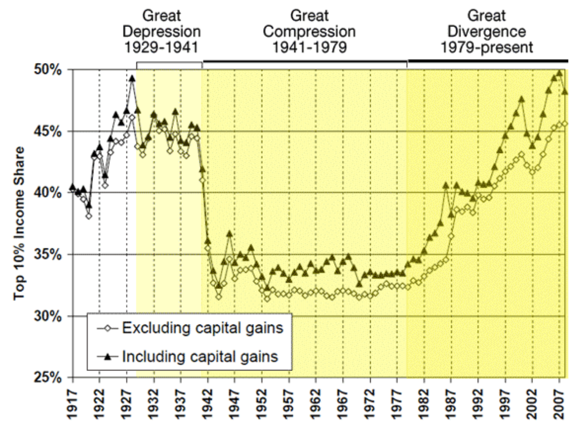
INTRODUCTION

The United States during the later part of the 20th century experienced a reversal in the pattern of decreasing income inequality that had slowly been establishing itself since the end of the Great Depression. Indeed, by 1982, inequality in the distribution of American family incomes had eclipsed the same figure measured in 1950, the year that had seen the highest level of inequality since record keeping began in 1947.[1] Figure 1 depicts the top ten percent income share in the United States during the decades between World War I and present day. The data points are logically separated into three discrete periods – The Great Depression (characterized by high inequality), the Great Compression (a decrease in inequality), and the Great Divergence (a return to higher inequality). This last period came as a surprise to many who had previously studied income inequality in America. At the time, the prevailing school of thought regarding the mechanics of economic inequality was one first proposed by Simon Kuznets in his 1955 paper entitled "Economic Growth and Income Inequality". Kuznets hypothesized that as economies matured in less developed regions, certain emergent factors like industrialization and urbanization would increase income inequality. Then, as those economies continued to develop, social and political forces would come into play to relieve the poorest in society while the upper income group would experience slower growth than under early industrialization.[2] These two observations produced an inverted-U curve of inequality as a function of development, a model that had been supported by empirical

Figure 1: Top Ten Percent Income Share, 1917-2008



evidence from the first half of the 20th century. Around the 1980s, however, income inequality began a steady climb that has carried through to present day. Furthermore, a closer look at family incomes during this time reveals that the income gap has increased the most between the top and the middle of the distribution, while it has remained fairly stable between the middle and bottom.[3] The search for causes of this upward trend in income inequality has been the topic of much research, though a consensus has hardly been reached. Truly, pinpointing a cause would help address inequality in the real world and its associated negative effects, such as increased rates of mortality[4] and obesity[5]. This paper presents a survey of the most compelling theories for income inequality in America and seeks to identify the strengths and weaknesses of each.

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[1] Moller, Stephanie, Arthur S. Alderson, and François Nielsen. "Changing Patterns of Income Inequality in U.S. Counties, 1970–20001." *American Journal of Sociology* 114.4 (2009): 1037-101. Print.
[2] Kuznets. "Economic Growth and Income Inequality", 1955, *AER*.

[3] Michel, Richard C. "Economic Growth and Income Equality Since the 1982 Recession." *Journal of Policy Analysis and Management* 10.2 (1991): 181-203. Print.
[4] Sanmartin, C. "Labour Market Income Inequality and Mortality in North American Metropolitan Areas." *Journal of Epidemiology & Community Health* 57.10 (2003): 792-97. Print.
[5] Pickett, K. E. "Wider Income Gaps, Wider Waistbands? An Ecological Study of Obesity and Income Inequality." *Journal of Epidemiology & Community Health* 59.8 (2005): 670-74. Print.

A BRIEF ASIDE

While this survey is primarily concerned with *income* inequality, some literatures that it cites were based on *wage* inequality data. The author acknowledges that neither the metrics nor the factors affecting their distributions are identical. It is reasonable, however, to suggest that increased inequality in the distribution of wages will result in increased inequality in the distribution of incomes.[6] Thus, for the sake of discussion, the terms *income inequality* and *wage inequality* are hereinafter used interchangeably.

