immigrants will abuse welfare. On the other hand, globalization compensation theory predicts immigration will increase welfare spending because immigrant-induced job and income losses boost public demand for welfare compensation. In this paper I argue that whether or not the two theories are applicable to a particular context depends on two important conditions: whether immigrants are entitled to welfare benefits in a certain state and whether immigrants will cause job losses among domestic workers. I take advantage of the wide variation in U.S. state policies and labor market conditions to explore how these two seemingly opposite theories work together to explain the effect of immigration on public welfare spending.

I argue that immigration has a positive effect on welfare spending in states with a bleak job market (i.e., job markets with an already high unemployment rates) and exclusive immigrant welfare policy (i.e., state welfare policies that largely exclude immigrants as welfare recipients). This is because in states with an already bleak job market, immigrant labor will likely hurt domestic workers' job prospects, leading to more demand for welfare compensation; however, immigrant-induced anti-welfare backlash is low because immigrants are largely excluded from the welfare system. With high levels of demand for welfare compensation and low levels of anti-welfare backlash, welfare spending should grow.

In contrast, immigration should have a negative effect on welfare spending in states with a good job market (i.e., job markets with low unemployment rates) and inclusive immigrant welfare policy (i.e., state welfare policies that include immigrants as welfare recipients). This is because good labor markets in these states are better equipped to absorb immigrant workers without affecting domestic workers' job prospects and as a result citizens' demand for additional welfare compensation is low. However, immigrants taking welfare resources is a real concern for citizens, resulting in high levels of immigrant-induced anti-welfare backlash. With a low demand and high backlash against welfare, welfare spending will likely rollback.

In order to test these hypotheses, I utilize American state-level data during 1999-2008 to explore both the unconditional and conditional effects of immigration on welfare spending. Empirical evidence shows strong support for my hypotheses. The findings suggest that immigration, as a complicated social phenomenon, does not have an identical impact on the social welfare system across space and time; instead, how it affects the welfare state is dependent upon specific state political and economic contexts.

The structure of the paper is as follows. In section one, I discuss the implications of both race/ethnicity theory and globalization compensation theory on the immigration-welfare relationship. In section two, I propose that state immigrant welfare policy and labor market condition together make up important state environments that determine which theory prevails in a particular state context, based on which I develop some original hypotheses. Section three introduces data and methods that are utilized to test the hypotheses. Section four presents major findings and the last section offers some concluding remarks.

## **Immigration and Welfare Spending in the U.S.**

Race and ethnicity theory is perhaps the most recognized framework for understanding how immigration influences the welfare state, according to which immigration increases diversity, erodes social solidarity and as a result should reduce public welfare spending (Borjas & Trejo, 1990; Hero & Preuhs, 2007; Nannestad, 2007; Agrawal, 2008; Hainmuller & Hiscox, 2010). In addition to the race/ethnicity theory, globalization compensation theory could also shed light on the discussion of immigration and welfare, which suggests that immigration could result in economic risks and increase the incentives for governments to spend more on welfare compensation.

### **Race/Ethnicity Theory**

Scholars have long associated racial/ethnic diversity with downward pressures on the welfare state (Gilens, 1999; Alesina & Glaeser, 2004; Banting & Kymlicka, 2004; Habyarimana, Humphreys, Posner, & Weinstein, 2007; Hero & Preuhs, 2007). For instance, in the United States, scholars argue that an important reason why Americans dislike welfare is because they believe blacks disproportionately benefit from the welfare system (Quadagno, 1994; Gilens, 1996, 1999; Luttmer, 2001). Empirical evidence has shown that U.S. communities, cities and states with higher levels of racial diversity have lower levels of public support for welfare and less generous public goods provisions (Alesina, Baqir, & Easterly, 1999; Luttmer, 2001; Alesina & Glaeser, 2004). Similar evidence has also been found in countries and regions outside the US, such as Europe, Kenya and Uganda (Miguel, 1999; Alesina & Glaeser, 2004; Miguel & Gugerty, 2005; Habyarimana et al., 2007). Racial diversity has a downward pressure on the welfare state because individuals tend to be less altruistic to people who look different than themselves. Therefore, they are not likely to support public goods that benefit people from a different racial or ethnic group (Gilens, 1996, 1999). Another mechanism, arguably, is through politicians' manipulation (Alesina and Glaeser 2004). In order to gain support from the majority group, politicians can strategically sabotage certain minority

groups, frame them as undeserving and propose policies that could potentially marginalize these groups (Schram, Soss, & Fording, 2003; Alesina & Glaeser, 2004; Foster, 2008).

Immigration fits both of these explanations. Because they often “look,” “act,” and “sound” differently from native-born citizens, immigrants are easily recognized as members of an out-group.<sup>2</sup> As one of the marginalized groups, immigrants are often used as a target in political games. Since many immigrants are non-citizens without voting rights and political representation, their ability to oppose legislation is limited. For instance, in 1996 Congress passed legislation to bar immigrants from all federal-funded welfare programs in the first five years after their arrival, as they were accused of having abused the American welfare system.<sup>3</sup> Today, it is not rare for politicians and activists who oppose immigration reform to frame immigrants as hurting the economy by taking away jobs from Americans, increasing financial burdens of the government, increasing crime, illiteracy and interethnic conflicts. Scholars have shown that the general public indeed considers immigrants as the least deserving among all welfare recipients, and this pattern has been found to be universal across men and women, individuals with different ages, education, income levels and even cultures (van Oorschot, 1998; Appelbaum, 2001; van Oorschot, 2006).<sup>4</sup>

Considering the facts that immigrants are easily recognized as part of an out-group and that they are often framed and perceived as undeserving, it is fair to say that immigrant influxes could

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<sup>2</sup> The majority of immigrants entering the US after the 1970s came from Latin American and Asian countries. They are often deemed as “brown” or “yellow,” two large racial minorities in addition to blacks. Immigrants coming to the US often speak English with an accent or only speak their native language. In addition, it takes a long time for immigrants to become socially assimilated to the host society. Therefore, they often “look,” “act,” and “sound” differently from native-born citizens.

<sup>3</sup> For example, as early as 1978, the General Accounting Office published a report titled “Number of Newly Arrived Aliens Who Receive Supplemental Security Income Needs To Be Reduced” in which immigrants were accused to abuse the SSI program (U. S. General Accounting Office, 1978). A 1998 official report by the House of Ways and Means Committee reported that noncitizens had higher participation rates in food stamps, Medicaid and SSI than native-born citizens, which resulted in large outlays of federal funds and state funds (U. S. House of Representatives Committee on Ways and Means, 1998).

<sup>4</sup> Among all welfare recipient groups, elderly people are seen as the most deserving, followed by sick and disabled people, unemployed people, and the least deserving is immigrants (van Oorschot, 2006; van Oorschot, 1998; Appelbaum, 2001).

decrease the general public's support for public goods. Such lowered public support for welfare will very likely result in the retrenchment of government welfare spending in the long run (Page & Shapiro, 1983; Stimson, Mackuen, & Erikson, 1995; Erikson, MacKuen, & Stimson, 2002).

### **Globalization compensation theory**

Globalization compensation theory in the CPE literature offers well-established reasons for one to expect an opposite relationship between immigration and public welfare spending. Numerous previous studies find a positive association between globalization and the size of government spending because vulnerable individuals exposed to global competition will face growing economic insecurities and demand additional welfare compensation (Wood, 1994; Garrett, 1998; Burgoon, 2001; Hays, Ehrlich, & Peinhardt, 2002; Boix, 2004). Empirical evidence shows that in democratic countries, citizens' demand for welfare protection incurred by increasing global risks indeed results in more government spending on welfare (Cusack et al., 2006).

Immigration is an important component of globalization, and just like other globalization phenomenon such as trade, immigration brings workers in developed countries into direct competition with workers from less developed countries. In the U.S., many immigrants from developing countries tend to have lower levels of skills compared to average American workers (Borjas, 1994).<sup>5</sup> When they arrive to the U.S., they tend to concentrate in low-wage occupations and increase the supply of low-skill labor, leading to potential job losses and wage reductions for low-skill domestic workers (Borjas, 1994; Hanson, 2004). For instance, from 1998 to 2000, immigrants reduced the average annual salary of native-born Americans without a high school degree by 7.4% (Borjas, 2004). American labor markets with the strongest immigrant presence are found to have experienced the steepest decline in the wages of native-born low-skill workers (Topel, 1994). These

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<sup>5</sup> For instance, Census data show that 89% of the native-born Americans in comparison to 68% of the foreign-born population had a high-school degree or above in 2009 (Ryan & Siebens, 2012).



low-skill American workers whose jobs and incomes are affected by immigrant labor will demand more welfare protection, creating incentives for governments to spend more on welfare.

### **State Policy and Labor Market Condition as Moderators**

While race/ethnicity theory predicts a negative relationship between immigration and welfare spending, globalization compensation theory suggests a positive one. Which theory is more applicable to a particular context depends on whether or not the condition for each theory is met. The key condition for race/ethnicity theory is the general public's fear that immigrants will heavily rely on welfare, but the precondition for compensation theory is job losses and wage reductions among domestic workers caused by immigrant labor. These conditions, as key to the applicability of the two theories, do not always exist in specific state contexts. For instance, residents in states that largely exclude immigrants from their welfare system may not fear immigrants' reliance on welfare as much; states with a labor market in need of labor may be able to absorb immigrant workers without affecting domestic workers' conditions and hence the compensation theory may not apply. Therefore, state immigrant welfare policies and labor market conditions could together determine the applicability of these two competing theories in specific state contexts.

### **State Immigrant Welfare Policy**

American states vary from one another in how generously they include immigrants in their social welfare system. The 1996 Personal Responsibility and Work Opportunities Reconciliation Act (PRWORA) barred immigrants entering the U.S. after 1996 from all federal-funded welfare benefits, but allowed states to provide immigrants welfare benefits by using their own state funds. Following this federal reform, American states adopted different immigrant welfare policies, with some generously including immigrants in the social safety net but others less so. For example, right after the reform, five states (California, Connecticut, Maine, Minnesota, Washington) decided to include *all* legal immigrants in *all* major welfare programs *during and after* the five-year ban by using their own state

funds. However, states such as Alabama, Mississippi and Texas decided to exclude all post-PRWORA immigrants from their social safety net without providing any welfare *either during or after* the five-year ban. Other states stood in between these two extremes by offering some (but not other) types of welfare benefits to certain (but not all) types of immigrants.

Race/ethnicity theory suggests a negative effect of immigration on welfare spending because the public fears immigrants abusing the welfare resource pool designed for citizens. This negative effect should be more pronounced in states that generously include immigrants in the welfare system. In these states, more immigrants are eligible for various welfare benefits; native-born residents could learn from their daily experience, i.e., conversing with their immigrant acquaintances and reading or watching local news, about the fact that many immigrants in their states are using social welfare. As a result, the public will likely push their state governments to cut back welfare. In contrast, race/ethnicity theory should be less applicable in states that largely exclude immigrants from their social welfare programs. In these states, very few immigrants are eligible to participate in any welfare programs; therefore the backlash against the social welfare system due to immigrants should be smaller.<sup>6</sup>

### **State Labor Market Conditions**

Another important state context that conditions the immigration-welfare relationship is the state labor market condition. In the past two decades the overall American job market experienced high volatility, and American states had vastly different experiences in their labor market conditions.

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<sup>6</sup> One might argue that the generosity of welfare provisions in a state matters as well. Indeed, some states provide much more generous welfare benefits to their eligible residents than other states. For instance, Alaska provides a needy family of three \$923/month as TANF cash benefits, but Mississippi only provides \$170/month to a same family. Since the same level of cash benefits is given to both eligible citizen and immigrant families in a specific state, the level of cash benefits is not what state residents are most concerned about when it comes to fear of immigrants using welfare. Instead, it is how inclusive their state immigrant welfare policy is that matters more. In other words, if most or all immigrants are treated the same with citizens and included in the social welfare system, citizens in that state will fear the immigrants abusing welfare the most. Previous research also shows a strong positive association between immigrant welfare policy inclusivity and immigrants' welfare participation rates. In states that include immigrants in the social welfare system, a significantly higher participation rates will immigrants have (Zhu and Xu 2015). This paper only considers state-level immigrant welfare policy exclusivity as an important condition for race/ethnicity theory.

