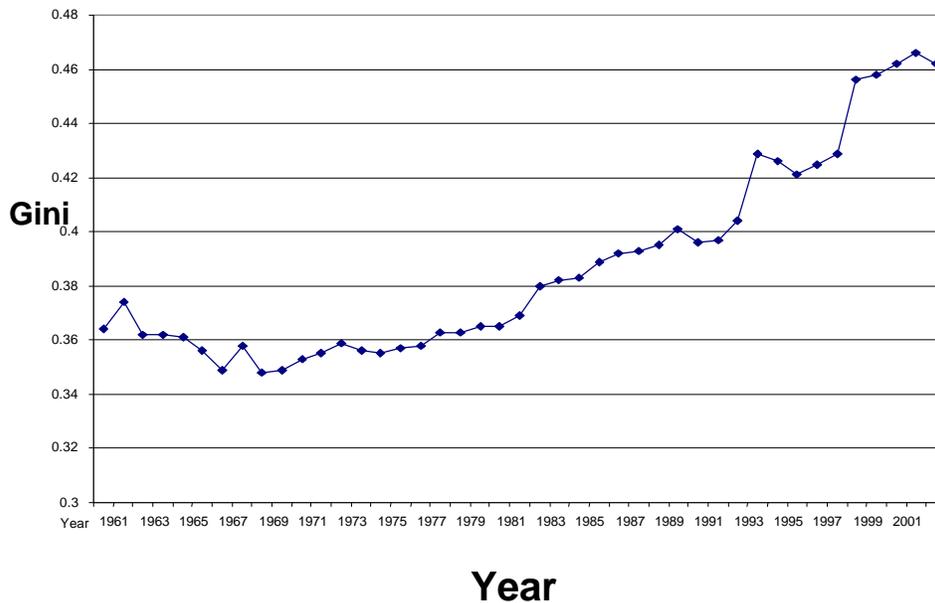


All Men Created Unequal: Trends and Factors of Inequality in the United States

Chaya Compton, *Elon University*

Although the Gross Domestic Product of the United States has been steadily rising since the 1950s, the gap between rich and poor is increasing (see Figure 1). John Kenneth Galbraith explained the importance of inequality when he stated, “People are poverty-stricken when their income, even if adequate for survival, falls markedly behind that of the community. Then they cannot have what the larger community regards as the minimum necessary for decency” (Hernandez 1999 p.36). Income inequality has increased over the past thirty years. However, the 1980s marked a disturbing trend in inequality. In the 1970s, inequality existed because the wealth of the upper classes was increasing at a faster rate than the wealth of the poor; in the 1980s, the rich were becoming richer while the poor were becoming poorer (Levy and Murname 1992).

Figure 1: Inequality (1960- 2002)¹



Many studies have explored the effects of trade on inequality. However, “almost universally, the studies of trade and inequality fail to control for other possible factors that might have accounted for rising inequality” (Wolff 2000 pg.53). This paper will explore the many factors contributing to the recent trend of increasing inequality. These factors include government policies, such as the minimum wage (DiNardo 1996), corporate taxes (Gilder 1981), federal personal transfer payments (Danziger and Plotnick 1981), and defense spending (Warf 1993); macroeconomic factors, such as openness (Goltschalk and Smeeding 1997), inflation, interest rates, and GDP growth; and other trends, such as the decline in unions and manufacturing (Steinberg 1983), as well as changes in technology (Levy and Murname 1992). Unlike past studies, this paper will examine the effects of NAFTA and the Welfare Reform Act of 1996 on inequality.

I. Theoretical analysis

The Heckscher-Ohlin Model is one of the most commonly cited trade models. This model allows for two factors of production, labor and capital, and it assumes that countries will differ in factor abundance² and technology does not differ between countries. According to the Heckscher-Ohlin theorem, if a country is more abundant in one factor of production than another, that country will specialize and export goods that use that

factor that is abundant. For example, if country A is abundant in labor and country B is abundant in capital, country A will produce the good that requires more labor (good Y) and country B will produce the good that requires more capital (good X).

