Heterogeneity, Polarization, and Redistribution:
A comparative study of the United States and Sweden

by

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Executive Summary

Sweden is often studied and lauded for its economic progress. However, as multiple researchers have pointed out, the country’s redistributive ease can also be attributed to low population density and homogeneity.

This thesis examines Sweden’s use of the ‘Nordic Model”—a combination of social democracy and an extensive welfare state. Specifically, it aims to assess the model’s sustainability as Sweden experiences rising population diversity due to immigration. By comparing Sweden’s redistribution systems and demographics to those in the United States, the study also questions whether Sweden’s extensive welfare state could be replicated in the U.S. To answer this question, it compares the past and existing welfare systems of both countries.

The primary differences between Sweden’s and America’s welfare landscapes lie in social capital, trust in institutions, and foreign policy. The study finds that America’s history of low governmental trust and individualistic ideals towards policy-making might impede the implementation of an expansive welfare state like the one in Sweden. However, even if implemented, the welfare model may not be sustainable. Data analysis suggests a strong association between heterogeneity, income inequality, and political instability. As income inequality and political polarization rise, social capital and trust in institutions decrease, signaling the unsustainability of the welfare model in the short term.
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1. Introduction

The Swedish welfare state is a comprehensive model of state intervention working in tandem with a capitalist economy. The developmental success of country has been repeatedly used to label its system as an archetype for other countries to replicate. According to former Swedish Prime Minister Stefan Löfven, the Nordic Model has three fundamental pillars:

- Macroeconomic policy focused on full employment
- Social welfare system for all
- Highly organized labor market

These pillars present their costs and benefits. Universal welfare is primarily sourced through larger tax collections from citizens. On the other hand, the organized labor market leaves out the need for excessive governmental interference. For instance, Sweden has no minimum wage laws as the labor market is efficient and unions have sufficient negotiating power. However, Sweden’s citizens can pay a combination of taxes amounting to 60% of their income.

The success of the model may be a function of historic ease in governance. The country’s population is not as ethnically diverse or as large as those of other developed countries like the United States. Sweden’s demographic homogeneity probably gives the country an advantage over others due to the fostering of social trust and cooperation by widely shared historical connections and socio-cultural values. With a population of 10.23 million (Eurostat) and a GDP of 530.9 billion USD as of 2019 (World Bank), Sweden has the highest population and GDP among the Nordic countries, making it the most comparable with the United States. Sweden’s exports are also very similar to those of the United States. The primary export industries common between the two countries include pharmaceuticals and chemicals, food, and machinery manufacturing. This similarity rules out the comparison of the United States (which does have high resources in gas but is not as economically dependent on them) and
countries like Norway, which are highly dependent on their natural resources for exports. Moreover, Sweden has the highest immigration rates across other Nordic countries. With approximately 14% (Vasileva) of the Swedish population being foreign-born, it is the most comparable to the United States in the challenges it faces with a rise in population diversity.

While most research on the topic of the Swedish model focuses on why these models are successful, shifting demographic dynamics could tell a different story. The model is heavily dependent on social trust. It is difficult to imagine the efficient functioning of societal models, like those in the Nordic countries, if citizens do not trust that other citizens also contribute to the economy through the tax system and that public authorities manage tax revenues fairly and efficiently (Andreasson). Social trust is also instrumental in building social capital. Social capital is an economic resource that can be defined as a positive externality resulting from goodwill, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit (OECD Insights 109). Thus, if people are more comfortable interacting and making political decisions in favor of other individuals with similar cultural roots, a rise in population diversity can have adverse effects. Furthermore, as immigration increases and people interact and live more with individuals from very different backgrounds, this trust might diminish.

1.1. Hypotheses

This thesis aims to understand whether the welfare state in Sweden is sustainable and effective even with a more diverse population. This analysis will also explain if the United States can utilize the strengths of such a model and possibly implement the same in the future. Combing through these arguments will require determining two main factors: 1) The sustainability of the welfare state under conditions of rising heterogeneity and population diversity and 2) the similarities and differences between the United States and Sweden, which may illustrate difficulties or ease of welfare integration.
The first factor would also be dependent on two main aspects: 1) political polarization and approval of the policy and 2) changing income inequality. The study hypothesizes that there is a positive relationship between income inequality and population heterogeneity and between heterogeneity and political polarization. If this trend continues, there could be a deterioration in social trust and confidence in the government to redistribute income efficiently. If this is the case, the model may not be implementable in the United States due to its high population diversity. The lack of high trust in government in the United States along with various other historical factors may further impede welfare implementation as well.

1.2. Relevance

As demographics change, social trust is impacted. This could lead to a political and/or ideological movement to extremes. For instance, fueled by an immigration backlash right-wing populism has taken hold in Sweden through the steady ascent of the Sweden Democrats - a political party with neo-Nazi roots (Becker). In the 2018 elections, they captured nearly 18 percent of the vote as Sweden accepted more refugees per capita than any other European country (Becker). A similar trend has been seen in the United States as the Trump administration embraced right-wing nationalism through their rigorous immigration policy. Such a stark political divide amongst the countries’ voting citizens could lead to decreasing approval of the redistributive policy and higher policy uncertainty. The changes in demographics along with the existing policy’s impact on income inequality will further help judge the effectiveness of the policy. Immigrants contribute to the economic development of countries, but they earn less at entry and it takes many years for them to achieve parity of income (Anderson). Even though Sweden’s welfare mechanisms are meant to redistribute income extensively amongst the working-class population, it needs to be understood whether these mechanisms are inclusive of immigrant and refugee populations. If they only restrictively apply to the immigrant population, it can have negative effects on income inequality across generations of immigrant families. The 2020
American Presidential Election has instigated a widespread debate around the American economy and how it would mesh with a social welfare system in the future. Understanding whether such welfare can be implemented in the United States will involve looking back and understanding what impacts welfare policymaking in the two countries. It was also involve understanding whether the Swedish welfare state can sustain through higher population heterogeneity.
2. Implementation of welfare in Sweden and the United States

Understanding whether the Swedish welfare model can be replicated in the United States involves exploring the barriers to implementing such a welfare model in the United States. Barriers to implementation can stem from the cultural, economic, and political differences of the countries as policy approval and passage are heavily influenced by sentiments of citizens and multiple other interest groups at the time. While elected officials are often important in shaping policy, most policy outcomes are the result of considerable debate, compromise, and refinement that happen over years and are finalized only after taking inputs from multiple institutions within government, external interest groups, and the public (Lumen). This section will attempt to explain these differences and how they could pose problems in implementation by examining the past and present of welfare policy in the two countries.

2.1 Welfare in Sweden

The Nordic welfare state stems from historic class structure dynamics, determined by institutional and economic movements. An exploration of these factors, from the era of industrialization to post World War II, should provide a more expansive view on what drove and still drives the propagation of redistributive policies within the countries. In 1897, the Social Democratic parties of the Nordic countries formed the Joint Committee of the Nordic Social Democratic Labor Movement (or SAMAK) to coordinate the efforts of labor unions in the Nordic countries with those of the governments. In addition to this, the European countries, in the wake of World War I, saw a surge in socialist movements. Consequently, the period marked the popularization of Social Democratic Parties in the Nordic countries. This led to the gradual development of welfare mechanisms and increased state intervention.
2.1.1 Labor policy

Sweden was a majorly capitalist society throughout the 19th century but, this focus on free-market economics had adverse effects. The era of large enterprises, the division of labor, the introduction of machinery, and the advent of a modern economy created mistrust between workers and employers and induced poverty (Magnusson). As a result, discontent with income inequalities and lack of state intervention led to widespread labor unionization as skilled and unskilled workers formed small coalitions and led the union movement. The Nordic countries’ Social Democratic Parties utilized this momentum to form a transnational organization called the Joint Committee of the Nordic Social Democratic Labor Movement (also known as SAMAK) in 1886. This increased collaboration was further centralized through the formation of the Swedish Trade Union Confederation (also known as LO), in 1898, by the Socialdemokratiska Arbetare Partiet (also known as SAP or Swedish Social Democratic Party) which brought together partnerships of blue and white-collar workers under an umbrella organization. In 1902, employer alliances were also established under a collective called the Swedish Employers’ Confederation (also known as SAF). Subsequently, the rise in the demand for state protection against the market, along with food riots and worker strikes in the early 1900s, led to an upturn for socialist sentiments in the country. In 1917, SAP gained a majority after decades of not being in power. This year symbolized the beginning of a period, from the 1920s to 1970s, of political peaks for the party. For the first half of this period, the electoral support of the SAP increased, which increased the party’s relative power within the parliament (Congleton). This sustained parliamentary occupancy led to multiple welfare reforms that still define the Swedish welfare state today. In the 1930s, Scandinavian trade unions and employer organizations, urged on by experiences of harsh industrial conflicts, were ready to further specify the rules of the game and to consolidate the system of negotiations and agreements (Kettunen). This was landmarked by the Saltsjöbaden Agreement launched by SAP and SAMAK in 1938. This agreement, signed by the Swedish Trade Union Confederation and the Swedish Employers Association, was meant to increase coordination between workers and employers by setting standards and laws for negotiations between the two associations across industries. The strength of the labor unions in
Sweden gave them the power to influence economic conditions in the country through worker strikes. This strength was institutionalized by the Saltsjöbaden Agreement and affirmed the worker unions of their influence. Ultimately, the agreement made sure that strikes were used as a last resort by unions and that negotiations between the worker and employer associations could take place seamlessly without immense state intervention.