For instance, labor markets in states such as Michigan, Alaska, Mississippi, and California were hit hard by the recent recessions, resulting in an average unemployment rate of 6.3% or even higher for the past two decades (Bureau of Labor Statistics 2014). Yet, labor markets in states such as South Dakota, North Dakota, and Nebraska were relatively promising and their average unemployment rates stayed below 3.4% for the past two decades (Bureau of Labor Statistics, 2014).

According to the globalization compensation theory, immigration increases welfare spending because citizens experiencing job and income losses will demand more social welfare protection. This positive effect of immigration on welfare spending should be attenuated in states with a promising job market because good labor markets are better equipped to absorb immigrant workers into the labor force without affecting native-born workers' job prospects. Therefore, domestic workers will less likely demand additional welfare compensation. Yet, states with an already high level of unemployment will be limited in their ability to absorb immigrant labor without affecting low-skill American workers. In these states the influx of immigrant workers will increase the supply of low-skill labor and worsen domestic workers' economic conditions. As a result, American workers who experience job or income losses will demand more welfare compensation, creating an incentive for governments to increase welfare spending. Indeed, using survey data, Burgoon et al. (2012) find that individuals working in jobs with more competition from immigrants increase their support for government welfare spending to protect themselves from such risks and insecurities.

Both state immigrant welfare policy and labor market conditions moderate immigration's effect on welfare spending. These two contextual factors combine to make up the state environment that determines the applicability of the two theories. While the race/ethnicity theory predicts the backlash against welfare and should be more applicable in states where most immigrants are eligible for welfare, the compensation theory predicts demand for welfare and should be more applicable in states where unemployment is high and jobs are scarce. If we categorize state environments into

four scenarios based on these two state contextual factors, we can easily tell under which scenario race/ethnicity or compensation theory is most applicable. As Table 1 shows, there are four categories of state environments: (A) states with a bleak job market and inclusive immigrant welfare policy, (B) states with a bleak job market and exclusive immigrant welfare policy, (C) states with a good job market and inclusive immigrant welfare policy and (D) states with a good job market and exclusive immigrant welfare policy.

[Table 1 about here]

In states with a bleak job market and exclusive immigrant welfare policy (B in Table 1), when immigration increases, the demand for more welfare spending should be high because with high unemployment rates domestic workers' job prospects will be more likely hurt by immigrants, however the backlash against welfare spending should be low because immigrants are excluded from the welfare system in these states. Therefore, in these states welfare spending will most likely *expand* due to high demand but little backlash, and we should expect a *positive* relationship between immigration and welfare spending.

**H<sub>1</sub>:** *Immigration should lead to an increase in welfare spending in states with a bleak job market and exclusive immigrant welfare policy.*

In contrast, when states with a good job market and inclusive immigrant welfare policy (C in Table 1) witness increased immigration, the demand for more welfare spending should be low because their labor markets are more likely to absorb immigrant labor without affecting domestic workers, yet immigrant-induced backlash against welfare should be high because many immigrants can use welfare in these states. With low levels of demand and high levels of backlash, states will likely *cut* welfare spending and immigration is expected to have a *negative* effect on welfare spending.

**H<sub>2</sub>:** *Immigration should lead to a decrease in welfare spending in states with a good job market and inclusive immigrant welfare policy.*

In the other two scenarios (A and D in Table 1), the demand for more welfare and the backlash against welfare counter each other; thus there should be no clear indication whether or not welfare spending will decrease or increase. For instance, in states with a bleak job market and inclusive immigrant welfare policy, the demand for additional welfare is high because domestic low-skill workers are more likely to be affected by competition from immigrant labor in a job market with scarce jobs. At the same time the immigrant-induced backlash against welfare is also high because many immigrants are eligible for social welfare. Therefore, immigration should not have a clear effect on welfare spending with high levels of demand and high levels of backlash. In states with a good job market and exclusive immigrant welfare policy, the demand for more welfare spending is low because domestic workers are less likely to demand more welfare compensation with a good job market and the backlash against welfare is also low because most immigrants are excluded from the welfare system; therefore, immigration should not have a clear effect on welfare spending either.

**H<sub>3</sub>:** *Immigration should not have a clear effect on welfare spending in states with a bleak job market and inclusive immigrant welfare policy, or states with a good job market and exclusive immigrant welfare policy.*

## **Data and Methods**

To assess these hypotheses, I utilize pooled cross-sectional time-series (CSTS) data from 1999 to 2008. Broadly considered, I estimate state government welfare spending as a function of immigration, state immigrant welfare policy, state labor market conditions, the interactions between immigration and the two state contextual variables, as well as a set of socioeconomic control variables suggested by previous literature. Below I present variable specifications and modeling choices. Appendix 1 includes detailed data sources of all variables and Appendix 2 includes descriptive statistics of all variables.

## Dependent Variable

Public Welfare Spending. Previously, both public welfare spending and AFDC/TANF cash benefit level were commonly used as measurements for social welfare at the American state level. While TANF/AFDC benefit level is typically used as an indicator of *state welfare generosity*, public welfare spending is used to capture the *overall state welfare effort* (Matsubayashi & Rocha, 2012, 604). Public welfare spending better serves the purpose of hypotheses testing in this paper for two reasons. First, TANF cash benefit level is a policy-based measure that rarely changes over time. For example, in the examined 10-year period, 21 states never changed their TANF cash benefit level for a family of three and another 16 states only adjusted their benefit level *once*. Yet, public welfare spending not only varies across states but also changes annually within a state. Using a dependent variable that is largely invariant does not suit panel data analyses, especially the dynamic error correction models.<sup>7</sup> Second, TANF cash benefit level for a family of three only captures the generosity of one aspect of welfare compensation and overlooks other types of compensation such as unemployment benefits and medical assistance for the poor. Yet, welfare spending used in this paper is a broader definition of welfare expenditures and actually includes benefits and expenditure paid under welfare programs such as TANF, Old Age Assistance, Medicaid, as well as other need-based welfare programs. Given that the core theory of this paper argues that governments are motivated to compensate more because of the increasing needs from vulnerable citizens, public welfare spending is a more appropriate measure because it captures a wide range of need-based welfare programs.

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<sup>7</sup> . Data diagnoses in this paper point to the dynamic error correction models (ECM) as an appropriate model specification. Since the ECM uses the first-difference of welfare as the dependent variable, using an indicator with little variation over time has the tendency of making most observations of the dependent variable zero. Indeed, 421 out of the 498 (85% of) observations for  $\Delta$  TANF cash benefit for a family of three are zero. Therefore, TANF cash benefits level does not suite panel data analyses especially the dynamic error correction models.

Because of these advantages, I use the percentage of state government welfare spending in gross state product (GSP) as a measure of the dependent variable.<sup>8</sup> I divide the total amount of federal and state dollars spent on major welfare programs by gross state product so that the measure for the overall size of the state public welfare system is comparable across states and over time. Data on public welfare spending and GSP are both collected from State and Local Government Finance, Census Bureau. State government welfare spending contains the total amount of dollars-whether it be federal or state dollars-being spent on welfare programs administered by each state government.<sup>9</sup> Figure 1 below shows the percentage of welfare spending in all American states in two years-1999 and 2008. As one can see, states vary greatly from one another in their redistribution efforts. In 2008 welfare expenditure in Vermont was up to 5.5% of its GSP, while in Colorado only an equivalent of 1.9% of its GSP was spent on public welfare. Among all American states, New Mexico experienced the greatest increase (from 2.3% in 1999 to 5.2% in 2008), while North Dakota actually experienced a decrease from 1999 to 2008 (from 2.9% in 1999 to 2.7% in 2008).

[Figure 1 about here]

## Independent Variables

Foreign-born population. I use the percentage of foreign-born population in the total state population as a measure of immigration. Foreign-born population in this case includes legal

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<sup>8</sup> TANF cash benefit for a family of three is still used as an alternative dependent variable in a robustness check. The results are included in the online *Supplemental Information*. Due to the fact that 85% of the observations of the dependent variable are equal to 0, the findings are largely null findings.

<sup>9</sup> After the 1996 PRWORA, the federal government still provides a significant amount of funds for major welfare programs such as TANF, food stamps and Medicaid, but the funds are transferred to the state governments to be spent on welfare recipients in their state. Every year, the State Government Finance Division at the Census Bureau surveys each state government on their public welfare expenditure. According to the State Government Finance Division documentation and staff member, the public welfare expenditure item includes spending in the following five areas: (1) federal and state government spending on three major welfare programs-TANF, SSI, Medicaid, (2) cash payments to individuals contingent upon their need, (3) vendor payments for medical assistance and health care, (4) payments to non-medical vendors on behalf of low-income or other means-tested beneficiaries, and (5) provision, construction and maintenance of governmental welfare institutions (See U.S. Bureau of Census, 2009, 5-60—5-67).

permanent residents, temporary legal foreign-born aliens, undocumented immigrants and naturalized citizens. Figure 2 below shows the percentage of foreign-born population in 50 states in 1999 and 2008. As one can see, California had the highest percentage of foreign-born population in both 1999 and 2008 (i.e., 30.4% in 1999 and 33.5% in 2008). West Virginia had the lowest percentage of foreign-born population in both years (1.1% in 1999 and 2009). Data on foreign-born population are collected from Current Population Surveys (CPS).<sup>10</sup>

[Figure 2 about here]

State Immigrant Welfare Policy. The state immigrant welfare policy variable captures the inclusivity of a state's immigrant welfare policy. To create this measure, I consider whether or not each state provides different types of immigrants (i.e., legal permanent residents, refugees, asylees, battered immigrants, nonqualified or undocumented aliens) TANF cash assistance before and after the five-year ban set by the federal government. The online *Supplemental Information* includes a discussion of the eight policy aspects being considered for this immigrant welfare policy variable and their coding schemes. Data on all eight policy aspects are collected from surveying various documents and the Urban Institute Welfare Rules Database (Tumlin, Zimmermann, & Ost, 1999; Zimmermann & Tumlin, 1999; The Urban Institute, 2014). I code each of the eight policy aspects as 1 if the state government provides assistance to this type of immigrants and 0 otherwise, and then generate an additive score and a factor score based on these eight policy aspects. The additive score is correlated with the factor score at a .99 level. For simplicity reasons I use the additive score as the measure for this variable, which ranges from 0 to 8, with a higher value indicating a more

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<sup>10</sup> The Census Bureau also reports the number of foreign-born population but only in census years. Therefore, for the examined time period, Census data are only available for two years: 2000 and 2010. The correlation between the census-reported % foreign-born population and the CPS-reported % foreign-born population for 50 states and 2 years is 0.976.



generous/inclusive state immigrant welfare policy and a lower value indicating a more restrictive/exclusive immigrant welfare policy.

State Labor Market Condition. I use the state unemployment rate as a measure of the labor market condition for the state years. States with lower unemployment rates are considered to have better job prospects than states with higher unemployment rates. From 1999 to 2008, state-level unemployment rates ranged from 2.2% to 8.3%. I consider any state years with an unemployment rate of 3.2% or lower as having a good job market, and those with an unemployment rate of 6.2% or higher as having a bleak job market. The same criterion is used for both the marginal effect figure (Figure 3) and the predicted value figure (Figure 4) below. Data on unemployment rates are collected from Bureau of Labor Statistics (BLS).

In order to capture the conditional effects of state immigrant welfare policy and state labor market condition on the relationship between immigration and welfare spending, I also include the following two-way and three-way interaction terms in the model: foreign-born population  $\times$  state immigrant welfare policy, foreign-born population  $\times$  state labor market condition, and foreign-born population  $\times$  state immigrant welfare policy  $\times$  state labor market condition. State labor market condition  $\times$  state immigrant welfare policy is excluded from the model because the theory only suggests conditional effects of the contextual variables on the relationship between immigration and welfare spending, but does not suggest a conditional effect between the two contextual variables themselves.