Figure 2

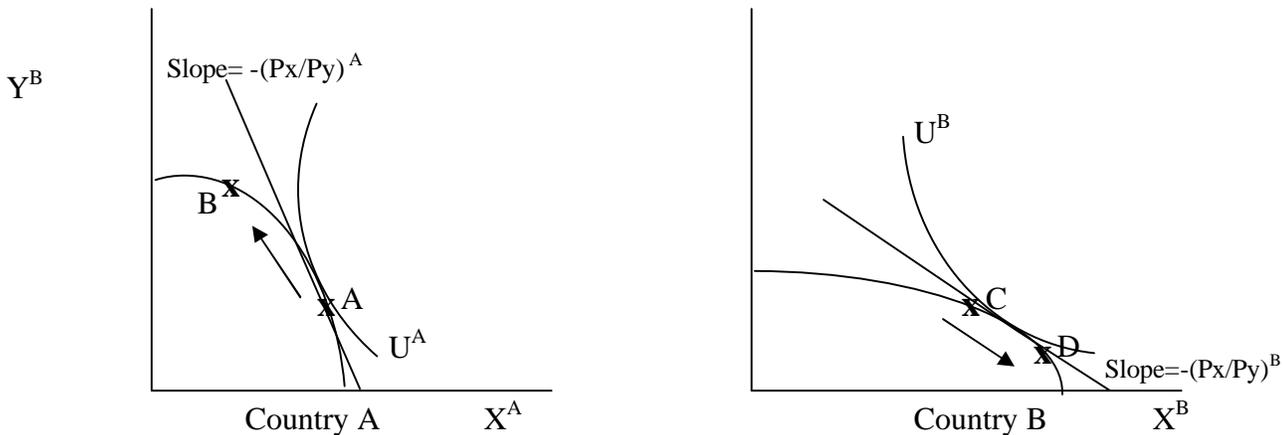
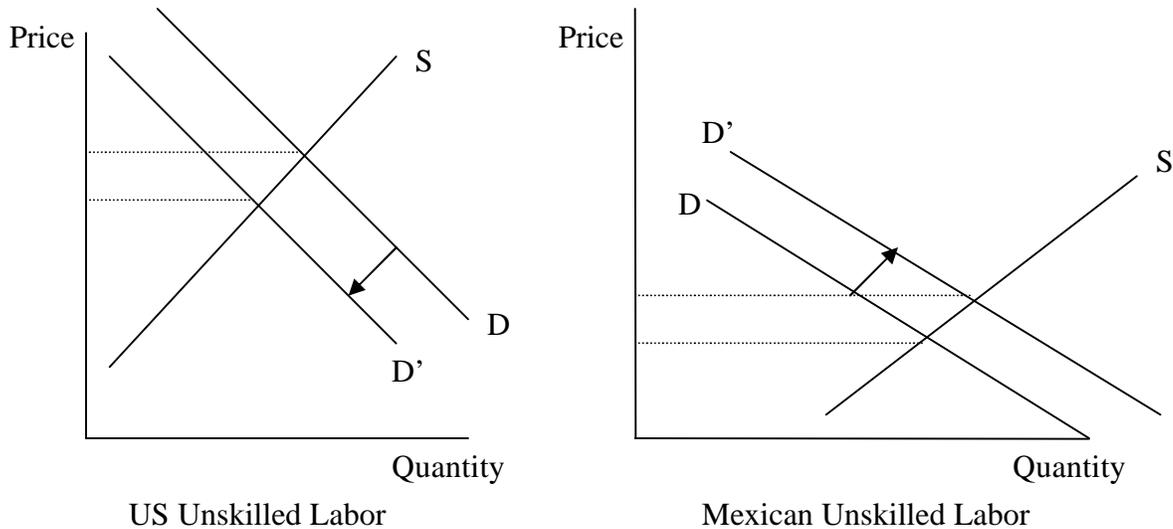


Figure 2 illustrates the comparative advantage that each country has in their factor abundant good. Even without trade, country A produces more of the labor intensive good Y because it is cheaper to produce (point A). Similarly, country B produces more of the capital intensive good (point C). Under free trade, country A would specialize and export good Y (point B) and country B would specialize and export good B (point D) (Yarbrough and Yarbrough 2000 pg.82).

Paul Samuelson created two extensions of the Heckscher-Ohlin theorem- the Stolper-Samuelson theorem and the factor price equalization theorem (Yarbrough and Yarbrough 2000 pg.111). According to the Stolper-Samuelson theorem, the real wage of the scarce factor of production a country will decrease while the real wages of an abundant factor of production will increase as a result of free trade (Sachs and Shatz 1994). For example, country B produces less of good Y, which is labor intensive, as a result of trade (see Figure 2). The demand for the labor that produces that good would decrease and push wages down. However, the real wage of the abundant factor would increase as the demand for this good increases as a result of free trade, creating inequality (Yarbrough and Yarbrough 2000 pg.111).

The factor price equalization theorem states that the factor prices for two countries engaging in free trade would converge as a result of competition, even if the factors are immobile between the two countries (Yarbrough and Yarbrough 2000 pg.111). Free trade will lower the price of the good with the scarce factor of production in a country as a result of competition. For example, if the Mexico, a labor intensive country, trades with the United States, a capital intensive country, the demand for unskilled Mexican labor will increase because this labor is cheaper than in the United States (see Figure 3). The United States would lower its price of unskilled labor as a result of the decrease in demand (Stolper and Samuelson 1941). Therefore, the factor prices in the long run will convergence. If the demand for labor in labor intensive industries decreases while the labor in other industries increase or remains the same, the inequality in the United States will increase.