During the post-WWII period, it became apparent that the supply of labor compared to the demand for employees was low. After the war, the shortage of labor - at that time a new experience for politicians and labor - caused wage increases exceeding productivity gains and, consequently, cost-push inflation (Meidner). This created a need for full employment while maintaining flexible, market informed earnings to maintain employer and worker power. Thus, under pressure from the radical left, SAP established a system of economic democracy. Using Economist Rudolf Meidner’s plan, the Parliament proposed that portions of any new stock issued by companies should be sold to groups consisting of relevant trade union members. This gave the groups called wage-earner funds, with trade union members in their board of directors, a significant say in the working of companies and adjusted the traditional socialist ideals to that of free-market systems like Sweden’s. Moreover, the dividends from the stocks were also shared with employees to compensate them in addition to their wages. Regardless, this system was discontinued in 1991 after the conservative Labor Party took power and as the SAP became increasingly distant from LO and the labor movement. Throughout the 1970s and 1980s, bargaining also became an increasingly complex undertaking, as the union system fragmented into several blocs of relatively equal strength, sometimes blurring the old blue-collar/white-collar divide (Olsen). This dispersed power made unanimous decisions rare, and the negotiations of collective agreements thus broke down as divides within trade unions increased.
2.1.2 Relief and Pensions

In Sweden, income inequality between the agrarian and wealthy classes quickly decreased through the 19th century. The breaking up of feudalism was immediately followed by the rise of independent peasants and as the gap between the nobility and the peasants kept decreasing, the probability of dissent due to oppression or economic inequality also decreased (Iqbal & Todi). The largely peaceful transition along with immense worker power made the introduction of welfare reforms less controversial. Redistributive policy in Sweden can be traced back to the institutionalization and secularization of efforts led by the Church of Sweden to provide donations to the disadvantaged. The first milestone in welfare policy set by the Swedish government was the 1871 Poor Relief Act. This Act offered provisions from the state to the poor, but relief was restricted to very specific disadvantaged groups like orphans and the aging. These restrictions were thus, insufficient to address the relief needed throughout the growing impoverished population in the country in the 19th century. In 1918, this Act was reformed in a significant way by the SAP. The reform extended the scope of compulsory poor relief, introduced the right of appeal, and abolished the right of poor-relief authorities to act as masters and guardians of recipients with legal capacity (Edebalk). Policies concerning benefits for the aging were also introduced in this period.

In 1913, a pension scheme was announced. A pension was to be paid to anyone incapable of working on account of disability or having reached the age of 67 (Edebalk et al.). This pension reform was meant to provide tax-financed pensions to all who could not avail any from their own contributed income. While it serviced a larger population with welfare and relief than the Poor Care Act did, the amounts paved from the tax-financed portion were still low and did not accommodate all older citizens. Only some citizens, above a certain age and in financial need would receive pensions. Some people were still availing Poor relief in addition to these pensions as the pension amounts were so low. In 1938, after noticing the inadequacies of the pension act, the government set up a Social Care Committee to assess the provisions and provide solutions. Subsequently, in 1946, the government unanimously decided in providing flat-rate, universal
pensions. This meant that regardless of occupation and financial need, all people over the age of 65 would get the same tax financed pensions. Also called the *folkpension*, the amounts paid to the qualified pool would be independent of their income or the number of years they had worked. This furthered the universalism that the Social Democrats were working to proliferate throughout Sweden. SAF also promoted the pension plans as it transferred the financial cost of providing pensions to the government from the employers (Edebalk et al.).

After World War II, as SAP’s popularity peaked, insurance reform noticeably accelerated. In addition to introducing government funded accident and health insurance for all workers, the Social Democratic Party introduced the ATP scheme. This provided people with a supplementary pension, over the basic *folkpension*, if they contributed considerable parts of their incomes to the fund for the last 30 years. The supplement, dependent on individual earnings, was meant to provide more substantial financial support for pensioners and to mitigate old-age poverty. However, this system was unfair for persons with long working and large contribution histories as the supplementary amount depended simply on the average of the individual’s best earnings across 15 years (Palmer). If some people had contributed for longer, they might have been compensated lesser than others who had worked for a shorter time but with 15 years of higher earnings. This disparity along with growing concerns of a falling GDP per capita made a new pension system crucial.
In the 1960s, as seen in the graph, growth of GDP per capita was gradually declining and this increased concerns about the ability to meet future pension commitments as labor force participation stagnated. The fewer the contributions made and the lesser the amounts of the contributions, the more difficult it would become to finance payments for future pensioners who were growing faster in numbers than income earners. These concerns around an aging population led to another monumental reform. In 1994, the Parliament, with a Swedish Social Democratic majority, replaced its pension system with a pay-as-you-go (PAYG) notional defined contribution (NDC) system and an advance funded second pillar with privately managed individual accounts, supplemented with a guarantee at age 65 for persons with low lifetime earnings (Palmer). The program was meant to move away from the well-defined, flat-rate pension system and provide a scheme dependent on macroeconomic and demographic factors. Pensioners had accounts with notional balances, based on their decided contributions through the PAYG system. The notional balance of an individual’s pension would grow at a rate based on demographic
factors like the growth of labor force participation, life expectancy, and labor productivity. These balances still depended on government promises but the pensions were adjusted according to the relevant population and macroeconomic metrics which made them sustainable through the growing aging population in Sweden. Thus, in addition to the flat-rate guaranteed public pension (derived from *folkpension*; meant for those who may have low or no incomes), this reform elected multiple levels of income based pensions through the base NDC system and a premium pension for those who wanted to choose to invest their contributions in the stock market instead of government securities. This pension system is still in place in Sweden and has gone through little reform over the years because of its efficiency.

### 2.1.3 Healthcare

Healthcare was largely handled by the central government in the early 1800s until these responsibilities were passed onto local governmental bodies in the 1860s. Thus, unlike labor organization, the public healthcare system in Sweden was highly decentralized. The Hospital Act of 1928 made county councils, a secondary tier of local government in Sweden, responsible for providing hospital care to their residents (Regional). These city councils took care of primary health concerns at first but by 1951, their functions had expanded to long term care, dentistry, and maternity care. Eventually, under the Social Democratic government in 1946, the first National Health Insurance Program was passed.
To illustrate, in the graph above, there is a stark increase in the share of GDP explained by public health expenditure from 1930 to 1960. The 1946 reform can help explain the same as it increased public health expenditure by the central government markedly. The program was instituted to provide universal coverage for all citizens by offering deductibles on all major health care services. Observably, this originated the health care provisions of the central governments seen in Sweden today.
2.1.4 Education

In 1842, King Karl XIV Johan passed the School Act which laid the foundation for free, compulsory primary schooling in Sweden. However, researchers have reduced the significance of the School Act noting that the Act did not introduce literacy to the Swedish population, as the population already was able to read long before the school act (Westberg). At first, the responsibility to educate was relegated to individual households by the Church, keeping with Lutheran tradition, through the 17th century. Eventually, this household education was replaced by schools run by parishes locally. Thus, this meant that by the time the School Act was passed, a lot of the citizens were well educated. Moreover, as commercialization took its effects, citizens felt an even deeper need to get educated and keep up with novel markets and novel work. All these favorable components led to a subsequent expansion of the free education system in Sweden by the start of the 20th century. Nonetheless, state subsidization of education in Sweden was still low. While the School Act set up a foundation for universal education, it did not assign the state entire responsibility for managing the schools. As a result, the 1913 State Subsidy reform caused education in Sweden to be primarily subsidized by the state instead of local councils or parishes. It cemented the decentralization of the education system as Swedes observe it today.