## **Control Variables**

State Government Ideology. The Power Resources Theory (PRT) argues that countries with strong left parties who represent working and middle classes' interests will have a more generous welfare state (Stephens, 1976; Korpi, 1978; Huber & Stephens, 2001; Bradley, Huber, Moller,

Nielsen, & Stephens, 2003; Huber, Nielsen, Pribble, & Stephens, 2006). Based on this theory, I use state government liberalism created by Berry et al. (1998) as the measure of state government ideology. This measure is based on the weighted ideological orientation of state-level legislators and the governor and ranges from 0 to 100, with higher values indicating a more liberal state government. Previous studies have successfully used this measure to test the power resource theory in the American states (see Kelly and Witko, 2012).

Mass liberalism. I also control for mass liberalism because voters' liberal-conservative orientation could also affect the overall welfare generosity (Erikson, Wright, & McIver, 1993). I use the measure created by Pacheco (2011), the share of voters who identify with a liberal ideological orientation, as the indicator of mass liberalism.

Union density. According to the power resource theory, labor unions are another organization that represents the working class's interests. Therefore, I argue that stronger labor unions will contribute to a more generous welfare state. I include a union density variable, which measures the % of nonagricultural wage and salary employees (including public-sector employees) who are union members, and the data are collected by Hirsch (2012) from the Bureau of Labor Statistics (BLS) and the Current Population Survey (CPS).

Black population. Scholars argue that states with large black populations tend to have lower levels of public spending (Brown, 1995; Soss, Schram, Vartanian, & O'Brien, 2001; Fellowes & Rowe, 2004; Hero & Preuhs, 2007). Therefore, I include the percentage of African Americans among the total state population as a control variable.

Female labor force participation. Nielsen and Alderson (1997) and Treas (1987) show that female labor force participation can equalize family incomes. When women, especially women from lower-income families, join the labor force, families' reliance and demand for means-tested welfare

programs will be reduced. In other words, female labor force participation should have a negative effect on public welfare spending. Data on female labor force participation are collected from the Statistics Abstract of the Census Bureau.

Real per capita income and income growth. According to Wagner (1877; see also Lowery and Berry, 1983), economic affluence explains government spending growth, in that governments in richer states spend more. Following Burgoon (2001) and Rudra and Haggard (2005), I include both real per capita income and real per capita income growth rate as control variables and expect that both of them have a positive long-term effect on public welfare spending. Data on these two variables are collected from the Bureau of Economic Analysis.

Income Inequality and % Poor. According to Moene and Wallerstein (2001), income inequality is an important determinant for redistribution. Low-income individuals are also more likely to demand more welfare spending. Therefore, I include state-level income inequality and % state population under the poverty line as a control variable and expect both variables to have a positive effect on welfare spending.

## **Methods**

I utilize cross-section-time-series panel data analyses to explore the multivariate relationship between immigration and state-level welfare expenditure. The panel unit root analyses show that the dependent variable, state government public welfare expenditure, is non-stationary. The Westerlund error-correction-based panel cointegration tests show that cointegration between the dependent variable and the core independent variables is detected (Westerlund, 2007; Persyn & Westerlund, 2008). Considering that the dependent variable is non-stationary and that cointegration is diagnosed, I use the dynamic model specification—Error Correction Model (ECM)—to model the *first-order*

*change* in public welfare spending as a function of *lagged* welfare spending, a *lagged* term and a *first-order difference* term of all the independent variables and control variables (Banerjee, Dolado, Galbraith, & Hendry, 1993; De Boef, 2001; De Boef & Keele, 2008). In addition, I apply panel-corrected standard errors (PCSEs) to correct both cross-state heterogeneity and contemporaneous correlation (Beck & Katz, 1996; Beck, 2001). A detailed data diagnosis can be found in the online *Supplemental Information*.

## Results

I estimate two models to explore the unconditional and conditional effects of immigration on public welfare. Table 2 Model (1) presents the base model, in which I only include the key independent variable and all the control variables, while Model (2) also includes all the interactions.

[Table 2 about here]

As one can see, in Model (1), Foreign-born population<sub>t-1</sub> (b=-.005; SE=.002) has a negative and significant effect on the dependent variable, which indicates that foreign-born population has a significant long-term effect. This long-term effect of foreign-born population, according to De Boef and Keele (2008), is reflected by the coefficients of Foreign-born population<sub>t-1</sub> (b=-.005; SE=.002) and Welfare Spending<sub>t-1</sub> (b=-.037; SE=.025), and I calculate it as -.14.<sup>11</sup> After controlling for other factors, a one-unit increase (i.e., one percentage point increase) in foreign-born population stocks will result in a *decrease* in public welfare spending by .14 units (i.e., .14 percentage point) in the long run.

In Model (2), I added all the interaction terms including four two-way interactions between immigration and the state contextual variables and two three-way interactions. As one can see in this model, the coefficients of two independent variables including an interaction term (i.e.,  $\Delta$  Unemployment rate, Foreign-born population<sub>t-1</sub>  $\times$  Unemployment rate<sub>t-1</sub>) achieved statistical

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<sup>11</sup> Following DeBoef and Keele (2008), the long-term effect =  $(-.005) / -(-.037) = -.14$ , which is reflected by the coefficients of Foreign-born population<sub>t-1</sub> (b=-.005; SE=.002) and Welfare Spending<sub>t-1</sub> (b=-.037; SE=.025).

significance. Because coefficients in an interaction model are difficult for direct interpretation, I use Figure 3 to show the marginal effects of immigration on change of welfare spending conditional on the two state contextual variables (Brambor, Clark, & Golder, 2006). Figure 3 (a) shows the marginal effect of immigration in states with bleak job markets, and here I define bleak job markets as state years with unemployment rates of 6.2% or higher.<sup>12</sup> Among states with bleak job markets, we observe that immigration has a positive marginal effect in states also with exclusive immigrant welfare policies, and the positive effect is statistically significant when a state has an immigrant policy index smaller than 1.2. This observation shows support for Hypothesis 1, which postulates that immigration should lead to an increase in welfare spending in states with a bleak job market and exclusive immigrant welfare policy because public demand for welfare spending in these states is high but anti-welfare backlash is low. We also observe that the positive marginal effect is attenuated once states adopt more inclusive immigrant welfare policies. When the immigrant welfare policy index is larger than 1.2, the marginal effect of immigration cannot be differentiated from zero.

Figure 3 (b) shows the marginal effect of immigration in states with good job markets, and here I define good job markets as state years with unemployment rates at 3.2% or lower. As one can see, immigration has a negative marginal effect on change in welfare spending, and this negative effect is statistically significant when states have an immigrant welfare policy index larger than 2.3. In other words, states with good job markets and inclusive (or even moderately inclusive) immigrant welfare policies will actively cut welfare spending. Figure 3(b) shows strong support for Hypothesis 2, which suggests that immigration should lead to a decrease in welfare spending in states with a

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<sup>12</sup> Unemployment rate ranges from 2.2% to 8.3% for the entire sample, and I consider any state years with an unemployment rate at 6.2% or above as having a bleak labor market, while states years with an unemployment rate at 3.2% or below as having a good labor market. These two values are selected based on the 10<sup>th</sup> and 90<sup>th</sup> percentile values of unemployment rates. The reason why I choose 10<sup>th</sup>/90<sup>th</sup> percentile values instead of 25<sup>th</sup>/75<sup>th</sup> percentile values is that the examined time period was in between the dot-com economic boom and the great recession and had a relative moderate range of unemployment rates. For example, although only 35 state years had unemployment rates at 6.2% or above during 1999-2008, in 2009 alone (i.e., when the great recession began) 46 out of 50 states had an unemployment rate at 6.2% or higher. In other words, a much higher percentage of state years will fit the “good/bleak labor market” definitions when we look at a longer time period.

good job market and inclusive immigrant welfare policy because the demand for welfare is low but the backlash against welfare is high.

[Figure 3 about here]

To further gauge the effect of immigration on welfare spending in different state environments, I use the *Clarify* program (Tomz, Wittenberg, & King, 2003) to simulate the predicted change in welfare spending and show the results in Figure 4. I drew four separate figures to reflect immigration's effect on welfare spending in four different contexts reflecting the categorization in Table 1. Figure 4(A), (B), (C), and (D) below respectively show the predicted change in welfare spending across a full range of Foreign-born population<sub>t-1</sub> in four different contexts corresponding to state environments A, B, C, and D in Table 1<sup>13 14 15</sup>.

[Figure 4 about here]

For example, Figure 4(B) shows the effect of immigration on change in welfare spending in type B states, i.e., states with a bleak job market and exclusive policy. Again, according to Hypothesis 1, foreign-born population should have a positive effect on welfare spending in these states, because public demand for welfare spending in these states is high but anti-welfare backlash is low. As one can see in Figure 4(B), in these states, the predicted change in welfare spending is positive, indicating that these states will expand welfare spending in the face of immigration. When type B states have a small foreign-born population, they will only increase welfare spending at a very moderate rate. For example, predicted change in welfare spending is only about 0.13 percentage points when type B

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<sup>13</sup> Same with Figure 3, I consider any state years with an unemployment rate at 6.2% or above as having a bleak labor market and states years with an unemployment rate at 3.2% or below as having a good labor market. I also choose the 10<sup>th</sup> and 90<sup>th</sup> percentile values to define exclusive versus inclusive immigrant welfare policies. The state immigrant welfare policy index ranges from 0 to 8 for the entire sample, and I counted any state year that has a policy index at 7 or 8 as having an inclusive policy, and any state year that has a policy index at 0 or 1 as having an exclusive policy. Based on such a categorization, a total of 24 state-year combinations fit the Type A states, 10 fit Type B, 29 fit Type C and 6 fit Type D.

<sup>14</sup> All the control variables are held at their means when graphing Figure 4.

<sup>15</sup> I drew the same figure when setting state immigrant welfare policy and unemployment rate at their 25<sup>th</sup>/75<sup>th</sup> percentile values (or mean+/-1 standard deviation). The results show similar patterns but the results for Type B states are less significant. The results can be found in the online *Supplemental Information*.

states have a foreign-born population that is close to 0. However, with increases in immigration, Type B states will more aggressively expand welfare spending. For instance, predicted change in welfare spending is 0.5 percentage points when type B states' foreign-born population is about 34% of the total state population. The confidence intervals of the two predicted values do not overlap, suggesting that the welfare expansion rate for states with 34% foreign-born population is significantly higher than states with nearly 0% foreign-born population. This finding shows empirical support for Hypothesis 1. Immigration influxes are thought to cause a public outcry for more welfare compensation due to increased competition in an already bleak job market, but at the same time the public resentment against welfare is low due to the fact that immigrants are largely excluded from the welfare system in these states.

Figure 4(C) shows the effect of immigration on welfare spending in Type C states, or in other words states with a relatively promising job market and inclusive policy. According to Hypothesis 2, foreign-born population should have a negative effect on welfare spending in Type C states, because the immigrant-induced public demand for welfare compensation is low and the immigration-induced anti-welfare backlash is high in these states. As one can see from Figure 4(C), when type C states have almost no immigrants, they will moderately increase welfare spending. The predicted change in welfare spending is about 0.2 percentage points when foreign-born population is close to 0. Yet, if type C states experience an increasing number of immigrants, they will reduce their efforts to expand welfare spending. When their foreign-born population exceeds 12%, type C states will stop expanding welfare spending<sup>16</sup>, and when the immigrant population exceeds 30%, type C states will begin cutting welfare spending. When foreign-born population approaches 34%, state governments will cut welfare spending by 0.15 percentage points. The confidence intervals for high

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<sup>16</sup> As one can see from Figure 4 (C), when foreign-born population exceeds 12%, predicted change in welfare spending becomes non-significant from 0 in type C states.

and low levels of immigration do not overlap, indicating predicted values of change in welfare spending are significantly different from one another. Taken together, evidence shown in Figure 4(C) also offers support for Hypothesis 2.