Figure 3



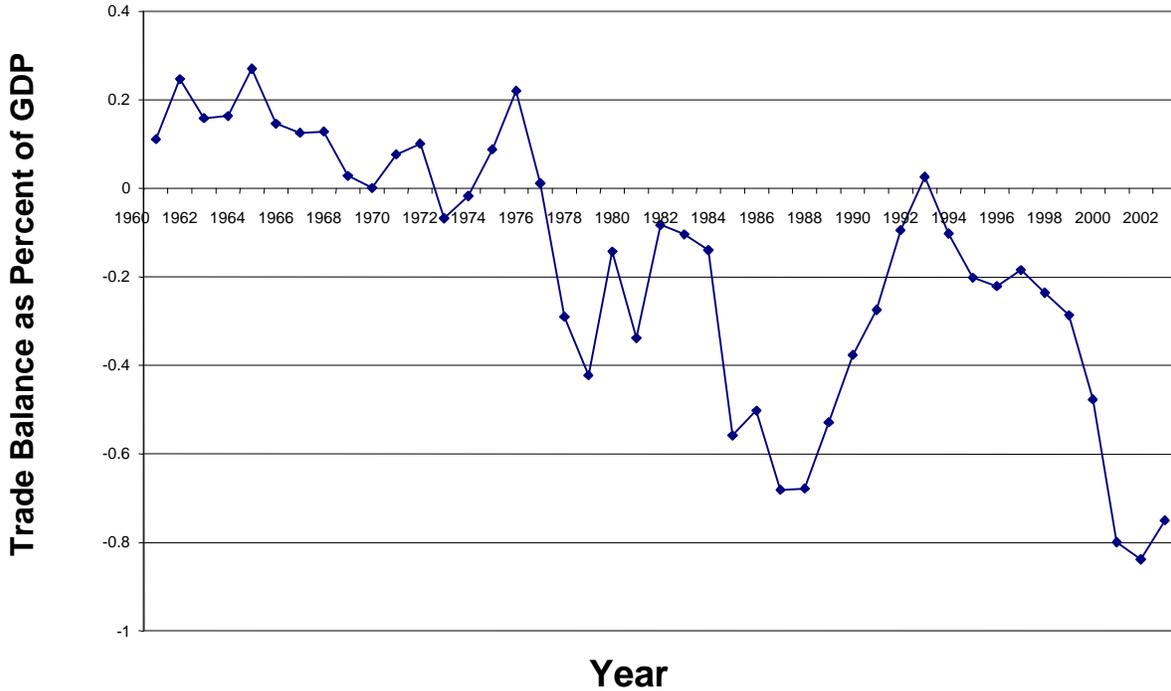
II. Literature review

A. NAFTA

Gary Burtless (1995) stated that if one accepts the assumptions of the Heckscher-Ohlin model, the North American Free Trade Agreement (NAFTA), which established free trade among the United States, Mexico and Canada, would converge the wages between these countries among equivalent labor. Although this is good for Mexican labor, this would apply downward pressures for less skilled American labor. Therefore, inequality between lower skilled and higher skilled workers would increase.

Although the United States trade deficit between Mexico and Canada has been large before NAFTA was implemented (see Graph 4), NAFTA has had an impact on the trade deficit in the United States. Since NAFTA was implemented in 1994, the trade deficit between the United States and Mexico and Canada increased by 169 percent over the trade deficit in 1993 (Bronfenbrenner 2000). Rothstein and Scott (1997) blame this deficit for the elimination of 400,000 jobs in the United States. Although all fifty states and the District of Columbia experienced a net job loss due to NAFTA, net job losses vary from 621 lost jobs in Vermont to 38,406 in California. This decrease in unskilled jobs that are available is hypothesized to increase inequality. However, Burtless's assertion of wage convergence, as well as the assumptions of the Heckscher-Ohlin model has been questioned.

Figure 4: United States Trade Balance with Mexico and Canada



B. Critiques of Heckscher-Ohlin

Even though the Heckscher-Ohlin model is used frequently and taught in most international trade classes, the assumptions of this model has been criticized (Bhagwati and Dehejia (1994), Wood (1994), Bhagwati (1994)). The impact of trade on inequality and wages has been controversial. Wood (1994) believed that wages between North (capital intensive) and South (labor intensive) countries would converge, but Bhagwati (1994) concluded that wages would not converge. Lawrence and Slaughter (1993) determined that trade has little impact on wages, yet Wood (1994) and Freeman (1995) found that trade does have an impact on wages and inequality. Although these studies as a whole are inconclusive, the studies can provide an important framework to why trade does or does not influence inequality.

Bhagwati and Dehejia (1994) are skeptical of the assumption that the same technology would exist in poor and rich countries. Instead, they believe that “factor intensity reversal” can occur between two countries, where a good in one country is produced by labor intensive means while the same good is produced in another country by capital intensives means. According to Bhagwati and Dehejia, inequality is created by the convergence of capital in developed countries. If developed countries are trading partners, a small movement in the cost of a factor can create a big shift in the comparative advantage, leading to job turnover and employment instability. While educated workers can easily transfer their skills to another industry, less skilled workers are not as fortunate which creates inequality. However, there is little evidence in support of this model (Burtless 1995).

Wood (1994) believed that factor prices would converge rather than equalize. In Wood’s model, the South is factor abundant with uneducated labor, while the North is factor abundant with highly skilled labor. As a result, the North can produce goods not available at all in the South. Therefore, price equalization fails because one of the assumptions of the Heckscher-Ohlin model, that both North and South will produce all commodities, is invalidated (Burtless 1995). However, factor prices converge. Most kinds of capital are mobile. Therefore, firms from the North can build industries in the South to take advantage of the lower factor prices in the South. As technology expands in the South, basic education and skill level would increase as well. The

wages of these workers would increase. However, the wages for the workers with a basic education in the North would decrease because of the increase in supply, causing the factor price of wage to converge.

Bhagwati (1994) believed that the convergence of real wages in the North and South as a result of free trade could be unrealistic. Economies of scale, for example, can invalidate the Stolper-Samuelson theorem. Without trade, countries usually cannot specialize in one good because would demand the other good as well. With trade, countries can specialize in one good and take advantage of the economy of scale (Yarbrough and Yarbrough 2000 pg.154). Under economies of scale, the real wage of both factors of production for that country would increase for that good. The real wage in the North would not converge with the wages in the South because Northern workers would be more productive. Therefore, the redistributive effect of wages under the Stolper-Samuelson theorem would be negated (Bhagwati 1994).

