The Effect of Immigration on Municipal Welfare Generosity in Demark from 1993 to 2002

Laura E. Vincent ’09

May 7th, 2009

Faculty Advisor:
Jessica W. Reyes, Amherst College

Submitted to the Department of Economics of Amherst College
in partial fulfillment of the requirements for the degree of
Bachelor of Arts with honors.

Acknowledgements

I would like to sincerely thank my thesis and academic advisor, Professor Reyes for all of her comments, advice and support. Her infinite wisdom and passion for economics has, in turn, instilled in me a love of economics. Without her knowledge and encouragement, I would not have been able to complete this process, and I believe that she is very much responsible for this finished result.

I also wish to acknowledge the Amherst College Economics Department for mentoring me throughout my four years at Amherst. I would especially like to thank the Economics department coordinator, Jeanne Reinle, for her daily encouragement and joyful conversation.

I would like to acknowledge and thank Professor Einhorn from the University of Massachusetts-Amherst for his help with research. I would also like to thank the employees of Statistics Denmark for their assistance with data collection.

I would also like to thank my friends and family who have been obliging proofreaders and unfailingly supportive throughout this entire process. I want to give a special thanks to my Danish friends, whose friendship has inspired my quirky and consuming interest in Denmark. And to my parents, thank you so much for all that you have done to push me to succeed.

And, finally, thanks to my fellow economics thesis writers who have given me countless pieces of advice about this project and without whom this would have been a very lonely process.

I. Introduction

The Danish welfare state is known as one of the most generous welfare systems in the world. With the onset of globalization, international migration has become easier and less costly, and once homogenous populations, such as Denmark's, have rapidly become ethnic melting pots with associated social upheaval. For many years now, immigration policy has been in the forefront of Danish politics: there is widespread belief among Danes that their cherished system of generous welfare is cracking under the pressure of increased international migration, blamed primarily on the large influx of low-skilled workers from non-western countries. This paper analyzes how the Danish welfare state has changed its generosity in response to immigration pressure during the 1990s.

Denmark's welfare system was officially created in 1803 with the passing of the Poor Laws, and has existed in its current form since the late 1950s and early 1960s. It is widely considered to be generous and successful due to the highly-developed social, cultural, and physical characteristics of the country and its citizens.[1] The *welfare magnet theory* predicts that generous welfare states will attract immigrants more likely to be dependent on the welfare system.[2] There is much literature about the disproportionately high dependency of immigrants on welfare in Denmark as opposed to natives. Higher immigrant dependency on welfare is attributed to individual immigrant characteristics (such as family size, education levels, and country of origin), as well as length of residence and the behavior of earlier immigrant cohorts. The literature on the interaction between the welfare state and immigration dependency often focuses on the reasons for the dependency. However, there is very little literature about how immigration and the dependency of immigrants affect the generosity of welfare systems. Denmark's welfare

[1] Nørgaard (2003)
[2] Borjas (1999)

system is administered at the municipal level; however the rules and regulations of the welfare system are dictated by the central government. The objective of this paper is to analyze the immigration pressure experienced by the 276 Danish municipalities in the 1990s and any subsequent changes in welfare generosity.

I use regression analysis of panel data of the 276 Danish municipalities from 1991 to 2002 to analyze the impact of changes in immigrant flow and immigration stock on welfare generosity. I focus specifically on the social assistance program, a means-tested cash transfer similar to Aid to Families with Dependent Children (AFDC) in the United States. Three characterizations of generosity are considered when quantifying welfare generosity: the preference for equality and *overall* generosity is measured by social assistance expenditure per capita; the *scope* of social assistance generosity is measured by the total number of benefit recipients per capita; and the *scale* of social assistance generosity is measured by the average social assistance benefit per recipient. The scope of generosity is the level of generosity within a population, while the scale of generosity is the level of generosity within an individual.

The results of this analysis show that generosity does indeed shift over the 1990s as immigration pressure increases. Overall, expenditure per capita decreases with immigration flow. Moreover, once the immigrant stock per capita exceeds 1.4% of the population, further inflows of immigrants have larger negative effects on welfare generosity. Generosity can shift in two ways: scope and scale. Due to cost constraints, it is expected that changes in scope and scale will work in opposite directions. The results show that welfare generosity is reduced in *scope* when immigrant stocks exceed 1.4% of population, which actually allows the *scale* of generosity to increase.

This paper proceeds as follows: Section II discusses the historical background of the Danish welfare state and the theoretical background of this analysis, and also summarizes Denmark's immigration history; Section III describes the empirical methodology and identification strategy, specifically the measures of welfare generosity and immigration; Section IV is a summary of the data and highlights the trends of immigration and welfare overtime that lead to the paper's central hypothesis; Section V describes the results from the analysis and discusses their implications; and Section VI provides a brief conclusion.

II. Theoretical Background

A History of the Danish Welfare System

The countries of northern Europe—Norway, Finland, Sweden, and especially Denmark—are often associated with the Welfare State. Scandinavian culture has always placed great social emphasis on equality that is bolstered by a feeling of cultural solidarity. The modern welfare system arose in the late 19th century out of the existing Scandinavian culture of churches and charities and grew into an informal social contract among citizens. In agrarian and fishing-based economies, where the balance could shift easily and roles could reverse quickly, cultural solidarity led citizens to take responsibility for the downtrodden. This implicit social contract enables the success of the welfare state. As communities became larger and less personal, these communal responsibilities were transferred to the government, and the formal welfare state was established in the 1870s and has continued to evolve ever since.

From the 1870s to the 1970s, Denmark's homogeneity in the ethnicity, language and religion of its citizens allowed the increased cost of expanding the welfare state to

remain palatable to Danes. They maintained a strong feeling of solidarity and continued to believe in role reversibility. Widespread socialist political beliefs in and support for equality continue to permeate Danish political ideology. The welfare system, based on this belief in equality, has also been sustained in part by Denmark's relatively small size and general wealth.

The homogeneity of the Danish population is possibly the most significant factor in the historical success of the Danish welfare state. From a psychological perspective, homogeneity is important: a person is more willing to help someone in need when they are similar to him (in appearance, language, culture, religion, etc.) as opposed to someone who is different from him. This idea of role reversibility is considered to be the primary psychological reason for the success of this equalization scheme.[3] The high taxes required to maintain this generous social assistance system are deemed "acceptable" because the benefits have traditionally been given to individuals who look, speak, and act like those paying the taxes. This unintentional xenophobia is aggravated by the lack of integration. Despite the native Danes being offended by the immigrants' rejection of Danish culture, the stark visual and cultural differences between the immigrant population and the native population undoubtedly have magnified the flaws in the Danish welfare state.

The overall wealth and size of Denmark have also influenced the generosity of the welfare system. The current welfare system has been sustained in part by the small physical size of Denmark (43,098 km^2 or 16,640 mi^2-- roughly the combined size of Massachusetts and Connecticut) and a small, relatively affluent population of only 5.4

[3] Esping-Andersen (1992)

million (2003 estimate).[4] Nørgaard and Bræstrup (2003) find that Scandinavian countries have highly generous welfare systems both because of the relatively high wealth of Scandinavia (compared to other socialist countries) and also the low population density. Denmark, Norway and Sweden are the least populous countries in Europe (5.4, 4.6 and 8.9 million in 2003, respectively).[5] The relationships among size, wealth, and generosity are explored by Abramitzky's (2008) analysis of Israeli kibbutzim. He finds that income is redistributed more equally in wealthier communities, potentially because high initial wealth of the community is able to ensure a higher standard of living and, therefore, people are more willing to give up their comparative earning advantage. Higher overall wealth and smaller populations make it much easier to guarantee a high standard of living via a generous welfare system, sustained through high taxation and supported by widespread socialist beliefs.