GLOBALIZATION

Globalization has been frequently cited as one of the major causes of income inequality. Three separate mechanisms contribute to its effects: (1) rising foreign direct investments or "offshoring" (2) increased trade between developed and developing countries and (3) immigration rates.

In an attempt to reach new levels of profitability, many companies are now undertaking direct investment to capitalize on opportunities abroad rather than on domestic production and investment. As firms in the manufacturing sector move overseas in search of cheaper labor costs, America experiences a deindustrialization of sorts. Fewer Americans working in the manufacturing industry, a sector characterized by higher average wages and a fairly even distribution of income, results in greater inequality because a greater proportion of the population must then work in sectors like the service industry, which is more well known for lower average wages and higher inequality.[7] Rising foreign direct investments also affects the bargaining position of labor, in that multinationality results in a more fragmented labor force. It is much more difficult for laborers from different countries and who may speak different languages to rally together against the singular corporation.

The argument that rising foreign direct investments results in increased inequality rests upon two assumptions, neither of which are necessarily true. The first is that direct investment abroad must represent a *displacement* of investment that would have otherwise been made domestically. The second assumption is that little to no adjustment for the outflow is made through trade, which in the real world may serve to mitigate the practice's adverse effects on domestic labor. That said, offshoring has been shown to account for the decrease in wages of middle-income workers,[8] a demographic that is disproportionately employed in manufacturing, so it is a reasonable cause for income inequality.

Globalization has also resulted in increased trade between developed and developing countries. Some argue that this increases the gap between wages for the skilled and the unskilled because it reduces the demand for

[6] Autor, David H., Lawrence F. Katz, and Melissa S. Kearney. 2005. "Trends in U.S. Wage Inequality: Re-assessing the Revisionists." Working paper no. 11627. National Bureau of Economic Research, Cambridge, Mass.

[7] "Changes in Income Inequality across the U.S." *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2007/el2007-28.html>.

[8] "Changes in Income Inequality across the U.S." *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2007/el2007-28.html>.

unskilled labor in developed countries. Janet Yellen writes,

> "The most basic way in which globalization might affect inequality is through trade, which has raised substantially both imports and exports as a share of GDP. Since the U.S. tends to export goods that use skilled labor intensively and to import goods that use less-skilled labor intensively, increased trade has, on balance, raised the demand for skilled labor and reduced the demand for less-skilled workers in this country. . . . The result has been job losses and excess supply of less-skilled workers."[9]

Efficient labor markets require that an excess supply of less-skilled workers results in lower wages. Thus, the influx of immigrant populations, which tend to be mainly comprised of unskilled laborers depresses the wages of the less skilled. Furthermore, the immigrant population is highly bifurcated, in that immigrants tend to either be unskilled or highly skilled.[10] This fact combined with a high immigration rate compounds the mechanism's effect on inequality. In support of this theory, it has been shown that rich, people-importing nations have experienced a higher rise in inequality than their poorer, people-exporting counterparts,[11] and also that the proportion of noncitizens in a country's population is positively associated with bottom-half inequality increases over the following decade.[12]

SOCIO-DEMOGRAPHIC SHIFTS

Changes in income equality are frequently attributed to socio-demographic shifts. While most of these hypotheses have theoretical merit, further studies have often revealed them to have varying degrees of validity.

Race and ethnicity tend to have fairly significant associations with income inequality. Some researchers have found that wage and income inequality are higher in communities with a larger black population. Various studies have cited differences in family structure across racial groups,[13] race-based wage inequality resulting from discrimination,[14] and relatively high unemployment among blacks[15] as possible causes for this wage inequality. The population of Hispanics has also been examined as a possible aggravator of income inequality. The recent influx of Hispanics into the United States corresponds to an increase in income equality, though this

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[9] Yellen, Janet L. "Economic Inequality in the United States" *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2006/el2006-33-34.html>.

[10] Alderson, Arthur S., and Francois Nielsen. "Globalization and the Great U-Turn: Income Inequality Trends in 16 OECD Countries." *American Journal of Sociology* 107.5 (2002): 1244-299. Print.