Lawrence and Slaughter (1993) attempted to capture the effect of international trade on workers' wages. By examining the wage ratio between non-production and production workers, they concluded that international trade played almost no role in explaining the slow growth of workers' wages since the 1970s. If the Stolper-Samuelson theorem influenced these wages, the non-production labor wages should increase as the international production labor wages increase. However, this did not occur- non-production labor wages actually fell. After examining productivity growth in American non-trade good, Lawrence and Slaughter determined that the slow growth of wages was mainly caused by slow productivity growth in the non-trade goods sector of the American economy. Although wage growth was slow during this period, real wages grew as rapidly as worker productivity.

Wood (1995) found that trade had a substantial effect on earnings. In order to calculate the effect of trade on wages, Wood estimated the amount of skilled and unskilled labor used to produce imports and exports and then calculated its difference. Although other studies have used the factor content approach such as Katz (1992) and Sachs and Shatz (1994), these studies are biased downward because they assumption that goods produced domestically in each statistical category, for example "electrical machinery," have the same skill intensity as imports. However, developing countries produce items in that are more skill intensive than items in developed countries, even if these items are in the same statistically category (Wood 1995). Therefore, most estimates using the factor content approach are biased downward. After accounting for the amount of labor required to produce imports in developing countries, Wood concluded that trade lowered the relative demand for unskilled workers by about 20 percent (Wood 1995 pg.68).

Freeman (1995) also found that factor content calculations could be biased downward. The share of workers from less developed nations has grown from 69 percent in 1964 to 75 percent in 1990, decreasing the demand for unskilled workers in developed nations (Freeman 1995 pg.20). Although the factor content calculations can show some of the effect from this decrease in demand, the calculation could be underestimate the effect of trade on inequality. It is possible that just the threat of imports reduce the wages of unskilled workers absent any, or little, trade.

A study conducted by Columbia University discovered that during union organizing campaigns, more than half of all employers made threats to close down the plant in the 1990s- 68 percent of these threats occurred in mobile industries such as manufacturing (Bronfenbrenner 2000). In plants where threats were made to close and move overseas, unions won only 38 percent of their campaigns. In plants where threats were not made, unions won 51 percent of their campaigns (Bronfenbrenner 2000). Therefore, the threat of plants moving overseas can cause workers to become more insecure about their jobs, and therefore, no longer demand wage increases.

Sachs and Shatz (1994) concluded that even though demand for unskilled labor has decreased as a result of trade as the Heckscher-Ohlin theory predicted, there was not a large enough relative wage effect to account for the significant growth in wage inequalities. The increase in net imports between 1978 and 1990 decreased production jobs in manufacturing by 7.2 percent and decreased non-production jobs by 2.1 percent (Sachs and Shatz 1994). Even if there are large employment shifts because of changes in net imports, "the employment effect will cause a widening of income inequalities only if there are significant differences in the employment consequences for low skilled and high skilled workers" (Sachs and Shatz 1994). Therefore, if an

unskilled worker loses his manufacturing job due to trade, there would not be an increase in inequality if that worker can find another job on a similar pay scale. However, trade would increase inequality if the unskilled worker cannot find another job while skilled workers are being offered higher paying job. Low skilled manufacturing jobs, on the whole, make up a small proportion of total low-skilled employment. Sachs and Shatz, consequently, concluded that price effects in manufacturing jobs cannot entirely account for wage inequalities (Sach and Shatz 1994).

C. Government Policies

The decline in the real value of minimum wage has been attributed to the increase in inequality in the United States. In the 1980s, the real value of minimum wage decreased by 44 percent. While many studies have found that this decline effects inequality, there is some controversy concerning what percentage of the increase in inequality can be attributed to minimum wage. DiNardo (1996) found that minimum wage was responsible for 25 percent of the increase in wage dispersion in the 1980s. However, Lee (1999) found that decreases in minimum wage could explain practically the whole increase in wage inequality using panel data that included years and states. Tailings (2003) also found that the increase in wage dispersion in the 1980s was mainly caused by the declining value of the minimum wage. The lower half of the wage distribution was affected the most by changes in the real value of minimum wage. However, there are some spillover effects. Any increase in the minimum wage would increase the bargaining power for those that are higher paid as well. For example, if the minimum wage was to be increased to \$7 an hour, those previously making \$7 an hour will theoretically have an increase in their wages as well. All jobs are available at least \$7, even those that are less skill-intensive. Since those workers now have the ability to change jobs easily, employers will have to increase their wages in order to compensate for them for their extra skill.

Government expenditures, such as personal transfer payments and defense spending, have also been shown to effect inequality. Federal personal transfer payments, which includes government spending for programs such as Medicare, Medicaid, Social Security, and Aid to Families with Dependent Children, has grown rapidly form the 1960s to 2000. The main objectives of these programs are to provide support for those that have little or no income, and to replace income losses brought about by disability or age. A majority of the spending, roughly three-fourths of personal transfer payment expenditure, attempts to satisfy the latter objective though programs such as Social Security and other social insurance transfers, which are not restricted to people with low incomes (Danziger, Haveman, and Plotnick 1981). Most previous studies have found that personal transfer payments reduce poverty and decrease inequality. In 1978, these transfers reduced poverty by 44 percent, and had a larger effect for the elderly (75 percent reduction) than the nonaged (26 percent reduction) (Danziger and Plotnick 1981). While the impacts of personal transfer payments have increased from 1968 to 1980, the increase in personal transfer expenditures has increased even more. Therefore, these transfer payments, in the 1980s, were suffering from diminishing returns, yet the payments were still decreasing inequality (Hoagland 1980).