The welfare state is constantly facing tradeoffs between the social and cultural benefits of a generous welfare system and the economic disincentives associated with this high level of generosity.[6] The long-standing social preference for equality in Scandinavian culture has continued to encourage Scandinavian countries to fund massive social programs through high tax rates. This system of funding through taxation necessitates the implicit social contract within the culture of welfare states: all members of society contribute with the understanding that the system is there to help them only if they are unable to help themselves. Even though a large majority of the population is not

[4] www.statistikbanken.dk
[5] Nørgaard and Bræstrup (2003), p. 501 and www.worldbank.org
[6] Einhorn (2003), p. 151

eligible for social transfers, Danish citizens are generally willing to accept high rates of taxation because of their preferences for equality.

Immigration to Denmark

In the late 19th and early 20th centuries, Scandinavia was an area from which many emigrated. Prior to 1960, there were very few foreign-born residents, most of whom came from neighboring Nordic countries or from Northern Europe. Since the 1960s, it has become an area to which many immigrate. The history of Danish immigration can be best understood in three distinct phases: Phase One, from 1960 to 1973; Phase Two, 1973 to 1986; and Phase Three, 1986 to the present.[7]

Immigration to Denmark from 1960 to 1973 consisted mainly of temporary migrants who were young, single laborers—a majority of whom emigrated from Turkey, Pakistan and Yugoslavia.[8] This sudden influx of immigration resulted from the labor shortages of the late 1960s, which led the government to encourage companies to seek labor from abroad by issuing a greater number of guest worker passes. Phase Two began in 1973, when the world recession dramatically reduced the number of guest worker passes issued and immigration subsequently slowed. What little immigration did occur was largely due to requests for political or religious asylum or family reunification. After 1986, immigration still consisted primarily of asylum seekers and family reunification; however, the rate of immigration increased drastically with a majority of immigrants in this phase originating from developing countries such as Sri Lanka, Iran, Iraq, Lebanon, the Balkan states, Afghanistan, and Somalia.[9]

[7] Freeman (1986)
[8] Roseveare and Jorgensen (2004), p. 11
[9] Roseveare and Jorgensen (2004), p. 11

The nature of immigrants' intentions also changed, from "temporary migration" to "permanent settlement."[10] This shift in immigrant intentions remains the principal reason that natives tend to have negative perceptions of immigrants and their social contributions—immigrants arrive with the intention of returning home after money is earned and saved, but often times, these sojourners forsake their initial intention and become permanent residents. With the implementation of family reunification policies and a generous safety net, immigrants who fail to succeed in the work force have little incentive to leave Denmark.[11] Once acclimated to life in Denmark, non-working or retired immigrants could comfortably remain. This trend of temporary labor transforming into permanent settlement is expected to adversely influence the native opinion of immigration.

As of 2002, there were almost 332,000 first generation immigrants and 99,000 descendants living in Denmark, accounting for 8 percent of the population.[12] While the immigrant population as a percentage of the total population is smaller than in other OECD countries, the relatively small size of Denmark's population (5.4 million[13]), the previously homogeneous nature of the population, and the speed of change in the population's composition have compounded and resulted in heightened tensions between native and immigrant communities. The increasing heterogeneity of Denmark is expected to affect the natives' preferences for generosity and the willingness of taxpayers to fund generous welfare programs that benefit mainly immigrants.

---

[10] Freeman(1986), p.58
[11] Family reunification allows in-country workers to move their entire family to Denmark
[12] Roseveare and Jorgensen (2004), p. 11
[13] 2003 estimate from www.statistikbanken.dk.

Immigrant Characteristics

The scale and composition of immigrant inflows are important to understand because these characteristics can be predictive of welfare utilization. The most influential characteristics are family size and education. Freeman (1986) finds that immigrant households are much larger, on average, than native households.[14] This point of difference, while perhaps not controversial per se, can increase dependency on welfare programs. Low levels of educational attainment are also expected to increase welfare dependency among immigrants. First, educational attainment rates in the origin country could be lower than in the host country, putting less educated or uneducated immigrants at a disadvantage in the labor market. The quality of host country education is also an issue, as is the translation of origin country education to host country labor market. However, Blume and Verner (2006) find that the quantity of schooling in the country of origin reduces welfare dependency by roughly the same amount as Danish schooling. Also, host country language proficiency could similarly affect labor market outcomes for immigrants: as language skills can and will be acquired over time, increasing tenure in a host country is expected to reduce dependency.

The pervasiveness of racism and xenophobia in the native population is also expected to negatively affect the welfare dependency of immigrants. Native prejudices against immigrants can affect labor market outcomes by reducing the employment rate of immigrants and can result in higher welfare dependency. Hansen (2001) describes how the utility of a native individual can affect attitudes on immigration, saying that "some parts of the local population may not welcome a large number of migrants because of the personal utility from maintaining a common identity based on cultural values, language,

[14] Freeman(1986), p. 59

ethnicity, history and religion."[15] This possibility of xenophobic attitudes affecting the labor market success of immigrants is not widely discussed, but it may yet be important, due largely to of the low integration rate of immigrants in Denmark.

Location Decisions of Immigrants and the Welfare Magnet Theory

Once an individual has made the decision to leave his home country, the ultimate destination of the migration depends on several factors. Most of the literature attributes these location decisions to welfare generosity, noting that generous welfare states are magnets for low skilled immigrants.[16] Brücker, et al. (2002) show, via a theoretical model, that an immigrant's behavior is income maximizing when making their location decisions.[17] This analysis is supported by the literature, which shows that immigrants to welfare states with more generous welfare systems are likely to have characteristics that make them more dependent on welfare benefits.[18] In his analysis of the U.S. Welfare System, Borjas (1999) assumes income-maximizing behavior for immigrants and finds that immigrants are clustered in states with more generous welfare benefits. He suggests that welfare programs attract migrants who otherwise would not have migrated to the U.S., and that the generosity of the programs could encourage immigrants who fail in the labor market to remain in the host country instead of returning home. He also finds that co-ethnic networks in the host country also attract immigrants.

Several papers discuss the importance of welfare generosity's magnetic effects on immigrant location decisions as well as the fiscal burden that immigration places on

---

[15] Hansen (2001) p. 736

[16] Called the *welfare magnet theory*, coined by Borjas (1999) in his evaluation of the US welfare system and immigration.

[17] Brücker et al. (2002) count social transfers as potential income in calculating the location decisions of immigrants via income maximization.

[18] Barrett and McCarthy (2008), Tranœs and Zimmerman (2004), Vivekanandan and Kurian (2005), Blume and Verner (2006)

natives and their government.[19] Barrett and McCarthy (2008) test the welfare magnet theory and find that location decisions are more influenced by the prior existence of ethnic networks and market conditions at the time of arrival than levels of welfare generosity. Alternatively, Freeman (1986) attributes the mechanism behind the welfare magnet theory to the behavior of natives in reaction to generous welfare benefit and not immigrant location decisions.[20]

Hansen (2003) analyzes the impact that immigration has on an individual's ideological preference for equality and level of taxation and finds immigration influential. Similarly, Abramitzky (2008) finds ideology influential on the level of equality in the redistributive systems in Israeli kibbutzim. Hansen (2008) also shows that countries with similar demographic profiles, wealth, and ideology will benefit from coordination in welfare benefits because immigrant populations will be evenly distributed among several host countries.[21] Welfare generosity coordination among ideologically similar nations may be able to reduce the burden on governments while maintaining relatively generous welfare benefits, which has significant implications for Scandinavian welfare states.

Characterizing Immigrant Welfare Dependency

The vast amount of literature on the residual dependency of immigrants on welfare systems provides contrasting arguments and results. Brücker et al. (2002) and

[19] Boeri and Hanson (2001), and Freeman (1986) discuss location decisions, while Card (1990). Hansen (2003), and Borjas (1999) p. 608 discuss the fiscal burden of immigration on welfare

[20] Freeman(1986),p56, says generous welfare enables natives to refuse low skilled or less desirable jobs, in turn creating a demand for immigrant workers and increased low-skilled immigration. This may apply to immigration in Phase One and could be attributed to the relative generosity of welfare benefits. However, given the current state of immigration as permanent settlement, not temporary working status, this argument seems to fall short in explaining the importance of welfare generosity on the decision-making of immigrants.