2.1.5 Taxation

The tax structures of Sweden have also seen changes in accordance with the economic and social developments of different periods. From the 1800s to the early 1900s, indirect taxes made up almost 80% of the central government tax revenues. These taxes included excise duties, customs taxes, and consumption taxes. This was also during a period when expenditure by the government on various welfare programs was not extensive. As welfare spending grew, direct taxes started to grow in proportion as well. As seen in Figure 3 below, in 1901, indirect tax made up 86.8% of total tax revenues.
for the Swedish Central Government. In due course, this figure started to decrease as income taxation increased. In 1903, it became mandatory for all taxpayers to file an income tax return, and it became possible to increase income taxes in a more consistent way (Henrekson 27). The reform aimed to transform the taxation system to a more progressive one. This explains the marked rise between the income tax shares in 1902 and 1903 in Fig. 3 as well. After 1903, the share of income taxation had a positive trend as more tax reforms increased the emphasis on direct taxes.

Another marked increase in income taxation share can be seen from 1945 to 1951. While World War II can help explain some of this increase, a tax reform passed in 1948 further cemented the changes made during WWII. The government had introduced a short term increase in progressive income taxation during the war to help finance higher government expenditure and redistribute income, but the
1948 reform made these increases permanent. After 1948, with the SAP in power for a considerable period of time, high taxation to finance the welfare state remained the norm.

2.2 Welfare in the United States

Social welfare in the United States has been in constant evolution over the centuries. Vividly different from the system in Sweden, the United States’ economy was built with a focus on capitalist and individualist ideals which took away focus from the early development of comprehensive welfare systems. However, the impact of the Great Depression in the 1930s, increasingly convinced the majority of the American people that individuals could not by themselves provide adequately for their old age, and that some form of greater security should be provided by society (CRF). Following the devastating effects of the Depression especially on less wealthier populations, Franklin Roosevelt’s New Deal introduced the earliest wave of welfare reforms in the country which lasted until the late 1990s.

2.2.1 Labor Policy

The age of industrialization spurred the spread of unionization in the United States. The 18th Century saw the formation of many local trade unions across major industrial areas in the United States in hopes to maintain worker rights and wage negotiation in an increasingly industrialized and capitalist society. While the unions did have sufficient bargaining power in some regions, the centralization national recognition of this power was established primarily through Roosevelt’s pro-union New Deal post the Great Depression. In the mid-1930s U.S. employers faced an unprecedented situation in confronting an insurgent labor movement spearheaded by the Committee for Industrial Organization (CIO), an energized American Federation of Labor (AFL) and federal legislation that protected the right to organize by establishing the National Labor Relations Board (NLRB) (Feurer & Pearson). Along with the NRLB, a National Labor Relations Act was put into place federally in 1935. The Act required all
businesses to recognize unions’ demands and negotiate according to the best interests of their workers. Subsequently, Anticommunism in wake of the first World War offered an important rallying cry for employers and industrial organizations like the National Association of Manufacturers (NAM) to combat the CIO and enlist conservative AFL leaders in a covert alliance (Feurer & Pearson). This movement saw a lot of support from various state agencies including the FBI and members of Congress against the welfare heavy New Deal. As World War II ended, the tides changed against unit favor. In 1947, the Truman Administration passed the Taft-Hartley Act to mitigate the bargaining power of labor unions in response to the great strike wave of 1946. Workers all over the country expected a significant raise in wages and working conditions after the end of the War, (during WWII unions agreed to not strike because of the adverse conditions the time) but this was not prioritized by the major industries at the time. This led to immense discontent amongst workers and widespread strikes throughout 1946. Consequently, the Taft-Hartley Act acted on the belief that the giant postwar strike wave was politically inspired and the product of “communist” and “subversive” influences (Richer & Montgomery) and hoped to curb any economic downturn resulting from such large-scale strikes in the future. This anticommunist sentiment continued on throughout the Cold War as unions were investigated and targeted as possible anti-nationalists. As seen in the figure below, the number of workers participating in union strikes fell drastically since the 1970s. Even as foreign imports continue to increase and undercut American Production (Collins 288), union participation continued to fall even throughout an expansion of globalization and free trade agreements.
In 1980, the percentage of union members amongst all employees was 20.1% but by 2000 this figure reached 13.4% and continued in a decline (USA Facts).
2.2.2 Relief and Pensions

The first instance of poor relief in the United States is the introduction of the early English ‘Poor Laws’ in the colonial periods. Parish officials were given the authority to raise taxes as needed and use the funds to build and manage almshouses; to supply food and sustenance in their own homes for the aged and the handicapped, (e.g., blind, crippled); and to purchase materials necessary to put the able-bodied to work (Fall et. al.). Throughout this period, a lot of aid efforts were also taken up by communities themselves. America was still a largely agrarian society at the time. In the ‘Land of Opportunity’, the culture towards the poor was still very individualistic as people still had to live and work in the almshouses to receive relief. In this period, state and local governments took on the responsibility of providing for the poor as there was no centralized Federal system. The Civil War marked the first instance of a relief system provided by the Federal government. The Pension Act of 1862 offered Civil War veterans a pension based on their service in the war. The federal government also refused to pay pensions to soldiers who had served in the Confederacy, so the burden of providing relief for these veterans fell on the individual Southern states (Encyclopedia.com). Nonetheless, by 1890 the Federal government extended the pension system to all veterans.

The Great Depression and President Roosevelt’s New Deal marked yet another turning point for relief in the United States. In the 1930s, the Federal government took on the responsibility to provide for the impoverished as the States and local charities were depleted of resources to provide. This culminated in the Social Security Act of 1935. This law established two social insurance programs on a national scale to help meet the risks of old age and unemployment: A Federal system of old-age benefits for retired workers who had been employed in industry and commerce, and a Federal State system of unemployment insurance (SSA). This Act resulted in a growing presence of Federal aid in the United States. Amendments expanded Social Security’s reach from retirement benefits to expansive support for
families through the Aid to Families with Dependent Children (AFDC) program. Forwarding to the 1990s, there was heavy criticism of Social Security. In 1996, a Republican Congress passed, and President Clinton signed a reform law that returned most control of welfare back to the states, thus ending 61 years of federal responsibility (CRF). The 1996 reform law replaced the old AFDC with a new program called Temporary Assistance for Needy Families (TANF) wherein a portion of recipients were required to work or prepare for work as a condition of receiving aid (Rector).

2.2.3 Healthcare

The first proposals for health insurance in the US did not come into political debate under anti-socialist sponsorship as they had in Europe (PNHP). The first instance of health insurance as a public campaign came from the American Association of Labor Legislation (AALL) in the early 1900s. While the Bill was not passed into legislation, it illustrates the earliest support for health care benefits provided by employee contributions, employer contributions and taxes. The American Federation of Labor (AFL) and the private insurance industry opposed the Bill as they thought the Bill would make unions and private insurance obsolete. The next attempt to bring public health insurance into law was the National Health Act of 1939 or the Wagner Bill. The Bill offered significant funding to the states to offer and expand health insurance programs for their residents. Although the bill would have enabled states to use this funding towards universal or mandatory health insurance programs if they chose, but states were left broad leeway in how they used the funds to achieve the stated goals of the bill (Healthcare-now.org). The bill was finally trumped by lobbying by the American Medical Association (AMA) as well as a more modest version of the bill. Then, in 1943, the Internal Revenue Service decided that employer-based health insurance should be exempt from taxation which made it cheaper to get health insurance through a job than by other means (Carroll). The AMA continued lobbying against health benefits bills through
the 1960s. Lyndon B. Johnson’s Medicare and Medicaid bill, in ode to Harry S. Truman’s national health program proposition in 1945, was introduced to provide health insurance to anyone above the age of 65. The Truman proposition itself was denounced by the American Medical Association (AMA), and was called a Communist plot by a House subcommittee. Since health insurance was mainly dependent on employment in the United States, Johnson’s Act aimed to provide coverage for all retired individuals regardless of employment. In 1965, this Bill was signed into legislation with health insurance coverage for those over 65 or under 65 with disabilities or severe conditions through the Medicare provision. The Medicaid provision on the other hand, provided coverage for impoverished families/individuals. These Acts also had the reduction of racial disparities as healthcare promotion goals when passed. Hospitals and clinics had to prove that they were no longer segregated to receive Medicare funds (Fee). Medicaid now has a minimum income level eligibility across the country, so that less generous states will have to pay more to meet the federal standards (Fee). A more recent instance of political back and forth about expansive healthcare coverage is the Affordable Career Act, passed by the Obama administration. The Act expanded the eligibility requirements under Medicaid and instituted a tax for those not enrolled in an insurance program of any sort. Large and medium employers were required by the Act to provide employees with health insurance plans while small employers were given tax credits for providing insurance. With many more provisions for reducing discrimination against those with pre-existing health conditions and financial hardships, the Act was definitely a move in line with reducing a significant number of uninsured Americans. Regardless of the positive mandate of the bill, the opposition to a government role in health care is based on the fact that that the vast majority of our citizens do not trust their government (Dalen et. al.). According to a poll conducted by the Kaiser Family Foundation¹, when asked whether regulation by the federal government or competition in the marketplace would do a better

¹ Source: https://www.kff.org/health-costs/poll-finding/kaiser-health-tracking-poll-august-2015/
job at keeping prescription drug costs down, more people preferred competition in the marketplace than government regulation in 2015. The divide about government participation in healthcare was even more pronounced as the ACA went through several revisions before being passed due to extreme discontent amongst the Republican Party and private health insurance lobbyists. 45% of the public did not approve of the bill in 2010 according to a survey by the Harvard School of Public Health (Dalen et. al.).