While personal transfer payments on the whole are increasing, government payments for Aid to Families with Dependent Children have been decreasing. Hausman in 1981 discovered that raising the annual guarantee for AFDC by \$1000 reduces work by 120 hours. In order to increase productivity, Congress replaced the 1935 Social Security Act that created Aid to Families with Dependent Children (AFDC) with Temporary Assistance for Needy Families (TANF) in 1996. A person receiving payments from this welfare program now faces a five-year lifetime limit, and after two consecutive years, he/she must work twenty hours to receive federal benefits (Gowens and Carter 2001). However, the AFDC program with food stamps and Medicaid provided some women with children than full-time work without benefits at minimum wage (Danziger, Haveman and Plotnick 1981). Therefore, the Welfare Reform Act of 1996 is estimated to increase inequality.

Not only has government expenditures for AFDC decreased, the revenues collected by the government from corporations as a percentage of GDP has decreased as well. Corporate taxes have dropped from 4.1 percent of GDP in 1960 to 1.8 percent of GDP in 2002. In 1981, The Economic Recovery and Taxation Act

decreased taxes for the upper class as well as corporations. Gilder (1981) believed that this drop in tax rates would increase savings and investment, and thereby, prevent a worsening of the recession during the early 1980s. Although Gilder focuses on the benefits of taxation, progressive tax rates have historically decreased inequality, such as the tax rate implemented during World War II.

The federal government spends more for the military than any other category of government expenditure. In the 1980s, military expenditures represented 30 percent of the federal budget (Warf 1993). Markusen (1986) has argued that this form of expenditure acts as “military Keynesianism,” for military spending has increased jobs, and to a certain extent, restructured the United States economy. Markusen discovered in 1970 that:

Defense spending accounted for 48 percent of aeronautical engineers, 23 percent of physicists, 21 percent of electrical engineers, 19 percent of all mathematicians and 16 percent of industrial engineers, and that 38 percent of physicists, 22 percent of electrical engineers, 20 percent of technical engineers, 20 percent of mechanical engineers, and 20 percent of metallurgical engineers were employed either as civilians directly by the Defense Department or by defense related industries. (Markusen 1986 pg.47)

In 1990, defense spending still had an impact on job creation. The \$14.6 billion spent by the military to service firms, which were largely in the manufacturing sector, created 623,800 jobs (Warf 1993). These jobs that were created and sustained in manufacturing by military spending probably would have been lost due to increased international competition (Markusen 1986). Since manufacturing jobs higher paid for lower skilled workers, any growth or job creating in this sector would increase equality.

D. Macroeconomic and Related Trends

Openness, or exports plus imports as a percentage of GDP, has decreased manufacturing jobs. Out of the 3.1 million jobs that were lost in manufacturing from 1978-1990, shifts in international trade account for 1.2 million or 39 percent (Goltschalk and Smeeding 1997). Leamer (1996) discovered that trade also accounted for 40 percent of the decline in the wages of less skilled workers. Since the opening of trade increases the supply of less skilled workers in America, downward pressures are put on the wages of these workers. Gary Burtless in 1995, using the same theory, hypothesized that the North American Free Trade Agreement, which established free trade among the United States, Mexico and Canada, would coverage the wages between these countries among equivalent labor. Although this is good for Mexican labor, this would apply downward pressures for less skilled American labor, thereby increasing inequality between lower skilled and higher skilled workers.

Many economists believe that inequality exists in the United States is not caused by the economy producing fewer middle class jobs, but from an increase in the demand for more educated (skilled) workers. In 1989, the earnings of college graduates were 43 percent higher than the earnings of high school graduates. Only ten years earlier, college graduates were paid only 23 percent more (Levy and Murname 1992). Although this growth in wage differentials is attributed to the increase of the importance of technology, the impact of technology on inequality is difficult to measure. However, a growth in technology would increase the demand of more skilled workers, and thereby increase wages for more educated workers. Therefore, technology, along with differences in education among workers, is believed to increase inequality in the United States.

The decline in unions and the manufacturing sector has been blamed for contributing to the increase in inequality. Freeman and Medoff (1984) found that wages of nonunion employees are determined with the union wage rates. If over 25 percent of the employees of an industry belong to a union, the union affects the wages of all individuals that work on the industry. The strongest unions were established in the manufacturing sector. However, this sector is diminishing in the United States. Manufacturing jobs are being replaced by service sector jobs. As a result, the United States economy is losing many middle class jobs, since the service sector

offers few high paying jobs and many low paying jobs (Steinberg 1983). Thus, the replacement of manufacturing jobs for service sector jobs would increase inequality.

Inflation, interest rates, and GDP growth also effects inequality. Inflation decreases the value of money. Since this would decrease the value of money owed to creditors from debtors, and more poor Americans are in debt than the rich, inflation would decrease the real value of the money owed by the poor. Therefore, an increase in inflation would decrease inequality. An increase in interest rates would have the opposite effect. An increase in interest rates would increase the value of money and increase the amount of money owed from creditors to debtors leading to an increase in inequality. However, if the GDP grows, there is less likely to be an increase in inequality. During periods of recession, industries lay off employees, and less skilled, poor workers are usually the first ones that are laid off. Conversely, during periods of GDP growth, industries hire more lower skilled workers, unemployment decreases, and the bargaining power of workers increase. Thus, an increase in GDP would decrease inequality.