[21] Hansen (2003), p742-3, finds that a coordinated outcome between two similar welfare states is pareto-optimal and has a smaller impact on the host countries and citizens than the Stackleberg outcome(a race to the bottom for generosity).

Barrett and McCarthy (2008) control for immigrant characteristics (i.e. family size, education, native linguistic ability) when analyzing immigrant dependency and find a residual dependency of immigrants on welfare in relation to their native counterparts that cannot be explained by their characteristics. However, Riphahn (2004) shows that immigrant dependency in Germany *can* be explained by controlling for characteristics.

Several papers address how an individual immigrant's dependency on welfare changes as time spent in a host country increases. Hansen and Lofstrom (1999) use longitudinal data on Swedish immigrants and find that immigrants tend to assimilate out of welfare, in contrast to their Danish counterparts, as Nannestad (2004) finds—immigrants and their descendents do not tend to assimilate out of welfare dependency as terms of residency increase (especially from non-western countries) possibly because of poor labor market outcomes.

Immigrant welfare dependency, similar to location decisions, may be highly influenced by the presence of co-nationals or culturally similar populations within the host country, i.e., ethnic networks. The existence of co-national networks may lower information costs for newly-arrived cohorts, and the crux of the debate lies in discerning what *types* of information are relevant, and if and how this information affects overall dependency. Co-national networks lower information costs in several areas within a community, but most often regarding labor market information and information about the welfare system.

The impact that access to these two types of information has on an individual's dependency is highly debated. On one hand, many believe that ethnic networks increase dependency by lowering information costs about welfare systems and how to benefit

from them—high network use is believed to encourage increased individual utilization of the welfare system and lower the stigma associated with dependence.[22] Nannestad (2004) finds that assimilation into welfare dependency occurs because of these network effects. In contrast, ethnic networks may also lower information costs about the labor market, increasing the labor market activity and success of co-nationals, and thus reducing immigrant welfare dependency by increasing the probability of success in the labor market.[23] The direction of network effects is debated, but networks are expected to influence welfare dependency overall.

Overall, immigrant residual dependency is well documented. However, specific causes for this are not solidly identified. Immigrants in Denmark have been shown to assimilate into welfare dependency because of their characteristics and the behavior of their ethnic cohorts. However, immigrants are still more likely to utilize and rely on welfare benefits than their native Danish counterparts.

Danish Immigration and Social Policy

While the Danish welfare system is administered at the municipal level, rules and program guidelines are dictated by the central government. Despite the expected similarity in generosity across municipalities, the financing of the programs is determined locally and results in large differences in the size and scope of programs offered. Denmark is divided into 276 municipalities, all of which offer a program called

[22] Borjas and Hilton (1996)

[23] Edin, et al.(2003) find that ethnic enclaves improve labor market outcomes for low-skilled immigrants. Barrett and McCarthy (2008) cite network effects as assisting immigrants in obtaining jobs, therefore becoming less dependent on welfare. Also, Hao and Kawano (2001) find that the measure of contact with co-ethnics is not significant, but the level of economic activity of co-ethnics is influential in welfare dependency- meaning that dependency is influenced by information about jobs more so than information about welfare.

"social assistance" that is the focus of this welfare analysis. Social assistance is a means-tested cash transfer that is very similar to the AFDC benefit in the United States.

The inflow of immigrants to Denmark has created a financial strain on Danish municipal governments, especially due to an increased rate of welfare utilization. The proportion of individuals between 15 and 66 receiving benefits in Denmark was 6.2% in 1960 and has risen to 26.3% in 1994.[24] With the population of net contributors remaining relatively stable over the span of time, the burden on each taxpayer has increased dramatically.

The traditionally homogeneous population of Denmark continues to become more and more heterogeneous and, along with this transformation, there is the question of inevitable cultural clashes between natives and non-natives. Immigration continues to grow, welfare use is on the rise, and public support for the current system is mired in internal cultural conflict between equality and efficiency—most of the negative opinions among natives about immigration are fueled by the rising cost of welfare and the perception that immigrants are free-riders in the welfare system. In terms of policies that are able to affect welfare use and cost, there are three basic threads of policy options. The first is to reduce the scale of welfare generosity; such a change would require Danes to abandon their ideal of equality and reduce today's welfare state to simply an elaborate safety net. The second option is to reduce the scope of welfare generosity by either changing welfare policy eligibility requirements to exclude immigrants, or use immigration policy to reduce immigration levels, specifically targeting individuals with a high propensity for welfare dependency. The final policy option is to create a program

[24] Petersen(2004), p.185

that works with welfare dependents to incentivize work, similar to the Earned Income Tax Credit in the United States.[25]

Since 2002, versions of all three of these policy options have been implemented to differing degrees of success. For example, certain municipalities have implemented policies of "start-up benefits" for residents who have lived in the municipality for fewer than 7 years, replacing welfare benefits and directed primarily at immigrants.[26] The cost constraints faced by most municipalities are expected to be a main factor in the changing generosity and exclusion policies are often considered.

Danes are expected to derive a certain utility from being generous. However, the discriminatory exclusion of immigrants from welfare and generosity reductions may both have negative effects on the utility of Danish citizens. Therefore, adopting discriminatory policies (such as exclusion of immigrants or lowered benefits) in response to immigration may result in costs on natives' utility, i.e. reductions in utility because of lowered level of altruism and generosity. There are also benefits to discrimination in the form of lower welfare costs and possibly higher welfare receipts for natives. The costs and benefits of discrimination are different in different communities. However, Scandinavia's cultural belief in the importance of human rights is in direct conflict with many of these discriminatory policies. Many believe that there must be other solutions to the issue of immigrant welfare dependency. It is necessary to quantify how immigration affects the existing welfare system before the system can be modified to remove the negative effect of immigration. While this analysis focuses on Denmark, the underlying issue has social policy implications across the world.

[25] Roseveare and Verner (2004) discuss immigration policy options from the perspective of the OECD.
[26] Kommune of Aarhus website (www.aarhus.dk) page for Refugees and Immigrants

III. Methodology

It is expected that immigration to Demark in the 1990s caused reductions in welfare generosity. I use a regression analysis of panel data of the 276 Danish municipalities from 1993 to 2002 to look at the changes in generosity caused by increased immigration from two years prior. I specifically look at the social assistance welfare benefit.[27] The equation of interest is:

(1) $$\text{Welfare generosity} = \beta_1 * \text{Immigration Flow} + \beta_2 * \text{Immigrant Stock} + \beta_3 * X + \theta_i * \text{Municipal Fixed Effects} + \lambda_t * \text{Time Fixed Effects} + \varepsilon$$

where X is a set of control variables and immigrant variables are per capita measures.

In order to address potential biases, I have included time fixed effects as well as municipal fixed effects. It is possible that there are national trends away from generosity or towards higher immigration flows; I include year fixed effects to control for any national trends. Another possible issue is the endogeneity bias that the welfare magnet theory predicts: generous welfare systems attract low-skilled immigrants; therefore, those who are more likely to use welfare will immigrate to where welfare is most generous. I address this endogeneity in two ways. First, I include a two year lag with the immigration variables; by doing so, generosity measures are regressed against immigration data from two years prior. Second, I include municipal fixed effects to control for cross-sectional variation in generosity and immigration over the period. Ultimately, the variation used in equation (1) is the municipality-specific changes in immigration within a municipality over time. Therefore, identification results from the relationship between this

[27] The 13 categories of Social Transfer payments are: (1)unemployment benefits, (2)sick day benefits, (3) maternity day benefits, (4)social assistance, (5) rehabilitation, (6) old age pension, (7) early retirement pension, (8) civil servants earned pension, (9) early retirement pension, (10) local government activation, (11) state activation, (12) leave benefits, and (13) unemployment allowance.

municipality-specific variation in immigration and the variation in welfare generosity across municipalities over time.

The hypothesis is that generosity will decrease with immigration: an increased population of immigrants is predicted to lead to higher welfare use and result in a financial strain on municipal welfare systems. Immigration may also affect generosity by altering native preferences for welfare generosity. Overall, generosity is expected to decrease as immigration pressures increase within Danish municipalities.