2.2.4 Education

Education in the United States began with a religious backdrop in the 18t century. The overriding belief on educating the children was more due to religious reasons and was easy to implement in the New England Colonies as the only groups in existence were the Puritans and the Congregationalists (Oregon State University). Moving forward, as communities became more diverse through the influx of more immigrants, each community formed their own education systems, and the schooling became dispersed and specific to each community.

The mid 1800s saw the development of a localized schooling system in the United States as counties and towns constructed school districts that managed their own funding for schools according to regional designations. Their funding was financed by county taxes and under this system the greater the homogeneity within the community concerning “taste” for education, the more citizens would vote to spend on education (Goldin). If the decision-making unit included families with widely differing incomes and tastes for education, it is possible that both the bottom and the top of the distribution would opt out of the public education system, leaving the middle group with a poorly financed or non-existent school system (Goldin). Opting out of the schooling system meant paying for private school which also resulted in an inefficient allocation of taxes. This system continues on today as it is States and communities, as well as public and private organizations of all kinds, that primarily fund and establish
schools and colleges, develop curricula, and determine requirements for enrollment and graduation (US Department of Education).

2.2.5 Taxation

While taxation in the United States had a foundation in the experiences of settlers through the British regime, Federal taxation was largely shaped by emergencies and times of extreme volatility. World War I marked the first instance of such reactionary yet expansive tax reform. The War Revenue Act, in place from 1916 to 1917, was enacted to raise more revenue for the government to finance their role in the war. In the end, income taxes ranged from 16% in the lowest bracket to 67% for high income earners. Consequently, this raised concern amongst the citizens who were used to paying only 1-7% in income taxes to the Federal government. In an attempt to assuage fears of excessive government intervention into private financial affairs, Congress added a clause in 1916 requiring that all information from tax returns be kept confidential\(^2\). After the end of WWI, taxes took a dive, and the economy experienced a boom. Moving forward, the period of Roosevelt’s New Deal and WWII, introduced raised taxes yet again to help support the economy. At its peak, income taxation reached a high bracket of 94% as seen in the figure below. Taxation stayed reactionary in the following periods as taxes were primarily raised through the Great Depression and World War II to float the economy.

\(^2\) Source: History.com
After World War II, taxes remained high until the 1980s. From about 1960, the economy began to change, with an increasing proportion of earnings and wealth being tied to value created by way of the exercise of talent through work (Martin). With this change there came a growing awareness that 90% personal income taxation had a disincentive effect (Martin). There was thus, a sustained decrease in income taxes since the 1980s. The Economic Recovery Tax Act of 1981 slashed the highest rate from 70 to 50 percent, and indexed the brackets for inflation after which, the Tax Reform Act of 1986, expanded the tax base and dropped the top rate to 28 percent for tax years beginning in 1988 (History). This was
an attempt to incentivize and attract talent to the booming American enterprises and boost performance further. Attitudes towards taxation has remained relatively the same until recent times. The 2016 and 2020 elections saw a focused discussions on how progressive or flat the tax system needs to be. In line with his campaign, President Trump, signed the Tax Cuts and Job Act into law in 2017 was a large overhaul of the tax system in place. The GOP's big plan ultimately gave a larger tax break to the wealthy and preserved certain tax savings for the middle class, including the student-loan interest deduction, the deduction for excessive medical expenses and the tax break for graduate students (Long). Since the tax cuts were mainly based around categories like corporate tax and estate tax many in the country believed that the cuts were centered around benefitting only the wealthy as high earners were most likely to be impacted by such specific cuts. A study done by the Pew Research Foundation in 2019 found that 64% of Republicans found the tax system fair while only 32% of Democrats had the same inclination\(^3\). Moreover, the tax reform enacted by the Trump administration had a narrow 36% approval. Evidently, views about taxation today are even more split across party lines with a huge divide in opinion. This is also illustrated through Joe Biden’s campaign and promises to tax the rich more.

\(^3\) Source: Pew Research Foundation
3 Comparing Sweden and the United States

The above examination of historic and present welfare policy provides a clear foundation for the analysis of possible impediments to the implementation of an expansive welfare state like that of Sweden in the United States. The differences between the countries can be categorized as the following:

3.1 Trust in institutions

The Welfare State in Sweden is driven by extensive trust in state institutions and social capital (Trägårdh). Institutions, in this context, include governmental and non-governmental establishments that aid welfare and redistribution in the country. This forms a base for the social democracy in Sweden, where trust is placed in the state to intervene and curb the negative externalities of the capitalist markets. This special trust in institutions is apparent from the high taxes people in Sweden have been and are still willing to pay to finance the welfare state. The high level of trust in institutions is also evident in the high level of union participation and the centralization of this participation with 65%\(^4\) of the country’s workforce remaining unionized as of 2018. A vast majority of the workforce still trust that unions will be instrumental in fighting for bettering wages and benefits. Comparatively, trust in the United States is divided. The ability of the government to interfere is blocked by the inclination of the society to more capitalistic ideals. While Sweden also has a capitalist market, the American system is more inclined towards private sector providing the welfare itself. This is exhibited by the historic participation of the private sector in the health insurance system and low trust in government. After private health insurance was significantly popularized during World War II, Americans started to rely on employers for their health insurance. The government funded this further through tax exemptions for benefits provided through the workplace even though it would cost significantly lesser to have a public insurance system instead. Notably, in 2019, 36% of American survey participants greatly trusted the medical system, 19%\(^4\) Source: OECD Stats
greatly trusted big businesses, while only 11% greatly trusted Congress. This trend in low confidence in government has been consistent historically.

Fig 6. United States Trust in Institutions 1977-2020
Source: Gallup Analytics

Data by OECD, shown in the graph below, confirms the differences in institutional trust in the two countries further. The citizens of United States, when compared to other countries have a very low trust in government (at 36% in 2019) while 51% of Sweden’s citizens trusted their government.
Historically, Sweden has had much more confidence in their government according to polls conducted by Gallup Analytics from 2006 to 2020.

With Americans’ history of trusting market forces over Congress, implementing a welfare state that overhauls major functions of the private sector like driving the labor market and providing health insurance and health care might prove difficult to pass through Congress. At the same time, such sentiments can gradually change over time, as seen above, and such difficulties may decrease.
3.2 Individualism and Capitalism

In Sweden, welfare has been universal since its conception and adoption. This has two major implications: 1) people receiving support from the government cannot be portrayed as “the others” and 2) compared to means-tested programs, universal ones are far less likely to create suspicion that people are cheating the system (Rothstein). The historic universality of welfare has built a system of ‘Statist Individualism’ within the country. This concept, first coined by historians Lars Trägårdh & Henrik Berggren, identifies a contract between the individual and the state wherein the individual relies on the state to liberate them from fiscal dependence on the free market and family. This ideology is visible in the high levels of trust the Swedes hold in their government and possibly stems from the universalistic welfare state. The highly localized nature of Sweden’s healthcare and education policy cements this further as it also showcases a strong trust in local government. Contrastingly, the United States’ welfare policy has been largely shaped by capitalist and individualistic ideals. Classified mainly by the stringent means tested policy adopted in the past, the ‘Land of Opportunity’ has historic examples of offering relief to only those who work for it or are in dire need for it. The foundations of relief for the impoverished along with campaigns like that of the Clinton administration to stop the free riding of people exemplify the same. Contrastingly, a Harvard study from 1991 argues that economic individualism appears a hegemonic value in the United States partly because of the lack of political influence and low socioeconomic status of those most committed to social responsibility beliefs (Bobo). In this argument the lack of political influence is key to focus on. With low political influence or participation, those with a belief in heavy redistribution are trumped by those who believe otherwise. This is evident even in the passage of health insurance and labor policy in the United States. With large lobbyists and special interest groups like the private insurance industry, AMA, dominating policy

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3 See ‘Poor Relief’ in America in Section 1
discussion, the private sector holds large bargaining power. This is not as prevalent in Sweden as the welfare state. Instituted with the idea of decommodifying labor and maximizing human development, the state is more inclined to work towards the interests of the citizens directly and not through the private sector. Such differences in redistributive mechanisms can make implementing the welfare state difficult as it may clash with private sector interests and result in delayed and possibly failed policy propositions unless these groups are negotiated with, assuaged, and limited in their bargaining power.