III. Empirical evaluation

It has been shown that inequality is influenced by many factors, such as government policies, macroeconomic factors, as well as the increasing demand for skilled labor as a result of an increase in the importance of technology. Using an OLS regression, I believe, based on past studies, that the real value of minimum wage, personal transfer payments, defense spending, inflation, GDP growth, percentage of union workers, percentage of manufacturing employment, and high school graduates would decrease inequality, while openness, NAFTA, interest rates³, and the Welfare Reform Act of 1996 would increase inequality. Therefore:

$$(1) \quad \text{Inequality} = \beta_0 + \beta_1(\text{MinWage}) + \beta_2(\text{PersTrans}) + \beta_3(\text{DefSpend}) + \beta_4(\text{Inflation}) + \beta_5(\text{GDPgrow}) \\ + \beta_6(\text{Union}) + \beta_7(\text{Manufacturing}) + \beta_8(\text{Graduates}) + \beta_9(\text{Openness}) + \beta_{11}(\text{DNAFTA}) + \\ \beta_{12}(\text{DWelfareReform}) + \beta_{13}(\text{Interest})$$

where $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8 < 0$ and $\beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13} > 0$.

The determinates of inequality are measured by: the real value of minimum wage, personal transfer payments as a percentage of total federal government expenditure, the Welfare Reform Act of 1996, defense spending as a percentage of GDP, openness⁴, the North American Free Trade Agreement (NAFTA), inflation, interest rates, GDP growth⁵, percentage of workers in unions, percentage change in manufacturing employment, and well as high school graduates as a percentage of the total number of seventeen year olds (to measure the effects of education on inequality).

The real value of minimum wage was found using data from the Labor Research Association (1960-1997). The real value of minimum wage is in 1997 dollars.⁶ The percentage change of manufacturing employment and the percentage of union membership in the work force were also found from the Labor Research Association (2003). The rate of inflation was calculated using percent changes in the Consumer Price Index. This data was found on the U.S. Department of Labor Bureau of Labor Statistics (2003). Personal transfer payments were calculated as federal expenditures to persons as a percentage of total expenditures. This data, as well as data to calculate the openness variable, were found from the Bureau of Economic Analysis (2003). Defense spending as a percentage of GDP and corporate tax revenue as a percentage of GDP were calculated using statistics from the Congressional Budget Office (2003). Interest rates were found from the Federal Reserve (2003). The effects of NAFTA and the Welfare Reform Act of 1996 were measured as dummy variables, where NAFTA is equal to 1 is after NAFTA was implemented (1994-2002) and Welfare Reform (WelfareRef) is equal to 1 is after Welfare Reform was executed (1997-2002). My dependent variable, inequality, is measured by the Gini coefficient for income, which is published by the Census Bureau (2003). A Gini coefficient of 1 would represent maximum inequality while Gini coefficient of 0 is perfect equality.

A. Regression results

After running an OLS regression, I found that many of my variables were multicollinear, and most of my t-statistics were insignificant (see Appendix 1). In order to solve the problem of multicollinearity, I removed the variables union⁷, manufacturing, openness, personal transfer payments (perstrans), and interest. As expected, interest rates were multicollinear with inflation. The percentage of workers in a union is multicollinear with the percentage of high school graduates, federal personal transfers, corporate taxation, minimum wage, and surprisingly, defense spending. Federal personal transfers are multicollinear with minimum wages, NAFTA, corporate taxation, and defense spending. The percentage of high school graduates is multicollinear with minimum wage, percentage of union workers, and NAFTA. Finally, openness is highly multicollinear with union, minimum wage, NAFTA, personal transfer payments, corporate taxation, and defense spending.

The resultant baseline model is given in Table1. Although the baseline model still has some multicollinearity, has significant t- values and has no heteroscedasticity. However, the Durbin Watson test lies in the area of uncertainty for autocorrelation. In attempt to solve for autocorrelation, the model was run using an autoregression procedure.

Table 1: Baseline Regression

Variable	Estimate	Standard Error	t Value
Intercept	0.507	0.017	29.09***
Inflation	-0.283	0.105	-2.71***
MinWage	-0.012	0.004	-2.91***
DefSpend	-0.004	0.002	-2.07**
CorpTax	-0.006	0.003	-1.87*
GDPgrow	-0.002	0.001	-2.76***
DNAFTA	0.019	0.008	2.37**
WelfareRef	0.028	0.007	3.89***

Adjusted R squared = 0.9422
 Durbin Watson Test = 1.524⁸
 White Test = 28.87⁹
 F- Value = 98.76¹⁰

Even after running the autoregression (Table 2), the Durbin Watson statistic is still in the area of uncertainty. However, this statistic is closer to 2. The Jarque- Bera test indicates that my regression is normally distributed.

Table 2: Yule-Walker Estimates of the Autoregression

Variable	Estimate	Standard Error	t Value
Intercept	0.5065	0.0174	29.09***
Inflation	-0.2832	0.1047	-2.71***
MinWage	-0.0123	0.004220	-2.91***
DefSpend	-0.004283	0.002065	-2.07**
CorpTax	-0.006073	0.003242	-1.87*
GDPgrow	-0.002370	0.000860	-2.76***
DNAFTA	0.0187	0.007882	2.37**
WelfareRef	0.0281	0.007215	3.89***

*** Denotes 1 percent level of significance

** Denotes 5 percent level of significance

* Denotes 10 percent level of significance

Regress R squared: 0.9289

Durbin Watson Test: 1.8865

JB= 5.08283¹¹

Therefore, increases in inflation, minimum wage, spending for the military, corporate taxation, and GDP growth decrease inequality. This is consistent with theory. Inflation would decrease the value of money owed by poorer debtors to richer creditors. Increases in military spending would increase the amount of jobs available for unskilled workers. Although Gilder theorized that corporate taxation would hinder corporate investment and growth and create more inequality, the result from the regression is consistent with the equalizing effects of tax rates historically. GDP growth rates would decrease inequality because the demand for labor would increase, and therefore increase wages.