Dependent Variables

The left hand side of Equation (1) is one of three measures of social assistance generosity within each municipality. The first measure of generosity is social assistance expenditure per capita, calculated by dividing the municipality's expenditure on the social assistance program by the municipal population. This measure represents the relative burden on each citizen for the provision of the program. It can also be viewed as a direct measure of the general public's willingness to pay for this transfer program: changes in expenditure per capita can be interpreted as a shift in the ideological priority of redistribution. Due to the financial constraints of maintaining generous welfare while experiencing increased levels of utilization, this expenditure measure will show any generosity changes within a municipality. However, it is difficult to use expenditure generosity to measure exactly *how* the social assistance programs are changing benefits in response to immigration.

To get a better sense of the nature of a change in generosity, I construct measures of a system's *scope* and *scale*. The scope of generosity measures the number of people receiving the welfare benefit: I define the scope of generosity as the number of social

assistance recipients per capita (calculated by dividing the total number of social assistance recipients by the municipal population). Increased generosity of scope means that more people receive the benefit. Alternatively, the scale of generosity measures the size of the welfare benefit given to each recipient: I define the scale of welfare generosity as the average social assistance benefit (calculated by dividing the total expenditure on social assistance by the total number of social assistance benefit recipients). Increased generosity of scale means that each recipient is, on average, receiving more in welfare benefits. These two characterizations of welfare generosity will help provide insight into how social assistance programs may respond to immigration.

Through the use of the scope and scale measures of generosity, the changes in generosity can be understood in a more nuanced manner. For example, the benefit may increase in amount and reduce the number of recipients, but actually become less generous in terms of expenditure generosity. Another possibility is that the number of recipients could increase and the average benefit could decrease, while expenditure may become more generous.

Independent Variables

The right hand side of Equation (1) has two immigration variables, as well as a variety of control variables. Since there are attitudinal and policy lags from the time of experienced immigration to a change in the generosity of welfare, I have included a 2 year time lag for immigration measures. Attitudes are lagged because, in the context of a general Danish preference for generosity, negative prejudices from immigration pressure may accumulate over time, eventually resulting in a behavior shift. In addition, political and legislative processes have about a one or two year lag from the experience of a shock

to the implementation of a policy change. The generosity change is expected to happen for two reasons: the financial constraints of increased welfare use and the changing preferences of natives for welfare generosity.

The first immigration variable is lagged immigrant flow per capita: the number of immigrants into a municipality two years earlier divided by total municipal population two years earlier. This reflects the number of immigrants who arrive in a municipality as a fraction of the total population. This variable takes into account the effect that large inflows of immigrants may have both on the rate of welfare use as well as on native attitudes. Immigrants have been proven to be more dependent on welfare than natives.[28] Therefore, the flow of immigrants may cause a change in the need experienced by a municipal social assistance system.

The second immigration variable is lagged immigrant stock per capita: the number of immigrants and descendents that reside within a municipality two years earlier divided by total municipal population two years earlier. This represents the proportion of the municipal population that is made up of immigrant individuals. The stock variable can be considered a proxy for immigrant visibility within a population. The costs of discriminatory policies (reductions in utility from generosity) are expected to outweigh the benefits of discrimination (reductions in the costs of welfare) in municipalities with low immigrant stocks. However, as immigrant stock increases as a proportion of the population, the costs and benefits of discrimination converge, and theory predicts that immigration may lead to the implementation of implicitly discriminatory welfare policies. The hypothesis: as immigrants become more visible, there is an increased negative

[28] Borjas(1999), Borjas and Hilton (1996) and Brücker et al.(2002)

sentiment toward the presence of immigrants, and resulting in generosity reductions, possibly through discriminatory policies.

It is necessary to include immigrant flow as generosity will be affected with changing needs within a municipality. Similarly, immigrant stock measures changes in the visibility of immigrant enclaves within a municipality and may ultimately change native preferences, which, in turn, affect generosity.

Control Variables

The control variables are rate of educational attainment (education levels are basic, secondary, bachelor, and long-cycle higher education), the unemployment rate, the average income within a municipality, and lagged GDP per capita. There is a lag applied to GDP per capita because of the relationship between GDP per capita and municipal budgets. This lag accounts for any constraints on the financial ability of a municipality to fund a more or less generous system. I chose a time lag of 1 year because budgets are generally determined by the previous years' budget and the tax revenues; municipal deficits (or surpluses) in the previous year would necessitate (or enable) program cutbacks (or expansions).

Education rates for the four education levels (basic school, secondary, bachelor, or long-cycle higher education) are included as control variables because educational attainment measures the human capital accumulation within a population and are expected to represent earning potential and expected need.[29] Average income is included as a control variable because it is expected that an individual with a higher income pays

[29] Generally, lower levels of education, or high proportion of the population with maximum education at low levels, are associated with higher benefit take-up rates due to less success in the labor market and lower earning potential. This measure of education includes education received outside of Denmark and outside a given municipality.

higher taxes and is less likely to depend on welfare. The literature shows that wealthier communities tend to have more generous equalization schemes,[30] but high average income is also expected to have a negative effect on generosity because of the expected reduction in the size of the needy population. The last control variable is unemployment rate, which is expected to be an accurate measure of welfare need. Since social assistance is a "transfer of last resort,"[31] there are likely to be spillover effects from other benefit programs leading to higher use of this benefit due to unemployment rates.

IV. Data Summary

Denmark has 276 local governments called *kommuner*, or municipalities, and the focus of this analysis is on municipal welfare generosity from 1993 to 2002. The panel data on the 276 Danish municipalities from 1991 to 2002 used in this analysis was collected from Statistics Denmark.[32] Six major datasets were used—Cohesive Social Statistics, Education and Culture, Immigration and Emigration, Population, Unemployment, and Regional Accounts. All of the data sets contain municipally aggregated data on the full population by age, sex, year, and characteristics such as country of origin or benefit type, if applicable. Benefit data are available for 13 different types of social benefits. However, this analysis focuses on the social assistance benefit which is a means tested transfer payment similar to the AFDC benefit in the United States. Eligibility rules are set nationally, however specific provision of social transfers differ by municipality because they are administered at the local level. Social assistance

[30] Abramitzky (2008)
[31] Esping-Andersen (1992)
[32] The data can be found at www.statistikbanken.dk, Data from 1991 to 2002 is used because immigration data is from two years earlier. Data sets used are Cohesive Social Statistics, Education and Culture, Immigration and Emigration, Population, Unemployment, and Regional Accounts.

benefits vary across municipalities because of administration, but also because of the financing of the benefit through local and state taxes. Therefore, despite the national eligibility guidelines, program generosity still differs across municipalities because of financial and administrative differences.

Table 1 shows a summary of the data. Over the 1993 to 2002 period, the mean municipal population is 19,321 individuals and has grown 3.26% from 1993 to 2002. The 1990s also saw a large jump in the immigration rate. From 1993 to 1997, the average immigration experienced by municipalities went from an average of 81 individuals to 143 individuals per municipality, with an average immigrant flow of 99 individuals over the entire time period. On average, two-fifths of immigration comes from relatively high income countries (GDP per capita is $15,001 or higher), while about one-fifth comes from lower-middle income countries.[33]Analyzing the age composition of immigration flows from 1993-2001, over half are 20 to 39 year old individuals and almost one third are 0 to 19 year olds.

Immigration stock is a very important aspect of this analysis. It is measured as the population per capita that is considered to be immigrant or a descendent of an immigrant.[34] Immigrants are also mostly males and over half of the immigrant stock is 20 to 39 year olds, with lower shares of youth and elderly than in the entire population.