3.3 History of change

Sweden has largely had a history of peace. The society was founded in a peaceful shift from an agrarian to wealthy society with low income inequality and quick rise of the middle class. The citizens at the time also came from a common religious and cultural background, reducing the probability of dissent and hatred towards ‘others. Further on, the country did not participate in any major wars and has had a politically neutral stance throughout any global conflicts. This is not true for the United States. United States’ engagement in warfare has brought about different implications for welfare related policy making. While the federal tax system stems from the Civil War, Americans’ views on interference from the state stem from adversities other countries had to face from extensive government participation. The Red Scare provides a perfect example for the same. Throughout the late 1900s, a lot of unionization and welfare policy was lobbied against for its ‘communist values’. The otherizing of such values stemmed from the conflicts of World War II and the Cold War, wherein the nation was fighting the common enemies of fascism. Thus, it can be argued that after participating in the World Wars, American citizens became stronger believers in their values of individualism and free market competition with low government interference. Even though taxes were raised during the wars, they were subsequently decreased, creating reactionary tax raises and not a sustained belief that increased tax spending would lead to better living standards and better welfare. It can also be argued that further participation in wars
could have caused a divergence in trust amongst people. For instance, the motives for the devastating 9/11 terrorist attack lay in America’s role in foreign policy in the Middle East. Post attack, the country witnessed a steep rise in xenophobia and Islamophobia (Awan). This phenomena of otherizing nationals from the enemy state has been a trend in the short term historically from the Japanese Internment Camps during World War II to the recent rise in hate crimes against Asian Americans through the COVID-19 pandemic. This is also not including the countless number of instances of police brutality against African Americans, stemming from deep-rooted racial disparities and discrimination from before the Civil War era. With the country playing such a big role in war in certain regions and having a complicated history of dealing with a heterogenous population, more citizens may see nationals from those regions as a threat and might be less willing to redistribute to them. More foreign born nationals also may be less trusting of Americans due to past instances of discrimination, putting the social capital required to build a welfare state at risk. At the same time, putting universalist policies into place may help curb some of this otherization and promote social capital through increased trust. Social Capital can be defined as the trust and relationships identified in networks of people that establishes the groups to work together. Formation of social capital through increased social trust, leads to an efficiency within the economy and various institutions. Simply put, if people trust each other, they are more likely to redistribute to each other and believe that others will contribute the same. Regardless, this field is a widely researched one and understanding how ethnic, racial, and religious diversity impacts social trust is important in understanding whether heterogeneity in the United States would be a deterrent to the implementation of the welfare state in the country.
4 Sustainability of the Welfare State in Sweden

The welfare state in Sweden is dependent on social trust and on its ability of maintaining low income inequality. Without social trust and heavy social capital, people would not be as willing to redistribute about 60% of their income. Moreover, if the welfare state was incapable of maintaining low income inequality, it could be inferred that there would be increased dissent against the system from the classes most affected. This section of the study aims to understand whether heterogeneity has an association with these two mechanisms of the Swedish Welfare State through quantitative and qualitative analysis.

4.1 Social Capital and Heterogeneity

Research in the field still debates about what the right definition of social capital is and what factors impact it, however, existing studies apply very aptly to the Swedish model. Sweden prides itself on its own gold: Social Trust. In many ways, social trust concerns the expectation that a given norm is respected by people they do not know, and the expectation that these people do not have dishonest intentions (Andreasson). Researchers usually argue that extending measured results of social trust from the individual to the societal level enables comparisons of the social capital between different societal and geographical areas (Andreasson). Robert Putnam, a researcher renowned for his work in the same, argued that immigration and ethnic diversity hindered the development of social capital in the short term (Putnam). This could be explained by a lower trust from immigrants who have faced discrimination in the past and are inherently less trusting of others or low trust from citizens who are unable to interact effectively with foreign-born populations due to barriers. The contribution of heterogeneity to this decline may lie with language barriers, differing cultural and religious views and geographical segregation. Bo Rothstein, an equally renowned Swedish researcher, argues otherwise. In his work, Rothstein argues that Putnam’s and others’ work is rather apocalyptic and argues that this negative
relationship between social capital and heterogeneity cannot be generalized\(^6\). These arguments led this study into understanding what drives social trust and whether population heterogeneity in specific can drive a decline in social trust and possibly social capital.

Rothstein, in his work, argues that informal exchanges and increased interaction between people from different cultures bridges the gap in social capital and thus, in Sweden heterogeneity might have a less direct negative impact on social capital. However, geographical, and cultural segregation may indicate otherwise. In the case of Stockholm, space syntax network analysis and the establishment of ethnicity as a statistical category suggest that despite the social infrastructure provided by the Swedish state, the city’s specific spatial configuration alongside its policies of housing allocation have resulted in severe constraints on the potential for co-presence between new immigrants and the native Swedish population (Rokem & Vaughan). Even with Sweden’s focused multiculturalist stance on policy, Stockholm sees a geographical segregation between different ethnicities in the city which may increase distances between people of different cultures. These distances could then reduce instances of informal interaction and thus, the ability to maintain high social capital. Moreover, income inequality has been known to negatively impact social capital in the short term. A study by the IMF suggests that inequality at the bottom of the distribution lowers an individual’s sense of trust in others – in the United States and in Europe (Gould & Hijzen). Thus, if heterogeneity has an association with income inequality, the two could have a cumulative negative effect on social trust in Sweden and the United States.

\(^6\) See Questioning the New Liberal Dilemma: Immigrants, Social Networks, and Institutional Fairness by Bo Rothstein and Staffan Kumlin
4.2 Income Inequality Analysis

The first step in investigating the sustainability of the welfare state in Sweden is to understand whether the redistributive mechanisms are working effectively even amidst rising population heterogeneity. Income inequality has been increasing faster in Sweden than it is for its Nordic neighbors and Sweden still has by far the highest share of foreign-born people in the Nordic Region (Nordregio). Clearly, the existence of an association between heterogeneity and income inequality needs to be studied to understand whether this could adversely impact social trust and capital in the future. This would involve understanding how income inequality changes as diversity changes. Income Inequality is impacted by multiple macroeconomic factors including GDP growth, unemployment, and redistributive policy. To understand how income inequality in Sweden and the United States is impacted in the long term by demographic changes specifically, it is crucial to isolate the effects of such movements and judge the impact of the movements relative to those of other macroeconomic elements. Particularly, identifying how the number of foreign-born residents and immigrants in the countries impact income redistribution will be key to understanding how Sweden and America will sustain through increasing population diversity. If income inequality is negatively impacted by changing demographics, ongoing refugee crises and increasing immigration could undermine the countries’ redistributive policy in the long term.

The influence of the various macroeconomic and demographic variables on the countries’ GINI indices can be constructively understood through multivariable linear regression analysis. The variables selected to run the regression on are:

- **Macroeconomic parameters**
  - **GDP per capita growth**: In the widely regarded findings by Simon Kuznets, it seems clear that stability or reduction in income inequality in developed countries was accompanied by significant rises in real income per capita (Kuznets). Adjusting for this relationship between the growth in
GDP per capita and the Gini coefficient would illustrate movements in income inequality better and help eliminate the influence of the same on other related factors. Kuznets’s findings explain how changing demographics are correlated with income per capita because of migration into developed countries. For instance, the Pew Research Foundation reported that the median annual personal earnings of the foreign-born population in the United States in 2018 was $31,900 while the median annual personal earnings were $33,706. In Sweden, compared with Swedes, most immigrant groups have lower income and a strikingly high prevalence of relative poverty. Evidently, demographics and GDP per capita are correlated and to understand exactly how foreign-born populations contribute to and are affected by income inequality, the effects of income per capita need to be accounted for. Though Kuznets’ hypothesis was essentially granted the status of economic law, it did not have sufficient evidence to support its claims, nor did it explain the rise of inequality in several developed nations since the 1970s. This finding is troubling because if Kuznets was correct, inequality would fall with the rise of per capita income. Thus, building a more robust model of income inequality would require looking at factors other than economic development.