The years in which NAFTA and the Welfare Reform Act of 1996 were implemented inequality has increased. After the passage of NAFTA, the Gini coefficient increased by 0.0187. Since the passage of the Welfare Reform Act of 1996, inequality has increased by 0.0281. These results are consistent with theory as well. According to the Stopler-Samuelson theorem, NAFTA would decrease the demand for unskilled labor in the United States, a capital abundant country. Therefore, wages for unskilled workers would decrease as well and create an increase in inequality. The Welfare Reform Act decreased the amount of payments poor parents receive, which creates an increase in inequality.

IV. Conclusion

After accounting for multicollinearity, and running an autoregression procedure, the evidence indicates that inflation, minimum wage, military spending, corporate taxation, GDP growth decreases inequality. The implementation of NAFTA and the Welfare Reform Act of 1996 has increased inequality. Therefore, recent trends have increased inequality. Alan Greenspan has been aggressively attacking inflation by raising interest rates during times of economic growth. The real value of minimum wage, military spending as a percentage of GDP, and corporate taxation has been decreasing as well, thereby worsening inequality.

Even though the GDP continues to increase, poverty and inequality is becoming more predominant, and the government is implementing policies that exacerbate this problem. Paul Wachtel stated, "Growth proponents pose as hard-headed realists. But their vision of buying off the poor with the crumbs from their table is in fact a dangerously naïve fantasy, no matter how sugarcoated the crumbs or grand the table" (Wachtel 1989

p. 30). Growth is not a substitute for equality. In order reverse this trend of increasing inequality, welfare mothers, which were helped by the Welfare Reform Act of 1996, should be able to receive more benefits, and more programs need to be executed that retrain blue collar workers that are unemployed as a result of NAFTA. The government can also maintain some manufacturing jobs by increasing their spending on defense and funding this spending by increasing corporate taxes, which would increase equity. Hopefully, the affluent and the politicians in America will soon realize that their wealth does not necessarily “trickle down” to those in need.

Appendix 1: First Regression

Variable	Parameter Estimate	Standard Error	t Value	Variance Inflation
Intercept	0.39143	0.06588	5.94***	0
Interest	-0.00069312	0.00079798	-0.87	3.84047
Manuf	-0.00227	0.00093781	-2.42**	5.90118
Union	-0.00044356	0.00126	-0.35	41.04928
MinWage	0.00102	0.00458	0.22	5.79376
GDPgrow	0.00026950	0.00134	0.20	5.10431
Inflation	-0.41901	0.16075	-2.61***	13.47015
Graduates	-0.00053243	0.00066469	-0.80	1.58173
Openness	0.53403	0.21308	2.51***	80.49262
DNAFTA	0.01627	0.00696	2.34**	5.01454
PersTrans	-0.00097407	0.00085347	-1.14	20.32132

*** Denotes 1 percent level of significance

** Denotes 5 percent level of significance

* Denotes 10 percent level of significance

Adjusted R-Squared: 0.9621

F Value: 57.09

Appendix 2: Effects of Union

Variable	Estimate	Standard Error	t Value
Intercept	0.4668	0.007990	58.43***
Inflation	-0.1951	0.0564	-3.46***
Union	-0.003286	0.000288	-11.43***
GDPgrow	-0.001637	0.000640	-2.56***
DNAFTA	0.0171	0.005647	3.03***
WelfareRef	0.0247	0.005802	4.25***

*** Denotes 1 percent level of significance

** Denotes 5 percent level of significance

* Denotes 10 percent level of significance

Adjusted R Squared: 0.9589

White Test: 11.89

Durbin- Watson: 1.541

F Value: 196.98

The JB test statistic is 12.4635. Since $12.4635 > 5.9914$, the hypothesis that the regression is normally distributed is rejected. The kurtosis statistic is equal to 5.307. Therefore, the regression is leptokurtic. This regression shows that inflation, union, and GDP growth decreases inequality. NAFTA and Welfare Reform increase inequality.