[11] Alderson, Arthur S., and Francois Nielsen. "Globalization and the Great U-Turn: Income Inequality Trends in 16 OECD Countries." *American Journal of Sociology* 107.5 (2002): 1244-299. Print.

[12] "Changes in Income Inequality across the U.S." *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2007/el2007-28.html>.

[13] Cancian, Maria, and Deborah Reed. 2001. "Changes in Family Structure: Implications for Poverty and Related Policy." Pp. 69–96 in Understanding Poverty, edited by Sheldon H. Danziger and Robert H. Haveman. New York: Russell Sage Foundation.

[14] McCall, Leslie. 2001. "Sources of Racial Wage Inequality in Metropolitan Labor Markets: Racial, Ethnic and Gender Differences." American Sociological Review 66: 520–41.

[15] Wilson, William Julius. 1987. The Truly Disadvantaged: The Inner City, the Underclass and Public Policy. Chicago: University of Chicago Press.

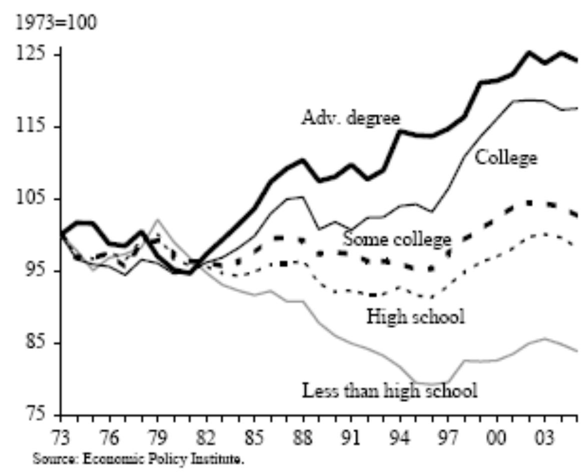
phenomenon is also true of all immigration, as discussed above.

One important socio-demographic shift of the last century has been the rapidly increasing proportion of women in the workforce. Some argue that this has caused a decline in income inequality because an increase in the number of women in the workforce has increased the proportion of families that have access to this source of income.[16] Women's employment has also been shown to help move lower-income families toward the mean, which would lower inequality.[17] The influx of women into the workforce could also increase inequality, however. Blau et al. write that between 1970 and 1995, the workforce participation rate of women has risen most significantly for new mothers and highly educated mothers.[18] This could result in greater inequality because the incomes of spouses tends to be positively correlated. Another socio-demographic shift involving women is the considerable increase in the proportion of families headed by a single woman. Various studies have shown a strong association between the proportion of households headed by women and family income inequality.[19]

EDUCATION

Varying degrees of education has been shown to cause income inequality. Figure 2 plots real hourly wages by education level for the last three decades. Though wages between education levels tended to be fairly similar in the 1970s, by the turn of the century the gap had widened considerably.

Figure 2: Real Hourly Wages By Education



Generally speaking, educational expansion has been believed to decrease inequality because the supply of highly skilled workers should increase, which decreases upper-level wages and thus lowers inequality.[20] Indeed, this hypothesis has been supported by empirical data involving inequality and the spread of secondary education.[21] While education and inequality tend to be negatively correlated, it is important not to overstate

[16] Blau, Francine D., Marianne A. Ferber, and Anne E. Winkler. 2006. The Economics of Women, Men, and Work, 5th ed. Upper Saddle River, N.J. : Pearson/Prentice Hall.
[17] Cohen, Philip, and Suzanne M. Bianchi. 1999. "Marriage, Children, and Women's Employment: What Do We Know?" Monthly Labor Review 122:22–31.
[18] Blau, Francine D., Marianne A. Ferber, and Anne E. Winkler. 2006. The Economics of Women, Men, and Work, 5th ed. Upper Saddle River, N.J. : Pearson/Prentice Hall.
[19] Burtless, Gary. 1999. "Effects of Growing Wage Disparities and Changing Family Composition on the U.S. Income Distribution." European Economic Review 43:853–65. Cancian, Maria, and Deborah Reed. 1999. "The Impact of Wives' Earnings on Income Inequality: Issues and Estimates." Demography 36:173–84.
Nielsen, François, and Arthur S. Alderson. 1997. "The Kuznets Curve and the Great U-turn: Income Inequality in U.S. Counties, 1970 to 1990." American Sociological Review 62:12–33.
[20] Lecaillon, Jacques, Felix Paukert, Christian Morrisson, and Dimitri Germidis. 1984. Income Distribution and Economic Development: An Analytical Survey. Geneva: International Labour Office.
[21] Nielsen, François. 1994. "Income Inequality and Industrial Development: Dualism Revisited." American Sociological Review 59:654–77.