- **Inflation**: Inflation can redistribute income by pushing higher income individuals to increase spending and tax outflows (in the case of progressive taxation systems). The higher the prices, the higher the expenditure and the higher the tax through the increased income levels. Building a holistic regression model will involve understanding and eliminating the effects of inflation to better isolate the redistributive and demographic factors.

- **Redistributive parameters**
  - **Tax Revenue**: Tax revenue can help judge how much income is being redistributed through welfare and redistributive systems. Since Sweden and the United States have progressive tax
systems, the amount of tax revenue earned by the government is a good indicator of how much individuals are paying out of their incomes to finance welfare systems for other citizens. Moreover, understanding how income inequality changes as more taxes are collected would be an essential part of understanding how the overall inequality in these developed countries can be controlled. The tax revenue data is all the revenues collected from taxes on income and profits, social security contributions, taxes levied on goods and services, payroll taxes, taxes on the ownership and transfer of property, and other taxes. Thus, changes in these revenues can affect inequality accordingly as lesser tax revenue ultimately means lesser expenditure on welfare and economic development.

- **Demographic parameters**
  - **Tertiary School enrollment**: Education is an important redistributive factor. Particularly, college/university enrollment figures are an important indicator of employment in current circumstances. The United States is more educated than ever: In 1973, workers with postsecondary education held only 28 percent of jobs; by comparison, they held 59 percent of jobs in 2010 and will hold 65 percent of jobs in 2020. Clearly, tertiary school enrollment in an important indicator of employment and thus, income inequality.
  - **Trade Union membership**: Unions can affect the distribution of income by different mechanisms, including wage inequality, unemployment, and the wage share. However, it is not entirely clear if trade unions definitively reduce/increase income inequality across countries. For instance, Sweden has a traditionally higher union density with very high bargaining power. This means that the strong unions can bargain wages effectively and put upward pressure on the wages which could lead to some unemployment or lower job availability. At the same time, collective bargaining is an important force in reducing inequality and ensuring that low- and middle-wage workers are
given a fair return on their work. Since both the United States and Sweden have significant union membership, it would be important to factor in how labor market movements are affecting income inequality.

- **Foreign born and foreign citizen populations**: This variable helps us isolate population heterogeneity’s effects on income inequality. If there is a positive correlation between increase foreign populations and income inequality, it can be inferred that existing redistributive policies in both the countries are ineffective in catering for rising immigration and/or heterogeneity.

### 4.2.1 Methodology

The data for the variables above was sourced from various governmental and independent sources. To obtain robust regression results, separate time-series data ranging from 1986 to 2020 was used for Sweden and the United States respectively. Conducting multivariable linear regression analysis would be a straightforward way to understand how these factors contribute to income inequality. However, as described above, the variables being regressed tend to be correlated with each other. The correlation matrices below for both the countries’ variables illustrate this clearly.
The high correlation between the several predictor variables would lead to multicollinearity and thus, a highly skewed and underestimated linear regression model. While this could be reduced by dropping some of the variables, it would result in loss of highly valuable information that can be used to explain income inequality. Thus, the Principal Components Analysis (PCA) method can be used to reduce the multicollinearity of the dataset without losing information. This method helps cluster variables together to form a few principal components (PCs) that explain the highest variance of the y variable (GINI index in this case). To start off, the process involved standardizing the data, after which PCA was carried out on the standardized data. The figures below depict the correlation matrix of 5 PCs formed using the dataset. Clearly, the multicollinearity of the dataset has reduced as the PCs are now uncorrelated.
Fig 9. Correlation Matrices of Principal Components for Sweden and USA

The PCs can now be used in a linear regression against the GINI Index. The first step in the regression process involves selecting the PCs to regress the y variable against. The scree plots below demonstrate how much of the GINI Index’s variance is explained by each PC for both the countries.

Sweden

USA

Fig 10. Scree Plots of PCs for Sweden and USA
These plots can be used to select the components that explain the most variance for the regression. For Sweden, PC 1 and PC 2 explain 75.77% of the GINI Index’s variance and for the US, PC 1 and PC 2 explain 78.37% of the GINI Index’s variance. Using a threshold of 75%, PCs 1 and 2 can be selected to regress the GINI index against as they explain a significant amount of the variance. The least squares regression results are as follows:

**Sweden OLS Regression Results**

<table>
<thead>
<tr>
<th>Dep. Variable:</th>
<th>GINI</th>
<th>R-squared:</th>
<th>0.882</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model:</td>
<td>OLS</td>
<td>Adj. R-squared:</td>
<td>0.874</td>
</tr>
<tr>
<td>Method:</td>
<td>Least Squares</td>
<td>F-statistic:</td>
<td>112.0</td>
</tr>
<tr>
<td>Date:</td>
<td>Fri, 19 Mar 2021</td>
<td>Prob (F-statistic):</td>
<td>1.22e-14</td>
</tr>
<tr>
<td>Time:</td>
<td>02:19:44</td>
<td>Log-Likelihood:</td>
<td>91.281</td>
</tr>
<tr>
<td>No. Observations:</td>
<td>33</td>
<td>AIC:</td>
<td>-176.6</td>
</tr>
<tr>
<td>Df Residuals:</td>
<td>30</td>
<td>BIC:</td>
<td>-172.1</td>
</tr>
<tr>
<td>Df Model:</td>
<td>2</td>
<td>Covariance Type:</td>
<td>nonrobust</td>
</tr>
</tbody>
</table>

| coef     | std err | t     | P>|t| | [0.025 0.975] |
|----------|---------|-------|-------|----------------|
| const    | 0.2879  | 0.003 | 103.610 | 0.000 | 0.282 0.294 |
| x1       | -0.0195 | 0.001 | -13.431 | 0.000 | -0.022 -0.017 |
| x2       | 0.0143  | 0.002 | 6.602   | 0.000 | 0.010 0.019 |

**Omnibus:** 0.456  Durbin-Watson: 1.464  
**Prob(Omnibus):** 0.796  Jarque-Bera (JB): 0.025  
**Skew:** -0.001  Prob(JB): 0.988  
**Kurtosis:** 3.134  Cond. No. 1.91

Fig 11. Principal Components Regression (PCR) results for Sweden
USA OLS Regression Results

---

**Dep. Variable:** GINI  
**R-squared:** 0.901  
**Model:** OLS  
**Adj. R-squared:** 0.894  
**Method:** Least Squares  
**F-statistic:** 136.0  
**Date:** Tue, 30 Mar 2021  
**Prob (F-statistic):** 9.07e-16  
**Time:** 18:49:32  
**Log-Likelihood:** 122.49  
**No. Observations:** 33  
**AIC:** -239.0  
**Df Residuals:** 30  
**BIC:** -234.5  
**Df Model:** 2  
**Covariance Type:** nonrobust

---

| coef  | std err | t     | P>|t| | [0.025 | 0.975 |
|-------|---------|-------|------|-------|-------|
| const | 0.4595  | 0.001 | 425.649 | 0.000 | 0.457 | 0.462 |
| x1    | -0.0091 | 0.001 | -15.394 | 0.000 | -0.010 | -0.008 |
| x2    | -0.0043 | 0.001 | -5.913  | 0.000 | -0.006 | -0.003 |

---

**Omnibus:** 1.154  
**Durbin-Watson:** 1.464  
**Prob(Omnibus):** 0.562  
**Jarque-Bera (JB):** 0.309  
**Skew:** -0.018  
**Prob(JB):** 0.857  
**Kurtosis:** 3.472  
**Cond. No.:** 1.82

---

Fig 12. Principal Components Regression (PCR) results for Sweden

### 4.2.2 Analysis of PCR results

- **Sweden:** The coefficients resulting from the PCR results can be rewritten to form the equation below:

\[
\text{GINI} = 0.2879 - 0.0195 \text{ PC 1} + 0.0143 \text{ PC 2}
\]

The Adjusted R\(^2\) of the OLS Regression above is very significant at 0.874. The low p-values of the two x-variables also attest to the significance of the regression model.