Turning to Figure 4(A) and 4(D), although both type A and D states see a negative association between immigration and change in welfare spending, the calculated difference in the dependent variable between high- and low-level foreign-born population environments for type A states is 0.093 with a confidence interval of (-0.079, 0.259). Because zero crosses the confidence interval, we are confident that immigration does not have a significant effect in this type of state environment. By the same token, I calculate the difference in the predicted values of change in welfare spending for high- and low-level immigration environments for type D states as 0.357 with a confidence interval of (-0.241, 0.859). Again, because zero crosses the confidence interval, immigration does not have a significant effect on welfare spending in type D states either.<sup>17</sup> The patterns found in Figure 4(A) and 4(D) are consistent with my theoretical speculation in Hypothesis 3 that immigration does not have a clear influence on welfare spending in these two state environments because the demand for more welfare and backlash against welfare counter each other.

Among the control variables, both State government ideology<sub>t-1</sub> (b=.001, SE=.000) and Mass liberalism<sub>t-1</sub> (b=.012, SE=.006) have a positive and significant long-run effect on the dependent variable, indicating that states with a more liberal state government or liberal mass will increase their efforts to expand welfare spending in the long run. Both findings are consistent with the power resource theory. While real per capita income has a positive short-term effect and negative long-term effect, per capita growth has a negative short- and long-term effect on change in welfare spending.

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<sup>17</sup> One can argue that the insignificant result in Figure 4(D) is due to a small sample issue. Indeed, only 6 states fit Type D state definition. Therefore, the authors should interpret the results in Figure 4(D) with caution.



## Discussion

This paper explores how immigration could have complex implications on the development of the American welfare state. In contrast to the common view that immigration is harmful for the welfare state, this paper provides an alternative perspective that immigrants might spur individual economic insecurities resulting in the state governments spending more on welfare compensation. Furthermore, although the race/ethnicity theory and globalization compensation theory predicts opposite relationships between immigration and welfare spending, I argue that it is the state contexts such as state immigrant welfare policies and state labor market conditions that may combine to determine which theory is applicable.

Empirical evidence based on data from the American states from 1999 to 2008 shows that immigration leads to reduced efforts at welfare expansion in states with a good job market and inclusive immigrant welfare policy. Presumably this is because good job markets can absorb immigrant labor without affecting domestic workers' employment and as a result, immigrant-induced public demand for welfare compensation will be low. However, the racial/ethnic backlash against social welfare will be high because many immigrants are eligible for various welfare benefits. In contrast, states with a bleak job market and exclusive immigrant welfare policy will accelerate their pace of welfare expansion, potentially because in these states the immigrant-induced public demand for welfare is high due to increased labor market risks. This is caused by immigration and the immigration-induced backlash against welfare is low considering that immigrants are excluded from the welfare system.

These findings have a few important implications for future research on immigration and welfare in the United States. First, this paper provides support for the race/ethnicity theory. In an important study, Hero and Preuhs (2007) find that states with a large immigrant population and inclusive immigrant welfare policy experience a rollback in their TANF cash benefit level. Although

their study focuses on the maximum TANF cash benefit and this study focuses on the overall size of the public welfare spending, both papers provide evidence to the powerful role of race and ethnicity in American politics.

Second, findings in this paper suggest that the impact of globalization on the American welfare state is understudied. While the CPE literature has long suggested the impact of globalization on the welfare state, previous studies on the American welfare state have downplayed the influence of globalization factors such as trade, foreign investment and immigration. This paper is one of the first research efforts demonstrating that globalization factors could influence the development of the American welfare state. Considering that 1999-2008 was *in between* a major economic boom (i.e., the dot-com boom) and the Great recession, most American states only experienced moderate levels of unemployment rates. Although only a few dozen state years examined in this paper fit the two hypothesized conditions, many more states could fit these criteria during economic downturns or booms. Therefore, findings from this paper have much broader implications for the development of the American welfare state. More than anything, this paper suggests future research consider the potential economic implications as well as the racial overtone of immigration on welfare spending (Lieske, 2012).

Third, immigration, as a complex social phenomenon, will likely not have a monotonic impact on the political and social landscape of the American states. When there are multiple mechanisms through which immigration can influence the American welfare state, scholars are encouraged to consider which mechanism works the best under a certain specific state contexts. As a first step, this paper presents some preliminary empirical evidence that state policies and labor market conditions could form state environments that condition the relationship between immigration and welfare spending. Future research is encouraged to verify findings of this paper and to explore other possible state contexts that matter.

Fourth, findings of this paper speak to “the rational public” thesis, or at least a rational politics thesis. Facing the large immigration influxes, state publics have to weigh their gains and losses in this game. On the one hand, they demand more welfare protection against economic risks and insecurities incurred by immigrants. On the other hand, the public considers immigrants as the most undeserving welfare recipients and is generally unwilling to provide welfare benefits to the newcomers. Despite the two contradictory outlooks of welfare, the American public seems, at least from the evidence shown in this paper, to be good at weighing their priorities. If their own employment opportunities are threatened by immigrant workers and they know that immigrants are excluded in the social welfare system in their states, they seem to have successfully pushed their states to expand welfare spending. On the other hand, if their job prospects are not threatened by immigrant workers but immigrants in their states are heavily relying on the welfare system, they will urge the states to reduce their efforts on welfare expansion.

This paper has some limitations that are worth noting. First, due to data limitation, the state immigrant welfare policy variable is only based upon immigrants’ eligibility for one major welfare program, TANF. Given that TANF is the major means-tested welfare program and that states are most likely consistent with their generosity to immigrants when making other welfare policies, it is reasonable to speculate that this policy variable based on TANF has high levels of validity. However, this paper could benefit from a more comprehensive policy variable based on immigrant eligibility for various welfare programs such as Medicaid, food stamps, and SSI. Second, state contextual variables such as the state immigrant welfare policy are treated as exogenous. Although similar models are used in previous research (Hero & Preuhs, 2007), third-variable problems could still be a potential issue in this type of analysis. Last but not the least, theories in this paper primarily focus on explaining how immigration influences public preferences of welfare but largely overlooks the supply side of the story. In other words, the mechanism through which governments respond to public preferences is not

closely studied in this paper.<sup>18</sup> Although existing studies on globalization compensation theory have commonly used theories based on public demand for spending to predict and test actual spending (Garrett, 2001; Garrett & Mitchell, 2001; Burgoon, 2001), readers of the paper should still caution the gap between the theories and empirical tests as a limitation of the study.

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<sup>18</sup> In a preliminary exploration of the immigration-welfare attitudes linkage, I employed public opinion data from the Cumulative American Election Survey (CANES) merged with state-level data on immigration, unemployment and policy exclusivity. Results from multilevel models suggest that immigration has a positive effect on support for welfare spending in states with a bleak job market and exclusive policy; yet, it has a negative effect on support for welfare spending in states with a good job market and inclusive policy. Although the effects were not significant due to small sample size issues, the direction of the effects show some support for the mechanisms documented in this paper.

Figure 1. Public welfare spending as a % of GSP (gross state products) in 50 states in 1999 and 2008

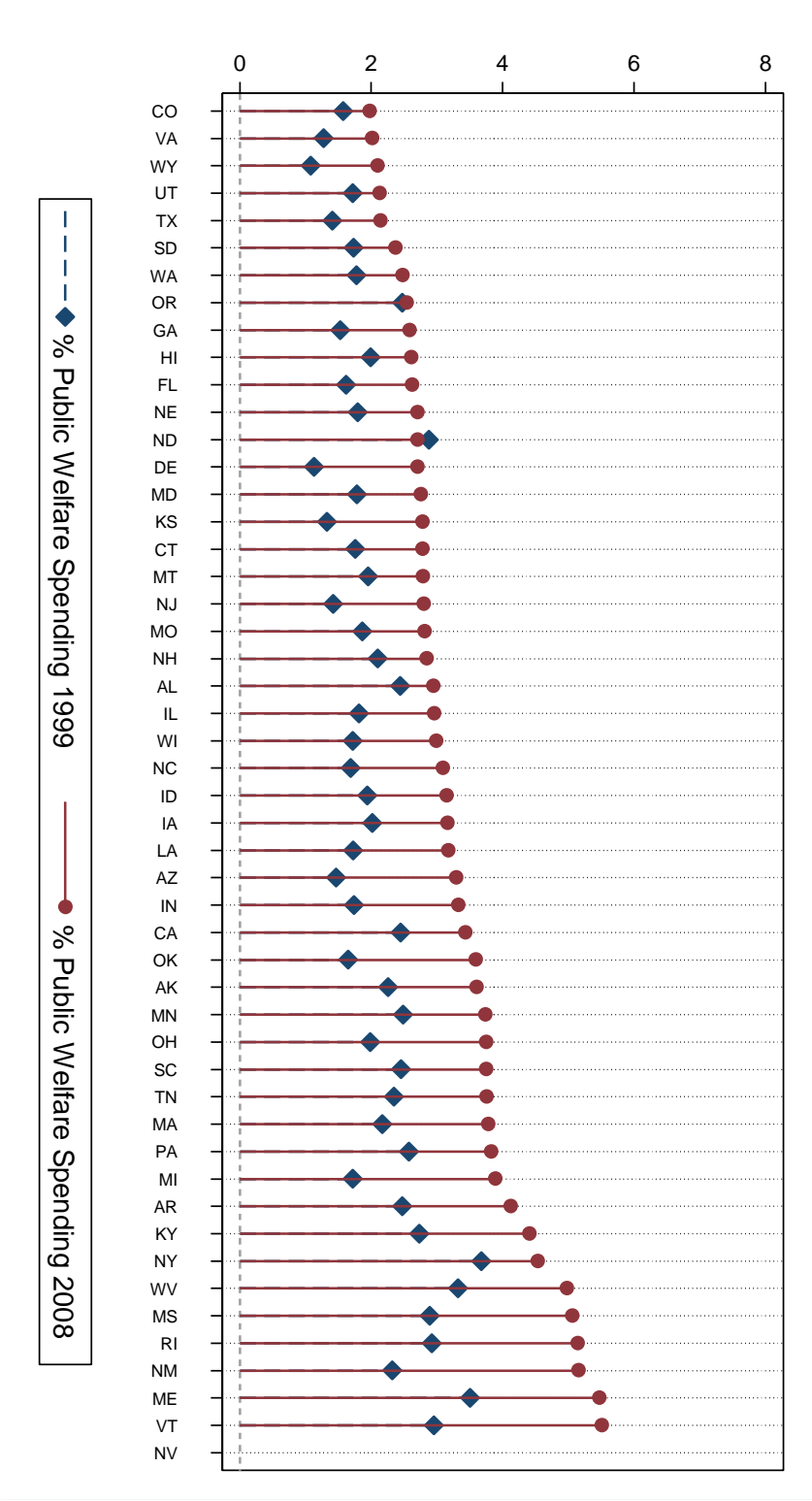


Figure 2. Foreign-born population as a % of total state population in 50 states in 1999 and 2008