As the focus of this analysis on social assistance generosity, it is to be measured using three methods: expenditure per capita, the number of recipients per capita, and the average benefit. The first, expenditure per capita, shows the burden of these programs on

[33] Lower Middle Income countries contribute almost half of immigration in 1997. Since immigration is lagged by two years, this could be due to high levels of refugee immigration from the Yugoslav wars, which took place between 1991 and 2001 (Bosnia-Herzegovina and Georgia were involved and are in the Lower-Middle Income category).
[34] Tranœs and Zimmerman (2004)

the entire population. It can even be considered a proxy for measuring the importance of redistribution programs to Danish citizens. The second, total number of recipients per capita, measures the generosity of the system by showing the share of the population who use the transfer. This is an integral generosity measure because overall program generosity can be changed by altering the scope of generosity. The final measure of generosity is average social assistance benefit per recipient. This is probably the most traditional measure of generosity because it is simply the average amount of social assistance received by a beneficiary. The data from the regressions on the three welfare generosity measures is summarized in Table 1.

Expenditure per capita declines slightly over time, decreasing 3% from 1993 to 2001.[35] The total number of recipients experiences a significant drop from 1993 to 1997—a reduction of almost 47%— and then remains fairly constant through 2001. There is nearly a 100% increase in average benefits between 1993 and 1997.

The decrease in recipients per capita suggests that the programs may have been experiencing some sort of financial, social or political pressure to restrict access, all the while leading to an increase in average benefits. Also, the very high unemployment rate in 1993 (and subsequent drop by 1997) could explain the large reduction in social assistance recipients from 1993 to 1997, and subsequent relaxation of cost constraints may be a possible reason that average benefits increase. This analysis supports the hypothesis that the increased immigration to Danish municipalities in the 1990s led to a decrease in welfare generosity.

[35] It is possible that the decrease in social assistance expenditure may be due to more spending in other areas of social transfers. However, the share of social assistance as a percent of total social transfers is consistent at about 4.5% across time. These results can be seen in Appendix Table 1.

V. Results

Generosity, Immigration and Control Variable Selection

Table 2 shows the results of running Equation (1) on the full sample. The coefficients of interest are lagged immigrant flow per capita and lagged immigrant stock per capita. Results for the first measure of generosity, social assistance expenditure per capita, are shown in Panel A of Table 2. Recipient per capita results are shown in panel B and average benefit results are shown in panel C.

For expenditure generosity, the results of the OLS regression on immigration flow and immigration stock (Column 1) show that immigrant flow has a negative effect on generosity and stock appears to have a large and positive effect on generosity. As controls are added (Column 3), the stock coefficient decreases slightly. When municipal fixed effects are added (Column 4), the stock coefficient becomes negative (changes from 18.8 to -3.4), indicating that the municipal fixed effects seem to effectively resolve the endogeneity bias. Finally, when year fixed effects are added (Column 5), the stock coefficient again decreases, resulting in a coefficient of -6.2. The progression of the stock coefficient from a positive number to a negative number across Table 2 indicates that, by including the municipal fixed effects and time fixed effects, any endogeneity or national trends that could bias the results have been successfully addressed. Similar changes may be seen in the stock coefficient as controls are added to the regressions of the other two measures of generosity, indicating that the potential biases are addressed in those measures as well.

The results from the final regression show coefficients of -5.4 for immigrant flow and -6.2 for immigrant stock, shown in Column 5. These indicate that both immigrant

flow and stock cause expenditure to decrease, however, stock has a greater negative effect on expenditure generosity than flow.

Panel B of Table 2 shows the results from the regressions on the recipient per capita measure of generosity. Increased immigrant flow causes the number of recipients to increase (possibly because of immigrant residual welfare dependency[36]) while increased immigrant stock results in a decreased number of recipients. This indicates that there is some effect that immigrant stock has on recipient generosity that works to offset the positive effect that immigrant flow has on recipient generosity, potentially due to the exclusion of immigrants from receiving benefits. It is also possible, however, that there are network effects at work that may reduce dependency among large cohorts of immigrants.[37]

The final measure of generosity is average social assistance benefits (Panel C of Table 2), which results in negative coefficients for both stock and flow. However, immigrant flow has a much larger and significant coefficient than immigrant stock. Considering that immigrants have higher welfare dependency, high immigration may result in increased financial pressure on the welfare system because of this influx of dependency-prone immigrants.

Overall, the above results indicate that expenditure and average benefits decrease with both immigrant flow and stock, while recipients increase with flow and decrease with stock. The results also show that the control variables and fixed effects effectively eliminate the endogeneity bias and any biases arising from national trends. The control

[36] Brücker, et al. (2002) show that immigrants have an unexplained residual dependency on welfare benefits in Welfare states, such as Denmark, Germany, Netherlands, Belgium, and the UK.

[37] However, as much of the literature emphasizes, ethnic networks are predicted to cause assimilation into welfare dependency, not assimilation out of welfare dependency. Brücker, et. al (2002), Borjas and Hilton (1996), Blume and Verner (2007), and Barrett and McCarthy (2008).

variables result in consistent coefficients for all three measures of generosity. The unemployment rate increases generosity. Both average income and GDP per capita lead to reductions in generosity. As expected, municipalities with higher rates of educational attainment also spend less on social assistance.

Generosity and Immigrant Stock at the Tipping Point

Figure 1 shows the three generosity measures plotted against immigrant stock per capita from 1993 to 2001. In expenditure and recipient generosity (Panel A and B), we see a visible flattening of the distribution over time is clearly visible and suggests a potential non-linear relationship between immigrant stock and generosity. It is apparent that, after 1995, expenditure per capita decreases in municipalities with many immigrants. This indicates that there is potentially a "tipping point" in the stock of immigrants within a municipality: once immigrant stock exceeds some threshold, generosity may decrease faster. These results are similarly seen in the recipient per capita graphs, shown by the large number of high stock municipalities lowering the rates of benefit receipts over time.[38] Average benefit generosity shows a different trend (see Panel C of Figure 1). In 1993, the observations are clumped around or below the 50,000 DKK line. However, by 2002, the observations have shifted up and spread out horizontally. This illustrates that almost all municipalities have increased the generosity of their benefits over time, even though immigrant stocks have increased as a percent of total population.

These graphs suggest that there may be a "tipping point" of immigrant stock per capita, above which immigrant flow may have a greater effect on generosity. To investigate this non-linearity, several split points were tested—1%, 1.5%, 2% and 2.5%

[38] Specifically, in 1993, there are several municipalities above the 0.05 line (5% of the population receiving benefits), but by 2002, there is only 1 such municipality that is near the 5% line.

immigrant stock as a percent of population. It is concluded that a split of 1.4% stock is the best fit.[39] To investigate this tipping point and the changing effect of immigrant flow on generosity, the next section discusses regressions in which the sample is divided into two parts based on whether immigrant stock is above or below the tipping point. The OLS methodology from Equation (1) and used in Table 2 is employed on the two parts of the sample.

Is Immigrant Flow's Effect on Generosity Affected by Immigrant Stock?

Table 3 shows the results from the regressions that investigate the OLS empirical strategy of Equation (1) on the split stock regressions in addition to regressions that include a stock dummy and then add in an interaction term between the stock dummy and immigrant flow.[40] The regressions shown in Table 3 include municipal fixed effects as well as year fixed effects. The first column of each panel is an OLS regression with immigrant flow and immigrant stock variables (repeated from Columns 5 of Table 2). Columns 2 and 3 show the results from the split OLS regression based on the stock tipping point of 1.4%. Lastly, Columns 4 and 5 show the results of the stock dummy regression and then a regression that includes the flow-stock dummy interaction term. The dummy is equal to 1 if stock is above 1.4% of population, and the interaction term is generated by multiplying the stock dummy with the lagged immigration flow per capita measure. Overall, the results show that both immigrant stock and flow have significant

[39] The immigrant stock per capita is distributed evenly, with a maximum value of 15.28% and the 50th percentile was 1.68%.

[40] Since there is a predicted network effect that draws new immigrants where there is an established stock of similar immigrants, there is the potential for a colinearity bias to arise. Without using an instrument for immigration, it is difficult to remove this colinearity between flow and stock. If immigrants were randomly assigned to municipalities, it would remove the bias. However, I do include the lags to control for the location decisions of immigrants, and hopefully address this bias, at least partially.

effects on the three different measures of welfare generosity in Denmark and that the tipping point does seem to matter.