As seen in the equation above, PC 1 has a negative relationship with the GINI Index. This negative relationship is more explanatory when referring to the correlations of the Principal Components with the series of normalized predictor variables used.
The variance of PC 1 is most explained by Inflation and Tertiary School Enrollment while that of PC 2 is most explained by Proportion of Foreign Citizens. To isolate the effects of population heterogeneity, we have to focus on PC 2. According to the data, as PC 2 increases, the GINI Index increases as well and the proportion of foreign citizens each year has a strong positive correlation with PC 2. It can thus be inferred that from 1980 onwards, an increase in foreign citizens has led to an increase in income inequality in Sweden. To validate the model further, below are the linear regression results between the normalized proportion of foreign citizens in Sweden and the Gini Index:

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>PC 1</th>
<th>PC 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.464140</td>
<td>0.149136</td>
</tr>
<tr>
<td>Tax Revenue</td>
<td>-0.435448</td>
<td>0.367318</td>
</tr>
<tr>
<td>Proportion of Foreign Citizens</td>
<td>-0.273679</td>
<td>0.603711</td>
</tr>
<tr>
<td>Unemployment</td>
<td>-0.36749</td>
<td>0.042019</td>
</tr>
<tr>
<td>Union Density</td>
<td>-0.385795</td>
<td>0.415156</td>
</tr>
<tr>
<td>GDP per capita growth</td>
<td>-0.145805</td>
<td>0.547481</td>
</tr>
<tr>
<td>Tertiary School Enrollment</td>
<td>-0.465748</td>
<td>0.067175</td>
</tr>
</tbody>
</table>

**Fig 13. Correlations of predictor variables with Principal Components used in PCR**

**Sweden**
Sweden Single Variable Regression Results

Dep. Variable: GINI  R-squared: 0.609
Model: OLS  Adj. R-squared: 0.597
Method: Least Squares  F-statistic: 48.35
Date: Mon, 12 Apr 2021  Prob (F-statistic): 8.42e-08
Time: 01:18:36  Log-Likelihood: 71.544
No. Observations: 33  AIC: -139.1
Df Residuals: 31  BIC: -136.1
Df Model: 1
Covariance Type: nonrobust

| coef  | std err | t     | P>|t|  | [0.025 | 0.975 |
|-------|---------|-------|------|-------|-------|
| const | 0.2435  | 0.008 | 30.096 | 0.000 | 0.227 | 0.260 |
| x1    | 0.1343  | 0.019 | 6.953  | 0.000 | 0.095 | 0.174 |

Omnibus: 2.850  Durbin-Watson: 0.288
Prob(Omnibus): 0.241  Jarque-Bera (JB): 1.448
Skew: 0.138  Prob(JB): 0.485
Kurtosis: 2.012  Cond. No. 4.34

---

Fig 14. Single variable linear regression results for Sweden

Clearly, the relationship in this model also shows a significant positive relationship between the index and the ratio of foreign citizens so, as the ratio increased, so did the Gini Index and the income inequality. The high R²s and the low p-values illustrate the significance of both the positive relationships.

- **USA:** The coefficients resulting from the PCR results for the United States can be interpreted through the equation below:

  \[ \text{GINI} = 0.4595 - 0.0091 \text{ PC 1} - 0.0043 \text{ PC 2} \]

PC 1 and PC 2 have negative relationships with the GINI Index. The correlations of the Principal Components with the series of normalized predictor variables used are given below:
Fig 15. Correlations of predictor variables with Principal Components used in PCR for the United States

The variance of PC 1 is most explained by Tax Revenue, Union Membership and School Enrollment while that of PC 2 is most explained by Proportion of Foreign Citizens, Inflation and GDP per capita growth. As done with Sweden’s case, focusing on the proportion of foreign citizens will provide a better picture of how income inequality is related to the same. According to the historical data, as PC 2 decreases, the GINI Index increases and the proportion of foreign citizens each year has a positive correlation with PC 2. If the proportion of foreign citizens in the United States increases, so does the value of PC 2. However, if PC 2 increases, the GINI Index decreases. This would lead to the conclusion that immigrants entering the United States reduced income inequality in the past. However, the relationship between PC 1 and the variable does not follow the same pattern. Thus, while it can be partially concluded that immigrant numbers do not have a positive effect on income inequality, this relationship does not seem as statistically significant.

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>PC 1</th>
<th>PC 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.290459</td>
<td>0.472228</td>
</tr>
<tr>
<td>Tax Revenue</td>
<td>-0.501909</td>
<td>-0.189570</td>
</tr>
<tr>
<td>Number of Immigrants lawfully admitted</td>
<td>-0.219920</td>
<td>0.453943</td>
</tr>
<tr>
<td>Unemployment</td>
<td>-0.130667</td>
<td>0.468501</td>
</tr>
<tr>
<td>Union Membership</td>
<td>0.529638</td>
<td>0.104476</td>
</tr>
<tr>
<td>GDP per capita growth</td>
<td>0.230038</td>
<td>-0.551898</td>
</tr>
<tr>
<td>Tertiary School Enrollment</td>
<td>-0.514634</td>
<td>-0.000704</td>
</tr>
</tbody>
</table>
From the regression results above, it is clear that population heterogeneity has a strong positive association with income inequality in Sweden. If this income inequality is concentrated within immigrant/refugee populations, the possibility of a decline in social capital needs to be studied. Accumulated evidence strongly suggests that the good governmental performance and social capital are correlated (Boix & Posner), and maintenance of equality is such a large tenant of Swedish welfare, it could be argued that increasing income inequality might signal poor government performance and further a decline in social capital and trust in institutions. Moreover, if redistributive systems are failing to maintain low income inequality amongst rising population heterogeneity, the causes behind the same need to be understood. Even with Sweden’s longstanding tradition of multiculturalist policy, the inclusivity of immigrants and refugees in welfare policy needs to be studied.
4.3 Political Polarization

Delving deeper into understanding the factors impacting social trust requires a study of political polarization in Sweden. Intense debate in Sweden about the arrival of refugees from Syria in 2015, coupled increased frequency of protests and riots in the past 5 years indicate a rise in political polarization in Sweden. This increase in divide over politics, particularly over the rising heterogeneity of the state, can be detrimental to the foundation of social trust and trust in government\(^7\). The same is true for the United States. However, such qualitative data about sentiments is difficult to source without constant direct surveys. Therefore, this section looks at sourcing sentiment data from news articles from major newspapers in the countries.

4.3.1 Domestic Political Polarization Index

Daily news is an alternative source of sentiment data. Prior application of such data in the Economic Policy Uncertainty Index\(^8\) showcases its reliability and widespread applicability. If an index can showcase spikes in political polarization specifically as related to heterogeneity, it can help one explore the associations of heterogeneity with political polarization and social trust further.

4.3.2 Methodology

Deriving from the methodology of the Economic Policy Uncertainty Index, code was constructed to web scrape articles from three major newspapers in the United States and in Sweden respectively. For Sweden, articles were scraped from Svenska Dagenbladt, Dagens Nyheter and AftonBladet. For the United States, articles were scraped from Washington Post, the New York Times, and Wall Street Journal. The three newspapers were picked on the basis of the large amount of historical data they

\(^7\) See I Disrespectfully Agree: The Differential Effects of Partisan Sorting on Social and Issue Polarization by L. Mason, and Moral opinion polarization and the erosion of trust by C. Rapp

\(^8\) See https://www.policyuncertainty.com/
offered along with their prevalence in the media in the two countries. The articles scraped from online databases of these newspapers ranged from 1900 to 2020 and an average of 1000 articles from each year was accumulated for both countries. Using text analysis code, relevant articles that depicted political polarization were distinguished from others. The text analysis code, using the regular expression functionality in Python, looked for variations and combinations of words in the following three categories in English and Swedish:

<table>
<thead>
<tr>
<th>Domestic</th>
<th>Political</th>
<th>Polarization</th>
</tr>
</thead>
<tbody>
<tr>
<td>• United States of America</td>
<td>• Political</td>
<td>• Split</td>
</tr>
<tr>
<td>• United States</td>
<td>• Partisan</td>
<td>• Conflict</td>
</tr>
<tr>
<td>• America</td>
<td>• Partisanship</td>
<td>• Disharmony</td>
</tr>
<tr>
<td>• Domestic</td>
<td>• Conservative</td>
<td>• Polarization</td>
</tr>
<tr>
<td>• Sweden</td>
<td>• Nationalist</td>
<td>• Tension</td>
</tr>
</tbody>
</table>

Fig 16. Words used to identify relevant articles for DPPI methodology

A combination of words from each category would indicate an increased amount of polarization as the words included in the polarization category make sure that this is accounted for. Moreover, the inclusion of words specific to population heterogeneity like ‘immigration’, ‘refugees’ and ‘diversity’ aim to capture polarization associated with increasing heterogeneity.
After the articles were segregated, frequency of the occurrence of articles about polarization needed to be understood. To study the same, the number of relevant articles for each year was divided by the total number of articles published by that newspaper in the year. This adjusted for newspapers that published less or more frequently in a year and created a ratio that captured just the frequency of relevant articles each year. Moving forward, the ratios needed to be adjusted against historical trends in publishing. If newspapers published lesser in the 1930s than they did today, the data could still be comparable across time periods. Thus, each ratio was normalized by creating a z-score using 30 years of historical ratios and adjusted by the mean and standard deviation of the data set. The resulting z-scores were then averaged every year to create the Domestic Political Polarization Index (DPPI) from 1930 to 2019 for Sweden and the United States.