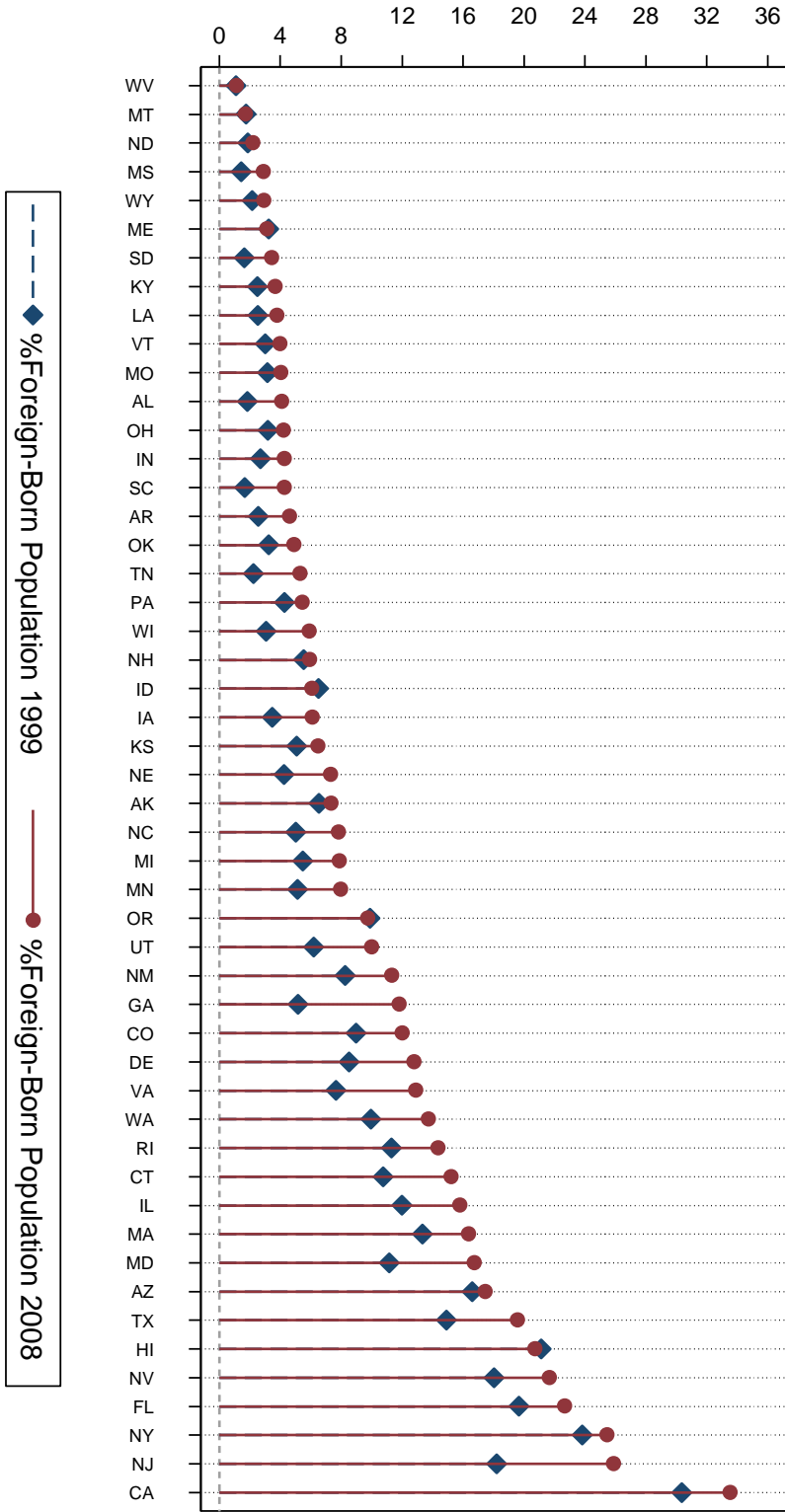
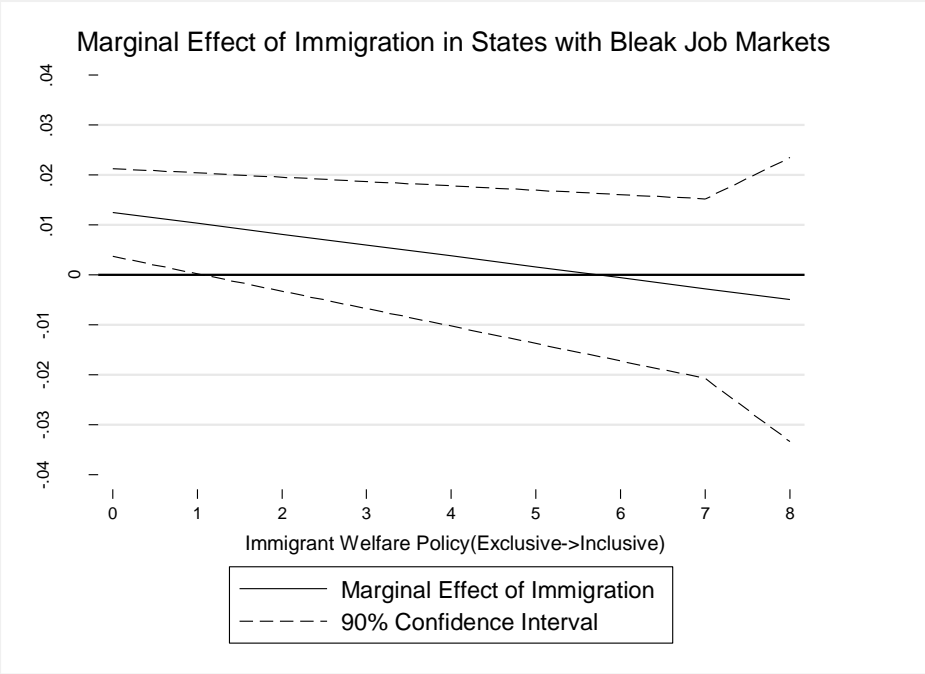
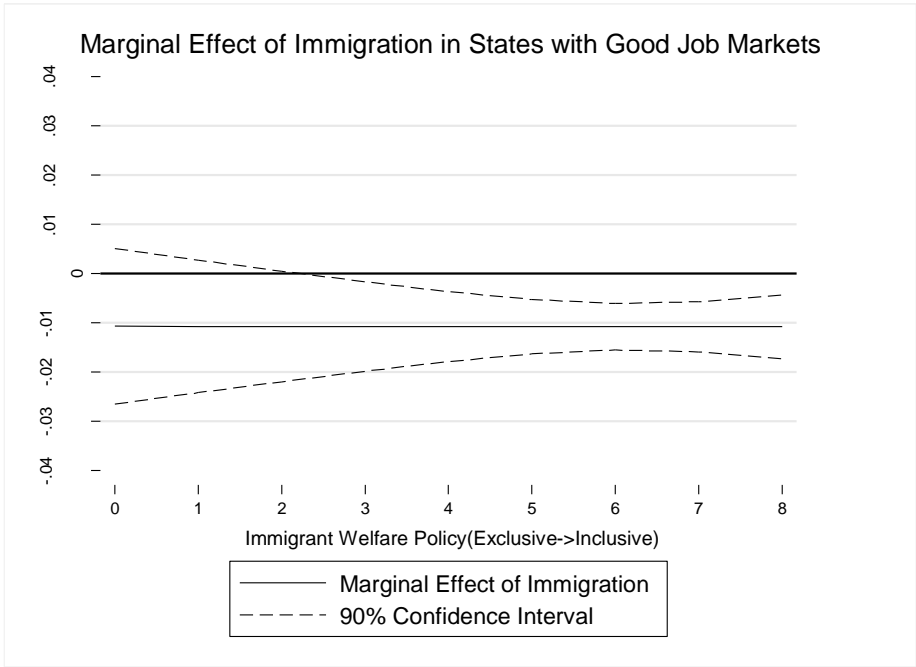


Figure 3. Marginal Effect of Immigration on Change in Welfare Spending Conditional on State Immigrant Welfare Policy and State Labor Market Conditions

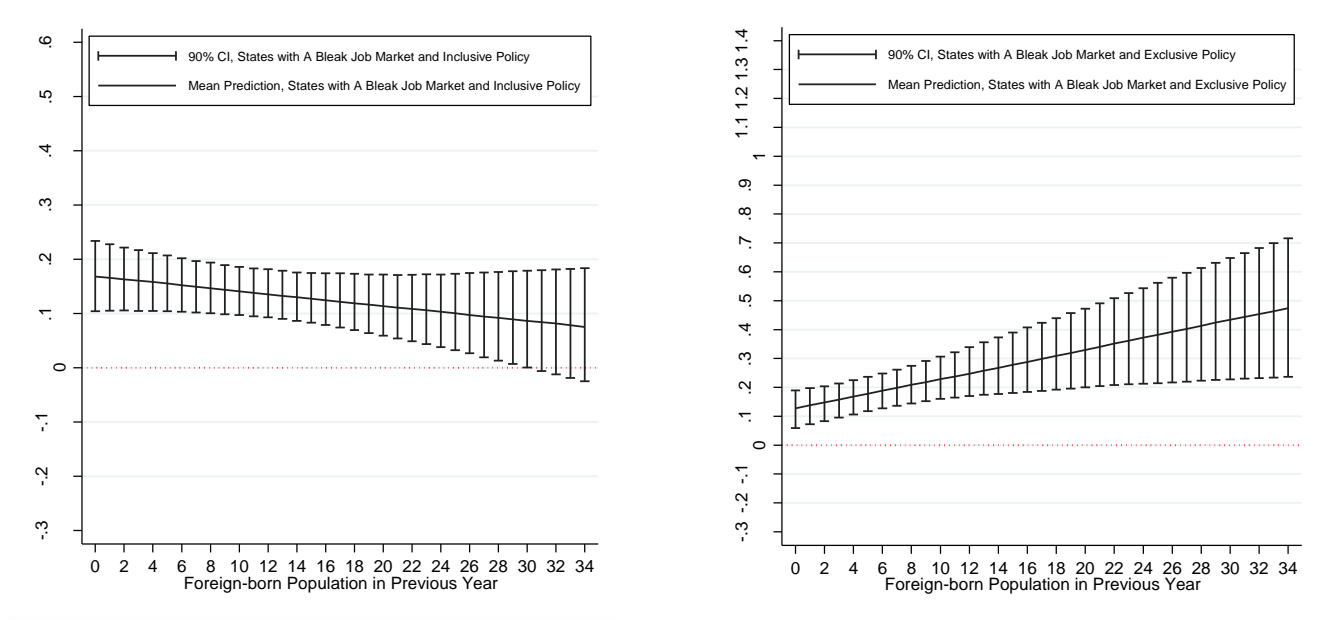


(a) States with Bleak Job Markets



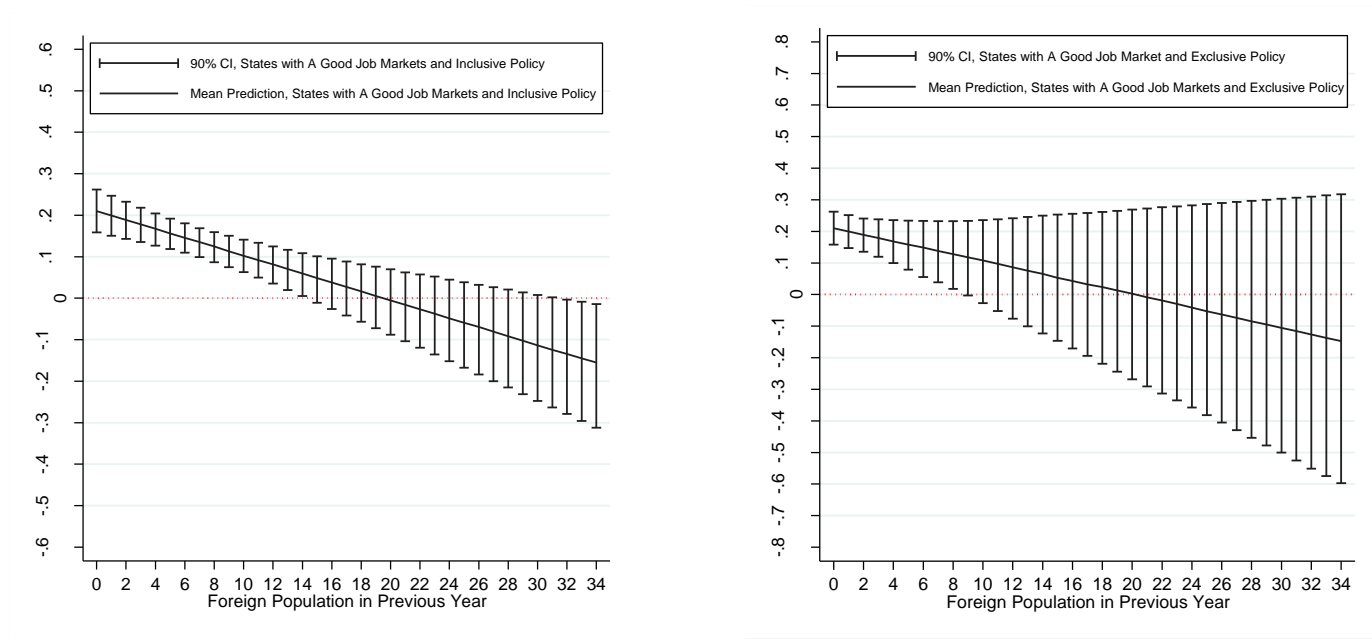
(b) States with Good Job Markets

Figure 4. Comparing Immigrants' effect on Public Welfare Spending in States with Different Contexts