Generosity Measure A: Social Assistance Expenditure per Capita

The results for social assistance expenditure per capita show that lagged immigrant flow per capita and lagged immigrant stock per capita both negatively affect expenditure generosity. The split stock results indicate that immigrant flow has a coefficient that almost doubles its negative effect on expenditure per capita when stock is above the tipping point. These results support the hypothesis that immigration reduces generosity, and also show that there is a tipping point of immigrant stock per capita that alters how immigrant flows affect generosity, and in this case, amplify the negative effects.

The next regression includes a dummy for immigrant stock greater than 1.4% of population that results in a coefficient of 0.06 (Column 4 of Panel A). An interaction term of the stock dummy and immigrant flow is then included (Column 5), and has a coefficient of -5.2, however, it is marginally insignificant (p-value of 0.18). However, a Wald test reveals that the full effect of immigrant flow (-1.7 + -5.2) is indeed significant at the 5% level for high stock municipalities. This implies that an average increase in immigrant flow results in a 0.17% decrease in expenditure per capita in low stock municipalities and a 0.69% decrease in expenditure per capita high stock municipalities. Thus the negative effect of immigration flows on expenditure generosity are greater in municipalities with high immigrant stock compared to low stock municipalities, suggesting that the visibility of immigrant populations may affect how welfare generosity changes in response to immigrant flows.

Generosity Measure B: Social Assistance Recipients Per Capita

The next measure of generosity—the number of social assistance *recipients* per capita—shows that immigrant flow positively affects recipient generosity while immigrant stock negatively affects recipient generosity. The split regression (Columns 2 and 3) show the coefficient for immigrant flow to be 0.10 for low stock municipalities and -0.08 for high stock municipalities. These results indicate that immigrant flow results in increased recipient generosity for low stock municipalities and decreased recipient generosity in high stock municipalities, which coincide with the expenditure generosity results in supporting the tipping point of immigrant saturation hypothesis.

The results in Column 5 of Table 3 show that immigrant flow has a coefficient of 0.127 while the interaction term coefficient is -0.196. These results indicate that low stock municipalities increase recipients per capita in response to immigrant flow, while high stock municipalities show a reduction in recipients in response to immigrant flow. Overall, the results indicate that immigrant flow has a positive effect on recipient generosity when immigrant stock is lower than the tipping point (potentially due to high immigrant welfare dependency) and a negative effect on recipients when stock is above the tipping point. This is in support of the hypothesis that high immigrant stock will negatively influence preferences for generosity—resulting in the exclusion of immigrants from welfare receipt when immigrant stock increases above 1.4% of population.

Generosity Measure C: Average Social Assistance Benefits

The regression on average social assistance benefit yields negative coefficients for both immigrant stock and flow, with a much larger effect from flow than from stock. The split regressions (Columns 2 and 3 in Panel C of Table 3) show that, in municipalities

with an immigrant stock below the tipping point, average benefit is negatively affected by immigrant flow: average immigrant flow causes a 42.5% decrease in average benefits versus a 2.7% decrease in high stock municipalities. However, the flow coefficient is not significant for the high stock regression (p-value is 0.752).

The next regression includes the stock dummy, which results in a coefficient of 1.7. This indicates that the social assistance programs appear to slow average benefit reductions once the immigrant stock is beyond the tipping point. The interaction term is included in the next regression, and results in an immigrant flow coefficient of -390.4 and an interaction term coefficient of 392.1. This indicates that immigrant flow in high stock municipalities may actually cause an *increase* in average benefits. While low stock municipalities experience a 35.2% decrease in average benefits in response to an average increase in immigrant flow, high stock municipalities experience a 3.98% *net increase* in average benefits. In sum, these results show that average benefits increase in response to immigrant flows when immigrant stock goes beyond 1.4% of the population, supporting the story that by excluding immigrants from welfare benefits when stock is above 1.4%, welfare programs may increase in benefits because budgets are no longer restrictive. Put another way, it is easier to be more generous to fewer people.

Control Variables

The control variables shown in Table 3 retain coefficients similar to those from the regressions on Equation (1) shown in Column 5 of Table 2. GDP per capita and average income controls have consistent and negative effects on all generosity measures, possibly indicating that high GDP per capita and high average income indicates lower

levels of need for welfare generosity. Education levels also have relatively consistent negative effects on the three measures of generosity.

The unemployment rate, however, has an unexpected effect on generosity. In the regression split by high and low stock (Table 3, Columns 2 and 3), unemployment has a much smaller coefficient when the stock is below the tipping point than when it is above for expenditure and recipient measures of generosity. Therefore, it is possible that when immigrant stock rises above the tipping point, the unemployment rate is more heavily relied upon to accurately measure need than simply the application for benefits. For average social assistance benefit generosity, the opposite is found: the coefficient for unemployment rate in low stock municipalities is more than double the unemployment rate coefficient for high stock municipalities. This may indicate that unemployment rate is *less* influential in determining the amount of benefits when immigrant stock is fairly large compared to when immigrant stock is small.

Discussion

Theory predicts that immigrants are predisposed to be dependent on welfare and, therefore, an increased immigrant presence may result in higher welfare use and increased financial pressure on a municipal system. Immigration is expected to cause reduced generosity because of the cost constraints from higher welfare use and possible ideological shifts in native preferences for generosity. The above results support the hypothesis that increased immigrant pressure reduced municipal welfare generosity in Denmark in the 1990s. Moreover, I find evidence for a tipping point of immigrant stock where we see a change in how immigration flow affects generosity.

First, the results for expenditure measure of generosity show that increased immigration leads to reduced overall generosity. Native perceptions that immigrants do not contribute to the system may be aggravated by large existing immigrant populations, (and subsequently large inflows of new immigrants) which, in turn, may fuel a shift of native preferences away from equalization. As the results indicate, as immigrant populations become more visible (i.e., as stock goes beyond the tipping point), increased inflows of immigrants may lead to an ideological shift away from generous welfare among native populations, and the observed decrease in welfare expenditure per capita may represent these shifting preferences.

To alleviate the strain that increased immigration and increased take-up put on welfare programs, two possible strategies may be employed. Municipal systems can either reduce the scope of benefits (the number of recipients) or the scale of benefits (the average benefit per recipient). Of course, they could also pursue some combination of these two strategies.

The negative effect that immigrant flow has on recipient generosity may be due to programs becoming more restrictive or selective (possibly to the detriment of immigrants) as immigrant stock increases beyond the tipping point. This explanation is consistent with the hypothesis that as immigrant presence increases, the programs will become less generous in scope to reduce costs. It is possible to exclude non-natives from the use of these programs for example, by implementing residency requirements.

The results of this analysis also support the explanation that once immigrants become a “visible” portion of the population, native preferences shift away from generous welfare benefits. The observed reductions in recipient generosity could indicate

that as immigrants continue to arrive in immigrant heavy municipalities, recipient generosity decreases because of policy shifts towards exclusion driven by native beliefs that immigrants abuse the welfare system. Alternatively, it is possible that immigrants crowd out natives in benefit receipts; however, this does not explain the increase of average benefits after the stock tipping point. The high welfare use by immigrants may be at the core of the negative perceptions and ideology shifts, and therefore be a part of the reason that high immigrant stock causes lower generosity.

Overall, these results support the hypothesis that increased immigration causes Danish municipalities to reduce the generosity of their social assistance systems in scale and scope away from the egalitarian Scandinavian ideal. Generosity toward immigrants is reduced more with high immigrant stock, and it is possible that generosity for natives is actually positively affected by high immigration rates because of the "exclude immigrants and then increase benefit amount" scenario.

The next step is to look into how the composition of the immigrant flow affects the three measures of generosity. It is important to look into how the observable characteristics of incoming immigrant populations (country of origin income level, age, and gender) affect generosity because these characteristics are proven to affect the propensity for welfare dependency in immigrant populations.