### 4.2.3 Results and Cross Validation

The above mentioned process resulted in polarization trends around the range of 0 for the countries as shown in the figures below. Negative figures indicate low polarization while positive figures indicate high polarization. The graphs have been annotated to signal significant political and polarizing events at the time that may be associated with the polarization
Fig 17. Sweden DPPI 1930 - 2020

Domestic Political Polarization Index for Sweden 1930 - 2020

Fig 18. USA DPPI 1930 - 2020

Domestic Political Polarization Index for United States 1930 - 2020
As evidenced by the graphs, the spikes of the polarization index are timely in that they rise and fall during significant periods. To illustrate, for Sweden the index has a significant rise during World War II, the Swedish Financial Crisis, and the Syrian Refuge Crisis. All these times were characterized by intense public debate and distress about governmental actions and policy decisions. For the United States as well, the index is validated by its timely spikes during World War II, the Red Scare, the 9/11 attacks, the Global Financial Crisis, and the Presidential election of 2016. A caveat is that the index may not spike as much during periods of uncertainty like Sweden entering the EU in 1995 however it is important to remember that the z-scores being used are relative to historical data. So if polarization was very high in the past, like in World War II, the polarization may have been relatively lower and thus resulted in a lower index value.

Even though the index indicates political polarization and included specific words signaling changing demographics, isolating the impact of heterogeneity on Sweden’s polarization is key to furthering this study. The graph below shows how the polarization trend correlates with that of the proportion of foreign – born citizens in Sweden from 1980 to 2019.
At first glance, the index is correlated with the trend of immigrants entering Sweden and as the proportion increases, polarization seems to increase. To cement this correlation further, a simple linear regression was conducted between the proportion of foreign citizens and the index. The results of the regression are shown below:
Fig 20. Sweden DPPI vs. Proportion of foreign citizens 1980 – 2019 Regression Results

The results reveal a statistically significant relationship between the two. The proportion of foreign citizens in Sweden seems to explain approximately 12% of the variance in the polarization index and has a positive relationship with polarization. Thus quantitatively, a rise in foreign citizen proportions could be associated with a rise in political polarization in Sweden. If this is indeed the case, coupled with the positive relationship heterogeneity seems to hold with income inequality, social capital in Sweden could be at risk. A study from Swedish researchers from 2011 also confirms this. The study by Matz Dahlberg & Karin Edmark & Heléne Lundqvist\(^9\), surveyed participants about their approval of redistributive policy and regressed the data from four years against the rising proportion of foreign citizens on a state and county levels. The results showed that as the proportion increased, approval for redistributive policy in fact decreased. Similarly, the DPPI rose to a staggering high in 2015 as Syrian refugees fled to Sweden and confidence in government in 2015 was at a 10 year low according to the data from Gallup Analytics. If this trend continues into the future, it could be detrimental towards trust in institutions and social capital in Sweden.

\(^9\) See Dalhberg et.al.
Nevertheless, the trend of polarization in the United States is much higher than that of Sweden. Across the years, the bridge in political divide does not seem to be bridged even across times of economic successes for the country. Research suggests that social capital in the United States may have deep-seated roots in historical immigration and internal migration patterns, regional culture, and perhaps even features of climate and topography (United States Joint Economic Committee). As Putnam suggests in his work, social capital has been on the decline in the United States ever since the 2000s. In combination with the significant amount of political polarization and low trust in the government, evidence suggests that the implementation of a welfare state like Sweden’s may not be possible. Even if it were instituted, the relationship between heterogeneity, polarization and social trust may render it unsustainable in the United States.
5 Conclusions

The study undertaken by this thesis confirms its hypotheses. Comparing the United States and Sweden showcased a large difference in the social capital and governmental trust. Population heterogeneity also seems to play a larger role in the sustainability and implementation of an expansive welfare state as it can have adverse effects on the countries’ social and institutional trust.

5.1 Sustainability of the Welfare State in Sweden

Focusing on Sweden itself shows us that the welfare state is too dependent on the foundation of social trust which can be negatively impacted by increasing heterogeneity. Narrowing down on income inequality, if inequality increases as immigration increases and if the income inequality is concentrated amongst immigrant populations, social trust could decrease significantly. Less social contact between rich and poor makes people trust other people from different income groups less and results in lower levels of generalized trust (Stejin & Lancee). Furthermore, if income inequality is realized through geographical separation, this could lead to lesser interactions between people from different backgrounds and possibly have a negative effect on trust in the short term. When it comes to political polarization, in the short term, heterogeneity does seem to correlate with political divide in Sweden. If this trend continues as the study about redistributive policy approval predicts, it could lead to diminished social trust and heightened political instability. Overall none of these results are completely predictive of future circumstances. However, if these historic relationships do hold up in the future, Swedish policymakers will face novel challenges to solve.
5.2 Implementation of the Welfare State in United States

Since the welfare mechanisms of Sweden are so dependent on trust – collective and social, it is hard to imagine a system like that in the United States. American policy has been shaped by generations of foreign policy, capitalism, and individualism. The means-tested welfare employed in the United States stems from these ideals as well. Citizens giving up 60% of their incomes to fund universal welfare from the government goes against the history of policy making in the country. Moreover, the people, according to polls, seem to trust market forces more than they seem to trust government. Thus, if redistribution has to take place, it might be more preferable to do so through the free-market. Political polarization in the country has also been far higher than in Sweden. This could indicate relatively lower levels of social trust and thus, social capital in the American society. Without high levels of trust, implementing a robust and universal welfare system would be difficult to pass. This statement also assumes that private sector interest groups would not have a powerful role to play in policy making which they still do. While the income inequality findings for the United States were inconclusive, the given observations may prove as big enough impediments for expansive welfare in the United States.

5.3 Weaknesses and Further Study

The quantitative analyses used in these paper also might not be completely indicative of true relationships between polarization, income inequality and heterogeneity. Since macroeconomic and demographic data is published annually and is hard to source for years dating back to the 1900s, the regression analysis was limited in the amount of data it could use. It could be possible that the relationship between income inequality and population heterogeneity was strongest in the past three decades and this may not be as predictive of coming years. With the political polarization index, this study was limited in its scope and could only utilize three major newspapers from each country. Using more newspapers and variations (with different partisan inclinations) and aggregating data on a monthly or weekly basis could provide a better picture of polarization in the countries.
expanded, the relationship between heterogeneity and polarization can also be studied further. The words used in
to scrape articles in Swedish also may not have been used in popular discourse at the time which may reduce the
number of relevant articles that were found. Ultimately, many studies can stem from this work. However,
focusing on understanding social trust and how heterogeneity and interactions play a role will be key in
determining how demographic shifts will impact welfare in the two countries. The relationship between
heterogeneity, income inequality, polarization and trust in institutions will also be deterministic.
Works Cited


“American Education”, Oregon State University, oregonstate.edu/instruct/ed416/ae1.html.


Edebalk, Per G. "From Poor Relief to Universal Rights - on the Development of Swedish Old-Age Care 1900-1950.".2009, https://explore.openaire.eu/search/publication?articleId=dedup_wf_001::de1baa036b2ef3274b278f476e325db2.


Fall, Betty et al. “Poor Relief in the Early America.” Social Welfare History Project, 11 Nov. 2019, socialwelfare.library.vcu.edu/programs/poor-relief-early-amer/#:~:text=ln%20effect%2C%20the%20poor%20laws,drunkards%2C%20shiftless%2C%20lazy).&text=This%20law%20was%20enacted%20to,family%20who%20might%20become%20dependent.


Henrekson, Magnus, and Mikael Stenkula. Swedish Taxation since 1862: An Overview. vol. 1052, Research Institute of Industrial Economics (IFN), Stockholm,


USAFACTS. “In 2020, the Number of Unionized Workers Dropped, While the Share of Union Members Increased.” USAFACTS, USAFACTS, 29 Jan. 2021, usafacts.org/articles/labor-union-membership/.