(A) states with a bleak job market and inclusive policy

(B) states with a bleak job market and exclusive policy



(C) states with a good job market and inclusive policy

(D) states with a good job market and exclusive policy



Table 1. Combinations of State Immigrant Welfare Policy and Labor Market Condition as State Contexts

		State Immigrant Welfare Policy	
		Inclusive	Exclusive
Labor Market Condition	Bad	<b>(A)</b>  <b>High Demand for Welfare</b> <b>Strong Backlash against Welfare</b> (Example: California 2002-2004)  (Expected Null Finding)	<b>(B)</b>  <b>High Demand for Welfare</b> <b>Weak Backlash against Welfare</b> (Example: Mississippi 2005-2008; Texas 2003)  (Expected Positive Effect)
	Good	<b>(C)</b>  <b>Low Demand for Welfare</b> <b>Strong Backlash against Welfare</b> (Example: Hawaii 2005-2007; New Hampshire & Nebraska 1998 )  (Expected Negative Effect)	<b>(D)</b>  <b>Low Demand for Welfare</b> <b>Weak Backlash against Welfare</b> (Example: South Dakota 2000)  (Expected Null Finding)

Table 2: Immigration, State Immigrant Policy, State Labor Markets and Welfare Spending in American States, 1999-2008

	Model (1)		Model (2)	
	Coeff.	(SE)	Coeff.	(SE)
Welfare Spending <sub>t-1</sub>	-.037	(.025)	-.035	(.024)
Δ Foreign-born population	.007	(.014)	.011	(.016)
Foreign-born population <sub>t-1</sub>	-.005*	(.002)	-.035	(.022)
Δ Unemployment rate	.042*	(.017)	.050**	(.018)
Unemployment rate <sub>t-1</sub>	.008	(.012)	-.018	(.038)
Δ Foreign-born population × Δ Unemployment rate			-.016	(.038)
Foreign-born population <sub>t-1</sub> × Unemployment rate <sub>t-1</sub>			.008+	(.004)
Δ State immigrant welfare policies	-.000	(.008)	.005	(.010)
State immigrant welfare policies <sub>t-1</sub>	-.002	(.006)	.007	(.008)
Δ Foreign-born population × Δ State policies			-.006	(.011)
Foreign-born population <sub>t-1</sub> × State policies <sub>t-1</sub>			.002	(.003)
Δ Foreign-born population × Δ Unemployment rate × State policies <sub>t-1</sub>			.001	(.007)
Foreign-born population <sub>t-1</sub> × Unemployment rate <sub>t-1</sub> × State policies <sub>t-1</sub>			-.001	(.001)
Δ State Government Ideology	-.000	(.001)	-.000	(.007)
State Government Ideology <sub>t-1</sub>	.001*	(.000)	.001+	(.000)
Δ Mass liberalism	.008	(.007)	.008	(.007)
Mass liberalism <sub>t-1</sub>	.011+	(.006)	.012+	(.006)
Δ Union density	.008	(.010)	.007	(.010)
Union density <sub>t-1</sub>	-.001	(.002)	-.001	(.002)
Δ Female labor force participation	-.009	(.009)	-.009	(.009)
Female labor force participation <sub>t-1</sub>	-.002	(.004)	-.005	(.004)
Δ % black	.038	(.055)	.042	(.057)
% black <sub>t-1</sub>	-.000	(.001)	.001	(.001)
Δ Real per capita income	.258**	(.092)	.242**	(.085)
Real per capita income <sub>t-1</sub>	-.007*	(.003)	-.009**	(.004)
Δ Per capita growth	-.104**	(.034)	-.098**	(.032)
Per capita growth <sub>t-1</sub>	-.103**	(.035)	-.095**	(.032)
Δ Income inequality	-.153	(.560)	-.089	(.512)
Income inequality <sub>t-1</sub>	-.103	(.720)	-.408	(.729)
Δ Poverty	.008	(.008)	.006	(.008)
Poverty <sub>t-1</sub>	.010	(.006)	.006	(.006)
Constant	.497	(.396)	.758+	(.423)
N	441		441	
R-Square	.1319		0.1490	
Wald Chi-Square	115.19		137.63	

Significance levels: + 0.10 level, \* 0.05 level, \*\* 0.01 level, \*\*\* 0.001 level

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## Appendix 1. Description of Variables

Variable name	Definition	Data source
Welfare spending	State government welfare expenditure as a % of GSP	State and Local Government Finance, US Census ( <a href="http://www.census.gov/govs/state/">http://www.census.gov/govs/state/</a> )
Foreign-born population	Foreign-born population as a % of total state population	CPS, US Census (Email correspondence with CPS staff)
State immigrant welfare policy	Inclusiveness of immigrants in TANF, Medicaid and Food Stamps in each state and year	Urban Institute (2014), Email and phone surveys to state agencies
Unemployment rate	% of state population that are unemployed	US Census Bureau Statistics Abstract
State government ideology	Collective ideological orientation of state legislators and governors	Berry et al. (1996)
Mass liberalism	% of voters identifying with a liberal ideology orientation	Pacheco (2011)
Union density	% of nonagricultural wage and salary employees (including public-sector employees) who are union member	Hirsch (2012) from Bureau of Labor Statistics (BLS) and the Current Population Survey (CPS)
% Black	% of state population that are African Americans	US Census Bureau Statistics Abstract
Female labor force participation	% of employment among female civilian labor force	US Census Bureau Statistics Abstract
Real per capita income	Deflated per capita income	Bureau of Economic Analysis
Per capita growth	(Real per capita income in the current year-real per capita income in last year)/real per capita income last year	Bureau of Economic Analysis



## Appendix 2. Descriptive Statistics of Key Variables

Variables	No. of Obs.	Mean	Std. Dev.	Min	Max
Welfare Spending	441	2.83	0.89	1.18	5.51
Foreign-born Population	441	9.00	7.09	0.69	33.77
Unemployment Rate	441	4.83	1.16	2.20	8.30
State Immigrant Welfare Policy	441	5.17	2.11	0	8
State Gov. Ideology	441	50.43	27.92	0.00	97.81
Mass liberalism	441	20.68	3.89	10.46	33.17
Union Density	441	11.61	5.66	2.30	26.90
Female labor force participation	441	60.98	4.24	47.7	71.2
% Black	441	10.36	9.61	0.32	37.21
Real per capita income	441	35.50	3.61	28.31	46.63
Per capita growth	441	0.99	2.28	-4.67	16.57
Income inequality	441	0.41	0.02	0.35	0.47
% Poor	441	11.68	3.06	4.50	22.60

## Compensation or Retrenchment?

The Paradox of Immigration and Public Welfare Spending in the American States

## Supplemental Information

In this *Supplemental Information*, I present additional details for (1) coding scheme of the Immigrant Welfare Policy variable, (2) Cross Sectional and Time Series (CSTS) data diagnosis, (3) model results based on an alternative dependent variable—TANF cash benefits, (4) the conditional effect figures when setting state immigrant welfare policy and unemployment rate at their mean +/- 1 standard deviation and the 25<sup>th</sup> and 75<sup>th</sup> percentile values.

### **1. Details about the coding of Immigrant Welfare Policy**

The immigrant welfare policy variable measures whether or not state governments use their own funds to provide various types of immigrants with welfare benefits. Since TANF is the most important means-tested welfare program in the U.S., I use state rules on immigrants' eligibility for TANF cash benefits as a proxy for this variable. I have considered the following eight aspects of immigrant TANF eligibility rules when creating the variable: (1) whether or not states use their own funds to provide lawful permanent residents TANF benefits (note: lawful permanent residents are defined as individuals who have been admitted into the United States permanently), (2) whether or not states use their own state funds to provide other qualified aliens TANF assistance during the five-year bar set by the federal government (note: other qualified aliens refugees, asylees, individuals who have had their deportation withheld, parolees admitted for one or more years, certain battered aliens, Cuban/Haitian entrants, and aliens granted conditional entry before April 1, 1980), and (3) whether or not states provide TANF assistance to other nonqualified aliens during the five-year bar (nonqualified aliens include nonimmigrant aliens lawfully admitted for a temporary purpose or temporary residence, or undocumented aliens), (4) whether or not state provide TANF assistance to lawful permanent residents after the five-year bar, (5) whether or not state provide TANF assistance to asylees and refugees after the five-year bar, (6) whether or not states provide TANF assistance to deportees after the five-year bar, (7) whether or not states provide TANF assistance to parolees after the five-year bar, and (8) whether or not states provide TANF assistance to battered noncitizens

after the five-year bar. For each of the eight aspects, I code it as 1 if the state provides TANF assistance to immigrants in that specific category, and 0 otherwise. Then I added all eight scores together to create an additive score measuring the generosity of TANF welfare provisions to immigrants.

## **2. Cross Sectional and Time Series (CSTS) data diagnosis**

The Cross Sectional and Time Series (CSTS) data used in this paper contain 49 states and 10 years. In order to decide upon the most appropriate modeling strategy for the CSTS data used, I start with a basic OLS model, a Fixed Effect (FE) model and a Random Effect (RE) model. By comparing results from these three models, I point out that none of the three models are appropriate. I then investigate the temporal dependency, the cointegration and the characteristics of the error terms of the CSTS data, in order to decide upon whether an Error Correction Model (ECM) is appropriate. The investigation concludes that using panel-corrected standard errors (PCSEs) with the ECM suits the CSTS data.

### *(1). Comparing OLS, FE and RE Models*

The dependent variable used in this paper “welfare spending as a % of GSP” varies across states and over time. As one can see in Figure 1, welfare expenditure has generally increased over time, and there is notable variation among 49 states. Therefore the appropriate model has to be able to capture both the over-time and cross-state variation of the CSTS data. I start with a simple OLS model and compare the results with the Fixed Effect (FE) model and Random Effect (RE) model; the results of all three models are presented in Table 1. The OLS model assumes that the CSTS data are completely poolable, or in other words, the effects of the independent variables on the dependent variable stay the same across states and over time. If the effect varies across states and over time, then the coefficients in the OLS model will only represent the mean effect for 49 states and 10 years. Therefore, the OLS model could be problematic in estimating CSTS data with unit

heterogeneity and temporal heterogeneity. In order to show whether OLS is inappropriate, we estimate the FE model and compare the results with the OLS model. The FE model goes beyond OLS models by estimating unit-based effects; as shown in Model (2) of Table 1, the FE model includes a full set of state dummies (Greene, 2011; Allison, 2009; see also Zhu, 2012). Comparing results from the OLS assuming unit homogeneity and the fixed effect model assuming unit heterogeneity, we observe that the coefficients changed dramatically when we move from the OLS model to the FE model. Such differences suggest that our CSTS data are sensitive to model specification and the differences are due to the fact that the OLS model is unable to consider unit heterogeneity.

The FE model, although more accurate than OLS, is often criticized because they consume too much cross-sectional variation and cause null findings in our independent variables. As one can see from Model (2), the FE model has a between R-square of 1. This suggests that when we include state dummy variables in Model (2), these dummy variables have absorbed almost all of the cross-state variation. Unlike the FE models which include state dummies as regressors, the random effects (RE) model includes an intercept that can randomly deviate from a mean intercept. However, the RE model requires the random intercept and does not correlate with the left-hand-side variables; otherwise the estimation will be inconsistent and inefficient. We can use the Hausman test to evaluate whether the FE and RE models generate consistent and efficient results (Hausman, 1978). By comparing the results from the FE and RE model, the Hausman test generates a chi-square of 232.20 ( $p=0.000$ ), suggesting that the RE model is not consistent and generates biased estimations.