V. References

- Bhagwati, Jagdish (1994, March). "Free Trade: Old and New Challenges." *The Economic Journal*, Vol. 194, No. 423: 231-246.
- Bronfenbrenner, Kate (2000, September 6). "Uneasy Terrain: The Impact of Capital Mobility on Workers, Wages, and Union Organizing." *U.S. Trade Review Commission*: 1-71.
- Burtless, Gary, (1995) "International Trade and the Rise in Earnings Inequality." *Journal of Economic Literature*, Vol. 33: 800-816.
- Congressional Budget Office. *November Budget Report* www.cbo.gov, various issues.
- Congressional Budget Office. (2003, May) "The Effects of NAFTA on U.S-Mexican Trade and GDP" www.cbo.gov.
- Danziger, Sheldon, Robert Haveman and Robert Plotnick. (1981) "How Income Transfer Programs Affect Work, Savings and the Income Distribution: A Critical Review." *Journal of Economic Literature*, Vol. 19, No. 3: 975-1028.
- Danziger, Sheldon and Robert Plotnick. (1981) *Has the War on Poverty Been Won?* Madison, WI: Institute for Research and Poverty, 1981.
- DiNardo, J. N. M. Fortin and T. Lemieux. (1996) "Labor Market Institutions and the Distribution of Wages, 1973-1992." *Econometrica* Vol. 64 No. 5: 1001- 1044.
- Freeman, Richard B. (1995). "Are Your Wages Set in Beijing?" *The Journal of Economic Perspectives*, Vol. 9, No. 3: 15-32.
- Freeman, Richard B. and James L. Medoff. (1984). *What Do Unions Do?* NY: Basic Books.
- Friedman, Tami. (2002 March/ April). "How States are Spending Their Welfare Money- Or Not." *Dollars and Sense*: 46-47.
- Gilder, George, (1981) *Wealth and Poverty*. NY: Basic Books.
- Goltschalk, Peter and Timothy M. Smeeding (1997). "Cross- National Comparison of Earnings and Income Inequality." *Journal of Economic Literature*. Vol. 35 No. 2: 633-687.
- Gowens, Pat and Peter Carter. (2001 Nov/ Dec) "Welfare Warriors: Honoring the Value of Motherwork." *Mothering*: 40-45.
- Hernandez, Donald, (1999) "Poverty Trend." *Consequences of Growing Up Poor*. Ed. Greg Duncan and Jeanne Brooks- Gunn. New York: Russell Stage Foundation.
- Hoagland, G. William (1980 April) "The Effectiveness of Current Transfer Programs in Reducing Poverty" *Paper Presented at the Middlebury College Conference on Welfare Reform*.

Katz, Lawrence F. and Kevin M. Murphy (1992). "Changes in Relative Wages, 1963-1987: Supply and Demand Factors." *Quarterly Journal of Economics*, Vol. 107, No. 1: 35-78.

Labor Research Association (2003) *LRA Online*. www.laborresearch.org.

Lawrence, Robert Z., Matthew Slaughter, Robert Hall, Steven Davis, Robert Topel (1993). "International Trade and American Wages in the 1980s: Giant Sucking Sound or Small Hiccup?" *Brookings Papers on Economic Activity. Microeconomics*, Vol. 1993, No.2: 161-266.

Leamer, Edward E. (1996) "Wage Inequality from International Competition and Technological Change: Theory and Country Experience." *American Economic Review*: 309-314.

Lee, D. S. (1992) "Wage Inequality in the U.S During the 1980s: Rising Dispersion or Falling Minimum Wage?" *Quarterly Journal of Economics* Vol. 107 No. 1 : 33-78.

Levy, Frank and Richard J. Murnane (1992). "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Evaluations." *Journal of Economic Literature*, Vol. 30, No. 3: 1333-1381.

Rothstein, Jesse and Robert E. Scott (1997, September 19). "NAFTA and the States" *EPI Issue Brief*: 1-5.

Sachs, Jeffrey D., Howard J. Shatz, Alan Deardorff and Robert E. Hall (1994). "Trade and Jobs in U.S. Manufacturing." *Brookings Papers on Economic Activity*. Vol 1994, No. 1: 1-84.

Steinberg, Bruce (1983 November 28). "The Mass Market is Splitting Apart." *Fortune*: 76-82.

Stolper, Wolfgang F. and Paul A. Samuelson (1941 November). "Protection and Real Wages." *The Review of Economic Studies*. Vol. 9, No. 1: 58-73.

Tailings, Coen N. (2003) "The Contribution of Minimum Wages to Increasing Inequality." *The Economic Journal*. Vol. 113: 801-833.

U. S. Census Bureau (2003) "Income in the United States: 2002" www.census.gov.

U.S. Department of Commerce (2003). *Bureau of Economic Analysis Data* www.bea.doc.gov.

U.S Department of Labor (2003). *Bureau of Labor Statistics Data*. <http://data.bls.gov>.

Wachtel, Paul (1989), *The Poverty of Affluence: A Psychological Portrait of the American Way of Life*. Philadelphia: New Society Publications.

Warf, Barney (1993), "The Pentagon and the Service Sector." *Economic Geography*, Vol. 69 No.2: 123.

Wolff, Edward N. (2000, May). "Trade and Inequality: A Review of the Literature." *Economic Working Papers*: 1 -65.

Wood, Adrian (1994). *North-South Trade, Employment, and Inequality: Change Fortunes in a Skill-Driven World*. New York: Oxford University Press.

Wood, Adrian (1995). "How Trade Hurt Unskilled Workers." *The Journal of Economic Perspectives*, Vol. 9, No. 3: 57-80.

Yarbrough, Beth V. and Robert M. Yarbrough (2000). *The World Economy*. Fort Worth: Harcourt College Publishers.

Endnotes

¹ Data found from the Census Bureau (2003)

² Countries can differ in factor abundance in two ways- factor quantity and factor prices. If country A has a higher ratio of capital to labor than country B or if country A has a lower rental rate for capital than country B, then country A is capital abundant.

³ federal funds rate

⁴ Openness is defined as imports plus exports over GDP.

⁵ U.S. Gross Domestic Product annual percent

⁶ In order to find the data from 1997- 2002, I used the value of minimum wage in current dollars, divided this by the current price index, and multiplied by 100.

⁷ To see the effects of Union on inequality to go Appendix 2

⁸ $K= 8$; the area of uncertain is between $dl = 1.139$ $du = 1.958$

⁹ Chi Critical with 30 degrees of freedom = 40.256; since $28.87 < 40.256$ no heteroscedasticity

¹⁰ F test critical value= 3.30, since $3.30 < 98.76$ the regression is significant

¹¹ $JB= 5.08283$ since $5.08283 < 5.99147$ the null hypothesis that it is normally distributed cannot be rejected.