Generosity and the Subcategories of Immigration Flow

Immigration to Denmark has also been sorted according to three different characteristics. The first is country of origin income category, which sorts the countries of origin according to each country's GDP per capita (in 1995 US$) into one of five income categories: low, lower-middle, middle, upper-middle, and high income

countries.[41] The second characteristic of immigrant flow is age and is sorted into one of four groups—0 to 19 years, 20 to 39 years, 40 to 59 years, and 60 years and over. Immigrant flow is also sorted into male or female immigration. Table 4 shows the OLS regressions of the three measures of generosity against the different immigrant flow characteristics and also includes immigrant stock per capita, control variables, municipal fixed effects, and time fixed effects.[42]

It is expected that immigration flow will have varying effects on generosity according to its characteristics. Immigrants from low income countries are expected to have lower levels of education therefore they should have higher welfare dependency. Furthermore, low income country immigrants would be expected to have greater negative effects on generosity than immigrants from high income countries.

Since there are benefits specifically for youth and the elderly, working age immigrants are expected to have a greater negative effect on generosity because of the higher welfare dependency of immigrants. It is possible that the 20 to 39 year olds are not established in their occupation compared to 40 to 59 year old immigrants, resulting in different dependency probabilities and different effects on generosity. First, lack of a concrete occupation could result in a smaller skill-set and may increase welfare dependency for 20 to 39 year olds. Alternatively, the older working population may not be as adaptable to the labor market in the host country specifically because of tenure in an occupation, which may lead to increased welfare dependency of 40 to 59 year olds.

[41] Using origin countries would have provided too little variation simply because of the small size of Denmark and the small numbers of immigrants associated with each origin country. Consequently, origin countries were categorized according to GDP per capita (in 1995 US$), into 5 categories: low income countries – up to $500; lower middle income countries-- $501 to $1,000; middle income countries -- $1,001 to $3,500; upper middle income countries-- $3,501 to $15,000; high income countries-- $15,001 and higher.
[42] The immigrant flow-stock interaction term is not used with immigrant flow categories because a majority of the results weren't significant. Instead, I use an OLS regression with immigrant flow and stock variables, similar to that used in Table 3, column 1.

Therefore the effect of age categories is expected to be significant for working age individuals; however, it is ambiguous whether young or old working age immigrants are expected to have a greater effect on welfare generosity.

Female immigrant flows are expected to have a larger negative effect on generosity than male immigrant flows. Females are more likely to be dependent on welfare than men because, oftentimes, household duties such as childcare are the responsibility of females.

The results show, however, that using origin, age, or gender categories of immigration flow does not result in significant coefficients, except for the lower-middle income origin immigrants, 20 to 39 year old immigrants, and male immigrants. There is a substantial change in the immigrant stock coefficient for all generosity measures—immigrant stock effects are about 25%, 10%, and 1000% lower for expenditure, recipient and average benefit generosity, respectively. [43]

When the immigrant stock dummy and the immigrant flow-stock interaction term are included in the regression using immigrant flow characteristics, the results are not generally robust or consistent, but they are significant with female immigrant flows.[44] Most of the female flow-stock interaction terms have positive and significant coefficients for the three measures of generosity. However, the variable for female immigration flow has a negative coefficient. This may indicate that female immigrant flow affects generosity more when immigrant stock is higher.

Looking at the effects of immigrant flow on generosity according to immigrant characteristics seems to be intuitively reasonable. However, the results show that the

[43] The coefficient is marginally significant for the average benefit measure for all three subcategories (p-value is about 0.108).
[44] The results from the subcategory interaction term regressions are shown in Appendix Table 2.

characteristics of immigrant flow do not provide significant results. Therefore, inferring a relationship between immigrant flow characteristics and generosity changes is difficult. By using immigrant flow characteristics, the effect of immigrant stock on generosity is smaller than when immigrant flow was aggregated. This indicates that controlling for the characteristics of immigration may lessen the effect of immigrant stock on generosity. The immigrant characteristics resulting in insignificant coefficients can be explained by a few observations. First of all, there may not simply be enough variation within the sample; the average immigrant flow is 99 immigrants, which most likely is not large enough to break into four or five subcategories and provide enough variation. Another possibility is that defining immigration by origin country income level or age may not accurately account for the individual immigrant's propensity for affecting welfare generosity.

VI. Conclusions

The results of this analysis support the hypothesis that the increased immigration pressure in the 276 Danish municipalities reduces social assistance generosity from 1993 to 2002. The three measures of generosity illustrate the nature of how immigration changes generosity: the expenditure measure shows that there is a reduction in overall generosity; the recipient measure shows that there is a reduction in the scope of generosity (recipients) caused by immigrant flows once stock reaches 1.4% of population; and the average benefit measure shows that the size of generosity (average benefits) reduce with immigrant flows until the stock reaches the tipping point, then generosity increases.

Expenditure per capita is a measurement of the burden of welfare and the willingness to pay for redistribution within the general population. Immigrant flows

negatively affect expenditure per capita despite levels of immigrant stock. However, the negative effect of immigrant flows on expenditure generosity is much larger when immigrant stock is greater than 1.4% of municipal population. These results support the theory that as immigrant stock goes beyond the stock tipping point, there is a shift in preferences away from generous benefits—immigrant flow causes expenditures to decrease at a greater rate once the stock is beyond this tipping point. As immigrant populations become more visible, natives are less willing to pay for social assistance benefits—implying a discriminatory shift in preferences for generosity.

The social assistance recipient per capita variable is a measurement of the social assistance program's scope within a municipal population. The results from this analysis show that the recipient measure of generosity is negatively affected by immigrant flows in high stock observations, in support of the theory that there is a tipping point of immigrant saturation, beyond which immigrants may be excluded from benefit receipts. However, immigrant flows in low stock municipalities have a positive effect on recipients, possibly due to the higher dependency of immigrants on welfare benefits. In low stock municipalities, there may be a preference for equality, acceptance and generosity, which makes the municipality less likely to discriminate against immigrants. In municipalities with small immigrant populations, the costs of discrimination (in terms of native utility reductions from lower generosity) usually outweigh the benefits of discrimination (i.e. the savings associated with excluding immigrants) when immigrant stocks are a smaller proportion of municipal population. Alternatively, it is possible that these results indicate that, instead of operating to the exclusion of immigrants, that immigrant enclaves may actually reduce the dependency of immigrants overall due to

positive network effects, such as increased success in the labor market due to the larger number of opportunities available within an ethnic enclave.[45]

The average benefit results show that immigrant flows are associated with reductions in the size of benefit generosity; however, the average benefit increases once immigrant stock increases beyond the tipping point. This indicates that, beyond the stock tipping point, the effect that immigrant flow has on generosity changes from reduction in the size of benefits to reductions in the scope of benefits. Essentially, immigrant flows into high stock municipalities tend to result in fewer benefit recipients, but rather larger benefits for those who do qualify for social assistance. This is a significant change in generosity because it shows a shift in the scope and size of benefits caused by immigrant flows. Additionally, the directions of the scope and scale effects are determined by the level of immigrant stock within the municipality. There remains the is a possibility that ethnic enclaves may *increase* the labor market success of immigrants, thereby reducing immigrant dependency on welfare through larger internal labor markets and lowered information costs.

The subcategories of immigration should also contribute to the understanding of how the composition of immigrant inflows and stocks cause decreases in generosity. The immigration characteristic results, however, are generally insignificant due to small sample size, with the exception of the negative effect that male immigration has on generosity. If the time period of this analysis were expanded, there may be enough

[45] With larger immigrant stocks, it is more likely that there is an internal labor market within the immigrant enclave in which newcomers would have greater success than in the general municipal labor market in which natives are in the majority. Within the immigrant enclaves, business owners are much more likely to hire a recent immigrant than a native employer. See Blume and Verner (2007), Brücker et al. (2002) and Edin et. al. (2003).

variation in immigrant flows that would enable the successful analysis of immigrant flow characteristics and immigrant stock on generosity levels.