In sum, we discover that our data do not have complete poolability, thus OLS is not appropriate. The FE model absorbs almost all cross-state variation and the RE model does not generate consistent/efficient results; therefore both the FE and RE models are excluded from consideration.

Figure 1: Welfare expenditure as a % of GSP across 49 states and over 10 years

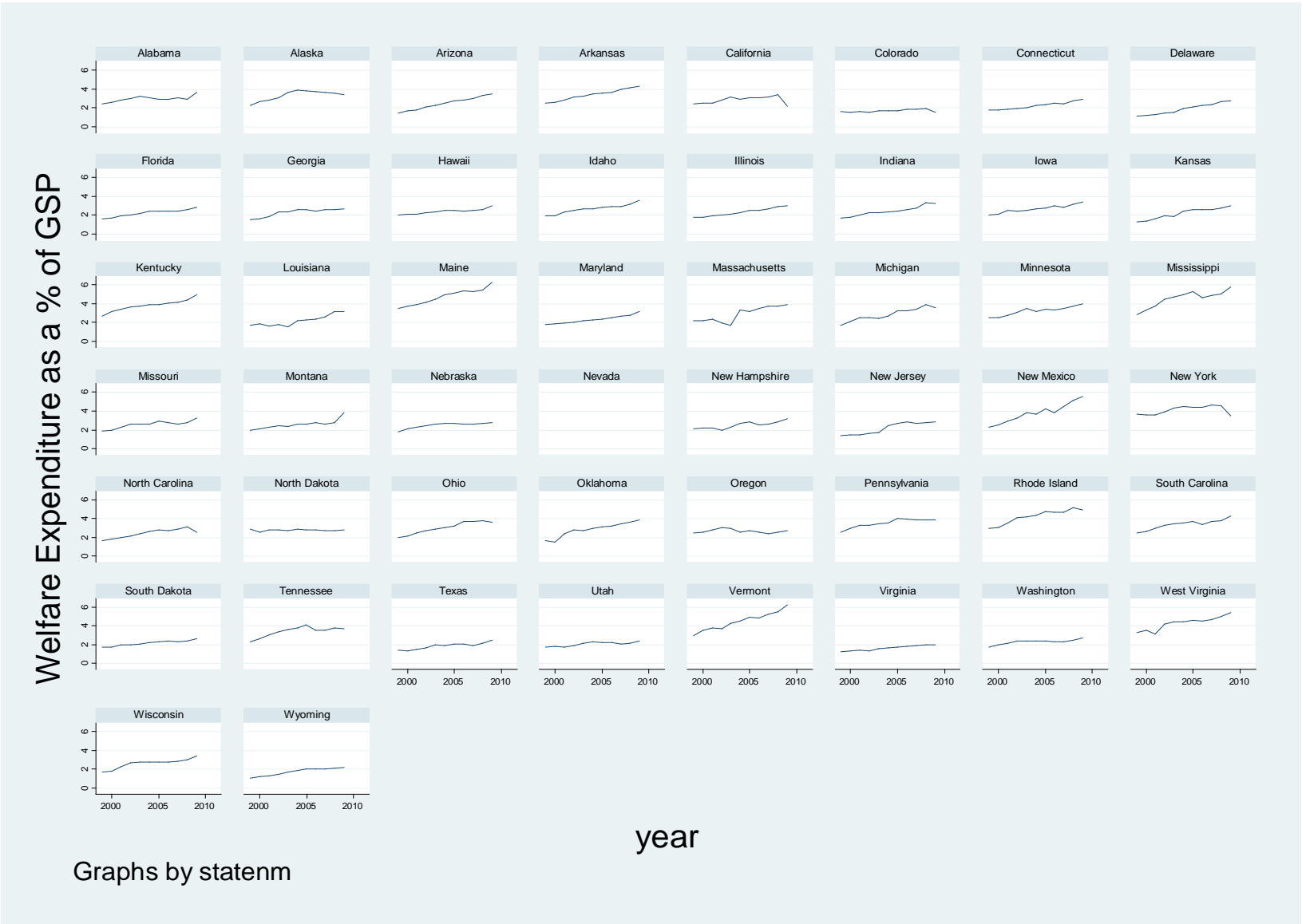


Table 1. Comparing OLS, Fixed Effect, and Random Effect Models

	(1) OLS		(2) FE with dummies		(3) Random Effects	
	Coeff.	(Std. Err)	Coeff.	(Std. Err)	Coeff.	(Std. Err)
Foreign-born population	-.032 ***	(.007)	.110 ***	(.018)	.031 *	(.012)
Unemployment rate	.178 ***	(.037)	.097 **	(.023)	.153 ***	(.026)
State immigrant welfare policy	.025	(.019)	-.010	(.012)	.018	(.014)
State government ideology	.008 ***	(.001)	.004 ***	(.001)	.005 ***	(.001)
Mass liberalism	.026 +	(.014)	-.002 ***	(.009)	-.012	(.010)
Union density	.016 +	(.008)	-.062	(.017)	-.047 ***	(.013)
Female labor force participation	-.016	(.012)	-.039	(.015)	-.049 ***	(.016)
% black	-.008 +	(.005)	.300	(.053)	.026 *	(.010)
Real per capita income	-.040 ***	(.012)	.089	(.013)	.096 ***	(.010)
Per capita growth	.053 **	(.017)	-.005	(.008)	.000	(.008)
Income inequality	3.38 +	(1.97)	-.260	(1.007)	1.052	(1.189)
Poverty	.063 ***	(.018)	.013	(.014)	.039*	(.015)
Constant	1.265	(1.206)	-6.242	(1.712)	1.210	(1.227)
N	490		490		490	
Within R Square			0.5877		0.4970	
Between R Square			1.0000		0.0187	
Overall R Square			0.8866		0.0090	

Significance levels: + p<0.1, \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

## (2). *Diagnosis of Temporal Dependency and Cointegration*

Earlier scholars such as Banerjee, Dolado, Galbraith and Hendry (1993) introduce ECM as an appropriate estimation technique for non-stationary and cointegrated time series data. More recently scholars such as DeBoef and Keele (2008) suggest that ECM could be used in a much wider range of scenarios. In order to check whether or not ECM is an appropriate modeling strategy, I diagnose whether or not the CSTS data used are a stationary and cointegrated process.

We can use the following equation to explain stationarity mathematically:  $Y_{i,t} = a \times Y_{i,t-1} + e_{i,t}$ . Here,  $Y_{i,t}$  is the current value of variable Y, while  $Y_{i,t-1}$  is the past value for variable Y. If  $|a| < 1$ , the time series of Y is considered stationary. If  $|a| = 1$ , the variable is considered to have permanent memories (with a unit-root), or is called non-stationary. The Augmented Dickey-Fuller unit-root test can be used to investigate the temporal dependency of the variable (Dickey & Fuller, 1981). In this test, the null hypothesis is that at least one of the series in the panel data is non-stationary. Here I

use the Augmented Dickey-Fuller test and consider a linear term with and without trend, a first-order lag with and without trend, a second-order lag with and without trend, and the results are presented in Table 2. The results show that 5 out of 6 tests show strong evidence that our dependent variable “welfare expenditure as a % of GSP” contains a unit-root.

I have also used the Westerlund error-correction-based panel cointegration tests to explore the cointegration structure of the data (Westerlund, 2007; Persyn & Westerlund, 2008). The results show that the dependent variable (welfare expenditure) and state immigrant welfare policy are cointegrated in at least one state; welfare expenditure and state-level unemployment rates are also cointegrated in at least one state. Considering that our dependent variables are non-stationary and cointegration is also detected in our panel data, we adopt the ECM. In an ECM, the first-difference of the dependent variable is estimated as an equation of the lagged dependent variable, the first difference and the lagged independent variables. An advantage of the ECM is that this model estimates both the long-term and the short-term effects of the independent variables on the dependent variables. Therefore, we specify our CSTS model as:

$$\Delta Y_{it} = a + b_1 \times Y_{it-1} + b_2 \times \Delta X_{it} + b_3 \times X_{it-1} + e_{it}$$

Table 2. Augmented Dickey-Fuller (ADF) Unit Root Test

Tests	Chi-square	p-value
ADF, no trend, lag (0)	14.51	1.000
ADF, no trend, lag (1)	21.98	1.000
ADF, no trend, lag(2)	25.01	1.000
ADF, trend, lag(0)	42.61	1.000
ADF, trend, lag(1)	83.74	0.847
ADF, trend, lag(2)	124.35	0.037

### (3). *Characteristics of the error term*

Lastly, I consider the characteristics of the error term after estimating the model. We test for heteroskedasticity, groupwise heterogeneity, and contemporaneous correlation of the error term.



The Breusch-Pagan/Cook-Weisberg test for heteroskedasticity reports a chi-square of 57.89 and a p-value of 0.0000, suggesting that there is heteroskedasticity in our error term (Breusch, Ward, Nguyen & Kompas, 2011). A modified Wald statistic for groupwise heteroskedasticity (xttest3) reports a chi-square of 6838.85 and p-value of 0.0000, suggesting that cross-sectional heteroskedasticity also exists (Greene, 2011). Lastly, the Frees' test of contemporaneous correlation reports a test score of 6.403, which is larger than the critical values from Frees' Q distribution and therefore suggests that contemporaneous correlation is detected (Frees, 1995). To sum up, heteroskedasticity, groupwise heteroskedasticity and contemporaneous correlation are all detected in our CSTS data. Beck and Katz (1995, 1996) suggest using the panel-corrected standard errors (PCSEs) if both panel heteroskedasticity and contemporaneous correlation are detected. Therefore, I use the PCSEs together with our error correction models.

The Wooldridge test for autocorrelation suggests that there is positive autocorrelation ( $F=136.11$ ). Keele and Kelly (2006) suggest that including a lagged dependent variable can often resolve autocorrelation. Since our error correction model is equivalent to an autoregressive distributed lag (ADL) model and has already included a lagged dependent variable, the serial correlation issue should be addressed in the ECM (DeBoef and Keele 2008). Another Wooldridge Test verifies that the autocorrelation is not a concern when we use  $\Delta$  Welfare expenditure as the dependent variable.

To conclude, our dependent variable welfare expenditure as a % of GSP is non-stationary, and it is cointegrated with some of our core independent variables; therefore the error correction model (ECM) is the most appropriate model specification. Additionally, given that panel heteroskedasticity and contemporaneous correlation are both detected in the error terms, we use panel-corrected standard errors (PCSEs) with the ECM. The ECM also successfully corrects the autocorrelation issue.

### 3. Alternative dependent variable—TANF cash benefits

This section presents the results when using TANF cash benefits for a family of three as an alternative dependent variable. As expected, since 85% of the observations of the dependent variable are equal to 0, there are many null findings.

Table 3: Using TANF Cash Benefits as an Alternative Dependent Variable

	Dependent variable: $\Delta$ TANF Generosity	
	Coeff.	(SE)
TANF Generosity <sub>t-1</sub>	-.012	(.014)
$\Delta$ Foreign-born population	.450	(.922)
Foreign-born population <sub>t-1</sub>	-1.315	(.942)
$\Delta$ Unemployment rate	.083	(1.349)
Unemployment rate <sub>t-1</sub>	-1.650	(1.472)
$\Delta$ Foreign-born population $\times$ $\Delta$ Unemployment rate	.030	(1.896)
Foreign-born population <sub>t-1</sub> $\times$ Unemployment rate <sub>t-1</sub>	.279	(.185)
$\Delta$ State immigrant welfare policies	-.403	(.346)
State immigrant welfare policies <sub>t-1</sub>	-.028	(.023)
$\Delta$ Foreign-born population $\times$ $\Delta$ State policies	.236	(.522)
Foreign-born population <sub>t-1</sub> $\times$ State policies <sub>t-1</sub>	.162	(.120)
$\Delta$ Foreign-born population $\times$ $\Delta$ Unemployment rate $\times$ $\Delta$ State policies	.167	(.346)
Foreign-born population <sub>t-1</sub> $\times$ Unemployment rate <sub>t-1</sub> $\times$ State policies <sub>t-1</sub>	-.028	(.023)
$\Delta$ State Government Ideology	-.057	(.050)
State Government Ideology <sub>t-1</sub>	-.030	(.031)
$\Delta$ Mass liberalism	.454	(.425)
Mass liberalism <sub>t-1</sub>	.704 *	(.285)
$\Delta$ Union density	1.404 +	(.773)
Union density <sub>t-1</sub>	.162	(.210)
$\Delta$ Female labor force participation	-.083	(.597)
Female labor force participation <sub>t-1</sub>	.319	(.596)
$\Delta$ % black	-4.778	(3.232)
% black <sub>t-1</sub>	.126 +	(.082)
$\Delta$ Real per capita income	-2.741	(7.329)
Real per capita income <sub>t-1</sub>	-.060	(.296)
$\Delta$ Per capita growth	1.232	(2.866)
Per capita growth <sub>t-1</sub>	1.377	(3.054)
$\Delta$ Income inequality	-61.130	(43.705)
Income inequality <sub>t-1</sub>	-46.338	(59.361)
$\Delta$ Poverty	1.035 *	(.518)
Poverty <sub>t-1</sub>	.466	(.430)
Constant	-5.786	(52.247)
N	448	
R-Square	.057	
Wald Chi-Square	136.58	

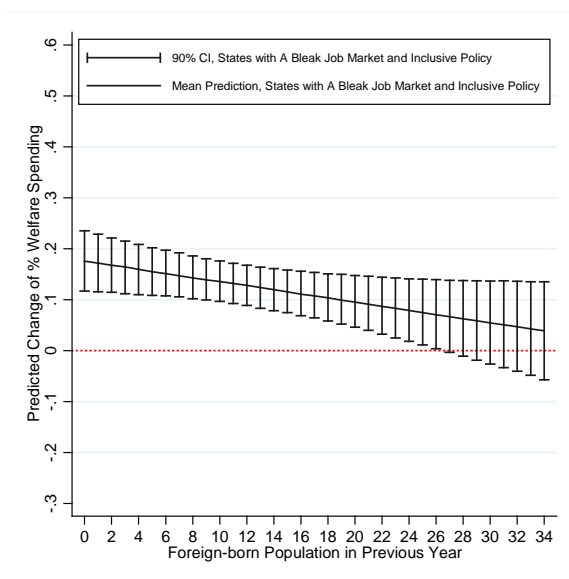
Significance levels: + 0.10 level, \* 0.05 level, \*\* 0.01 level, \*\*\* 0.001 level

#### **4. Conditional effects figure by setting state immigrant welfare policy and unemployment rate at their mean +/- 1 standard deviation and 25<sup>th</sup>/75<sup>th</sup> percentile values.**

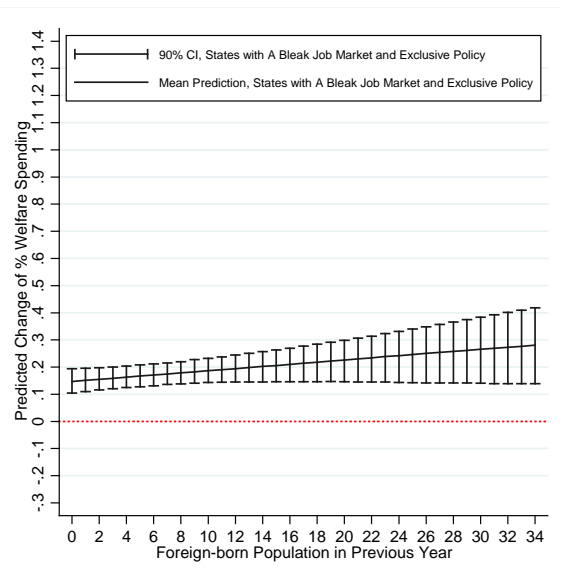
In the main document of this paper, I used 10<sup>th</sup>/90<sup>th</sup> percentile values for unemployment rates (immigrant welfare index) to define “good/bleak labor markets” (“exclusive/inclusive policy”) and the primary reason is because the examined time period (1999-2008) was in between the dot-com boom and the Great Recession and only experienced relatively moderate levels of unemployment rates. During the examined 10-year time period, only 35 state years fit the “good labor market” definition and 34 state years fit “bleak labor market” definition; however, a lot more states could fit the “good labor market” definition during economic booms, and many more states could fit the “bleak labor market” definition during economic downturns. For instance, in 2009 alone, 46 states had unemployment rates above 6.2% and they all fit the “bleak labor market” definition in this paper. Therefore, the selected 10<sup>th</sup>/90<sup>th</sup> percentile values seem extreme for the time period examined in this paper but are actually much more common for other time periods in American history. Findings based on these data have much broader implications to the development of the American welfare state if one examines a longer time period.

As a robustness check, I have also used mean +/- one standard deviation as well as the 25<sup>th</sup> and 75<sup>th</sup> percentile values for the two contextual variables. The results are presented in Figure 2 and 3 below. The results show similar patterns with the figure reported in the main document, although in Type B states, the effect of immigration on change in welfare spending is now statistically insignificant.

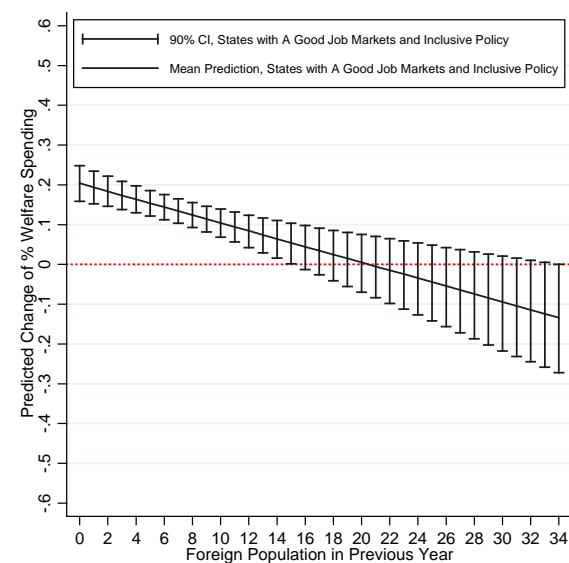
Figure 2: Unemployment and State Policy Held at “Mean  $\pm$  1 Standard Deviation” values



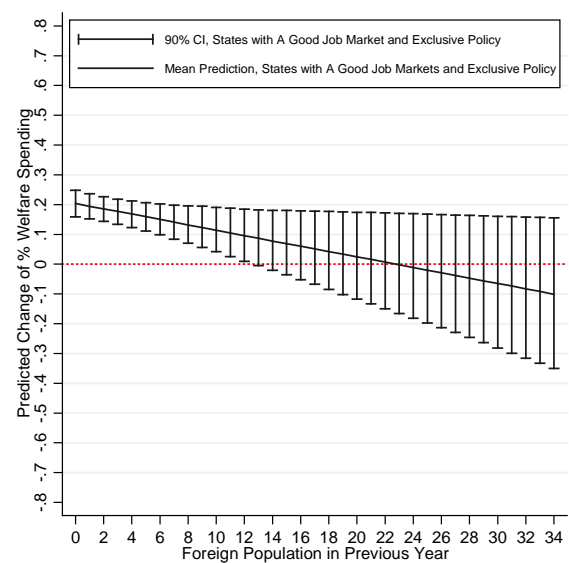
(A) states with a bleak job market and inclusive policy



(B) states with a bleak job market and exclusive policy

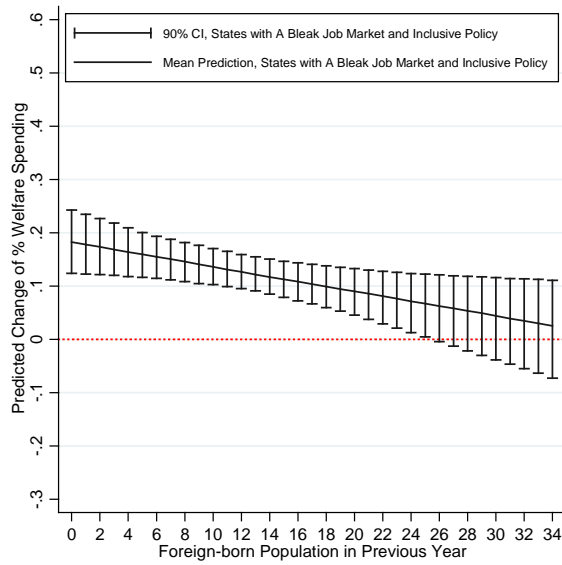


(C) states with a good job market and inclusive policy

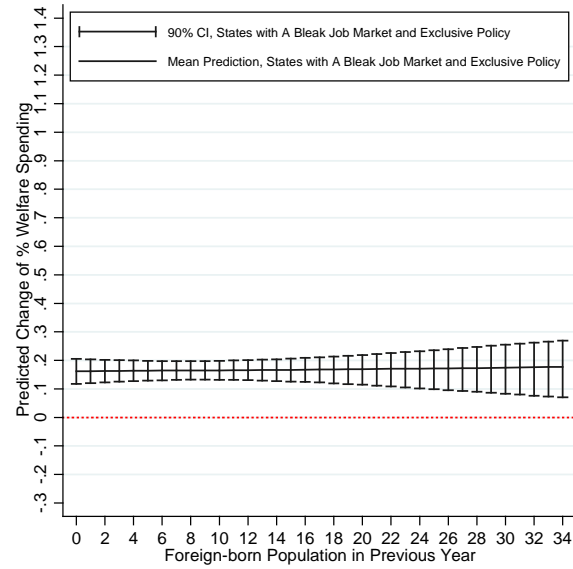


(D) states with a good job market and exclusive policy

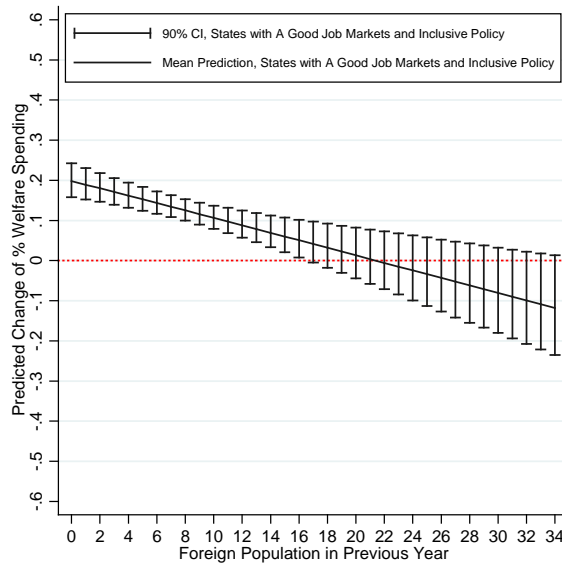
Figure 3: Unemployment and State Policy Held at 25<sup>th</sup> and 75<sup>th</sup> Percentiles Values



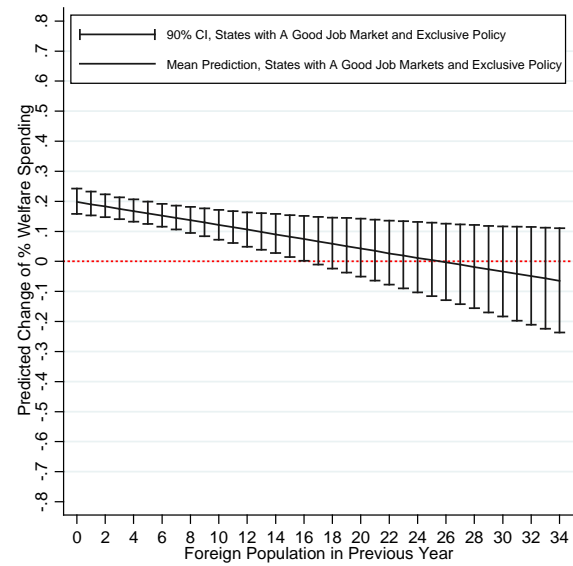
(A) states with a bleak job market and inclusive policy



(B) states with a bleak job market and exclusive policy



(C) states with a good job market and inclusive policy



(D) states with a good job market and exclusive policy

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