In conclusion, the Danish social assistance programs have been shown to reduce generosity in both scope and size over the period 1993 to 2002. Public opinion and dialogue on immigration issues have become more politically important in recent years, and the results of this analysis show that perceptions about the lack of immigrant contributions to society and immigrant perceived abuse of the welfare system have resulted in a shift of native preferences away from welfare generosity within municipalities with high immigrant stock because of experienced immigrant flows. The significant effect that immigration has had on the generosity of the Danish welfare state, and the preferences for this generosity, signify that these immigration issues are not going to disappear, especially as the world becomes more globalized.

This analysis concludes that the Scandinavian ideal of equality and income redistribution is indeed being challenged by globalization. Immigration to Denmark has created a shift of preferences away from a highly generous welfare system, and resulted in shifts toward discriminatory and exclusive social assistance programs. It is understandable that preferences would shift away from a system that is believed to be working poorly, but Danes take pride in their generous welfare state and many wish to maintain it. Danes may need to reevaluate their cultural priorities in order to maintain this welfare state as immigration pressure is expected to continue to rise.

REFERENCES

Andersen, Anders (ed). 1995. *The Danish Counties.* Association of County Councils in Denmark. Copenhagen.

Abramitzky, Ran. 2008. "The Limits of Equality: Insights from the Israeli Kibbutz" in *Quarterly Journal of Economics*, MIT Press, 123.3:1111-1159.

Barrett, Alan and McCarthy, Yvonne. 2008. "Immigrants and Welfare Programmes: Exploring the Interactions between Immigrant Characteristics, Immigrant Welfare Dependence and Welfare Policy." *Oxford Review of Economic Policy*. Oxford University Press, 24.3:542-599

Blume, Kræn and Verner, Mette. 2006. "Welfare Dependency Among Danish Immigrants" in *European Journal of Political Economy*, 23: 453-471.

Brücker, Herbert, Epstein, Gil S., McCormick, Barry, Saint-Paul, Gilles, Venturini, Alessandra and Zimmermann, Klaus. 2002. "Part 1: Managing Migration in the European Welfare State" in Boeri, Tito, Hanson, Gordon and McCormick, Barry (ed.) I*mmigration Policy and the Welfare System*. Oxford, Oxford University Press.

Borjas, George. 1999. "Immigration and Welfare Magnets" in *Journal of Labor Economics*, University of Chicago Press,17.4: 607-637.

---------- and Hilton, Lynette. 1996. "Immigration and the Welfare State: Immigrant Participation in Means-Tested Entitlement Programs" in *Quarterly Journal of Economics* MIT Press, 111.2: 575-604.

Card, David. 1990. "The Impact of the Mariel Boatlift on the Miami Labor Market" in *Industrial and Labor Relations Review*, Cornell University 43.2: 245-257.

Currie, Janet and Gruber, Jonathan. 1996. "Health Insurance Eligibility, Utilization of Medical Care and Child Health" in *Quarterly Journal of Economics*, MIT Press, 111: 431-466.

Danish Institute, The. 1973. *Local Government in Denmark.* Det Danske Selskab, Copenhagen.

Edin, Per-Anders, Frederiksson, Peter, and Åslund, Olaf. 2003. "Ethnic Enclaves and the Economic Success of Immigrants—Evidence From A Natural Experiment" in *Quarterly Journal of Economics*, MIT Press, 118.1: 329-357.

Einhorn, Eric S. and Logue, John. 2003. *Modern Welfare States: Scandinavian Politics and Policy in the Global Age*. Praeger Publishers, Westport, CT.

Esping-Andersen, Gøsta. 1992. "The Three Political Economics of the Welfare State" in *The Study of Welfare State Regimes*. Kolberg, Jon Envind (ed). M.E. Sharpe, Inc. Armonk, NY.

Freeman, Gary P. 1986. "Migration and the Political Economy of the Welfare State" in *Annals of the American Academy of Political and Social Science*, 485.1: 51-63.

Glaeser, Edward L. 2006. "Inequality" in *The Oxford Journal of Political Economy.* Weingast, Barry R. and Wittman, Donald A. ed. 624-641. Oxford University Press, New York.

Hansen, Jørgen Drud. 2003. "Immigration and Income Redistribution in Welfare States" in *European Journal of Political Economy*, 19: 735-746.

--------- and Lofstrom, Magnus. 1999. "Immigrant Assimilation and Welfare Participation: Do Immigrants Assimilate Into or Out of Welfare?" IZA Discussion Paper No. 100. Institute for the Study of Labor (IZA).

Hao, Lingxin and Kawano, Yukio. "Immigrants' Welfare Use and Opportunity for Contact with Co-ethnics" in *Demography* (August 2001) 38.3: 375-389.

Janoski, Thomas and Hicks, Alexander M., ed. 1994. *The Comparative Political Economy of the Welfare State*. Cambridge University Press. New York, NY.

Kommune of Aarhus, "Society: Refugee and Immigrant Advice and Policies" www.aarhus.dk/flygtning_indvandrer.asp

Kupiszewski, Marek, Illseris, Sven, Burham, Helen and Rees, Philip. "Internal Migration and Regional Population Dynamics in Europe: Denmark Case Study." University of Leeds School of Geography Working Paper. Leeds, UK.

Nannestad, Peter. 2004. "Immigration as a Challenge to the Danish Welfare State?" in *European Journal of Political Economy*(September 2004) 20.3: 755-767.

Nørgaard, Stig Martin and Bræstrup, Jacob Wimpffen. 2003. "Fiscal Decentralisation In Scandinavia: Denmark, Norway and Sweden" in *Journal des Economistes et des Etudes Humaines*, 13.4: 501-526. Centre d'Analyse Economistes. Aix-En-Provence, France.

Ministry of Interior and Health, Department of Economics. 2002. *Municipalities and Counties in Denmark- Tasks and Finance*. Copenhagen.

Riphahn, Regina T. (1998). "Immigration Participation in Social Assistance Programs." IZA Discussion Papers 15. Institute for the Study of Labor (IZA).

Roseveare, Deborah and Jorgensen, Martin. 2005. "Migration and Integration of Immigrants in Denmark." OECD Economics Working Papers No. 386.

Petersen, Jørn Henrik. 2005. "Challenges Facing the Danish Welfare State" in *Welfare States and the Future.* Vivekanandan, B. and Kurian, Nimmi (ed). 178-199. Palgrave MacMillan, New York, NY.

Skovsgaard, Carl-Johan and Søndergaard, Jørgen. 1983. "Danish Local Government: Recent Trends in Economy and Administration." Central Control, Local Communities and Local Politics, Report No. 22. Institute of Economics and Political Science, University of Aarhus.

Skovsgaard, Carl-Johan. 1983. "Reforms and Central-Local Relations: the Changing Role of Local Government in Denmark." Central Control, Local Communities and Local Politics, Report No. 13. Institute of Political Science, University of Aarhus.

Statistics Denmark. "Recipients of transfer payments by region, type of benefits, age, sex, and family type (DISCONTINUED)." Cohesive Social Statistics, SAM11. www.statistikbanken.dk

-------- "Transfer payment paid by region, type of benefits, age, sex, and family type (DISCONTINUED)." Cohesive Social Statistics, SAM22. www.statistikbanken.dk

-------- "Immigrated by area, age, sex, country of origin and citizenship (DISCONTINUED)." Immigration and Emigration, VAN21A. www.statistikbanken.dk

-------- "Population 1st January by region, age, sex, marital status (DISCONTINUED)." Population, BEF3. www,statistikbanken.dk

-------- "Unemployed by region and sex(year) (DISCONTINUED)." Unemployment, AAR. www.statistikbanken.dk

-------- "GDP(DKK mio.) and GDP per capita (DKK 1,000) by region, type, and price unit. (DISCONTINUED)." Regional Accounts, RNAT1X. www.statistikbanken.dk

-------- "Educational attainment of the population (15-69 years) by region, ancestry, education, age, and sex (DISCONTINUED)." Education and Culture, HFU1. www.statistikbanken.dk

Tranœs, Torben and Zimmerman, Klaus. 2004. *Migrants, Work and the Welfare State*. University Press of Southern Denmark and The Rookwool Foundation Research Unit, New York.