their connection. Yellen cautions, "It's important to recognize, however, that shifts in the return to education and the educational attainment of the workforce cannot fully explain the evolution of inequality over the last 30 years because, even within groups with the same level of education, the gap between high and low earners has widened, too."[22] To account for inequality between groups *and* within groups, further hypotheses must be examined.

SKILL-BIASED TECHNOLOGICAL CHANGE

One of the most well-known hypotheses in literature regarding wage inequality involves skill-biased technological change. This term refers to technological advances that have increased the demand for highly educated and highly skilled workers. An increase in demand (and thus wages) for highly skilled workers would serve to increase wage inequality. One strong piece of evidence for this hypothesis is that the supply of highly educated workers increased at the same time that their wages did, which suggests that the demand for this type of worker also increased. Skill-biased technological change such as the rapid adoption of computers should increase the productivity of the skilled while possibly replacing the skills of the middle-level workers and possibly not affecting the unskilled workers. This intuition can be explained more clearly via illustration. Take, for example, the skilled economist who can use a computer to test models, an accountant whose primary number-crunching capabilities can be programmed into a computer, and a janitor whose job responsibilities cannot be performed by a computer or machine. The introduction of a computer into each of their occupations causes different outcomes. The economist would likely become more valuable, while the accountant would become less valuable and the janitor would likely not be either harmed or helped. Indeed, this trifurcation between the top, middle, and bottom part of the income inequality distribution has support in empirical data.

With this observation in mind, a widening of the gap within the top half and a narrowing of it in the bottom half should be more pronounced in countries where high-skill labor is relatively more important. One study shows that skill-biased technological change is strongly associated with top half inequality, but less so with bottom half inequality.[23] A reason for the weaker association with the bottom half inequality could be that, "while the college share of the population is a good proxy for the type of computerization that complements high-skill labor, it may not be a good proxy for the type of computerization that substitutes for medium-skill workers."[24]

One of the major challenges to the hypothesis of skill-biased technological changes is the fact that other large, advanced economies like Japan, France, and Germany did not mirror America's sharp rise in inequality in the

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22 Yellen, Janet L. "Economic Inequality in the United States" *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2006/el2006-33-34.html>.

23 "Changes in Income Inequality across the U.S." *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2007/el2007-28.html>.

24 "Changes in Income Inequality across the U.S." *The Federal Reserve Bank of San Francisco: Economic Research, Educational Resources, Community Development, Consumer and Banking Information*. Web. 01 Nov. 2010. <http://www.frbsf.org/publications/economics/letter/2007/el2007-28.html>.

1980s. Technological change did occur in these countries but for some reason it did not result in increased inequality. In response, Freeman and Katz suggest that skill-biased technological change only accounts for part of the change in income inequality and that another factor – wage-setting institutions – must be utilized to further explain this phenomenon.[25]

WAGE-SETTING INSTITUTIONS

It would seem that wage-setting institutions should have a very direct effect on wage inequality, but various complexities arise upon deeper investigation.

As expected, the minimum wage strongly affects those laborers at the bottom of the income distribution. DiNardo et al. show that the sharp decline in the real minimum wage during the 1980s had a very large impact on wage inequality among both women and men.[26] Another study concluded that the *entirety* of the increase in inequality in the low-end of the wage distribution during the 1980s was due to this decreasing real wage.[27]

Wage-setting institutions have also been used in an attempt to explain inequality in the top part of the wage inequality distribution. Piketty and Saez suggest that spectacular rises in the wages of global corporate executives could be due to (1) the presumption that technological change has made managerial skills more generally applicable, which increases the competition for those positions (2) the fact that changes in pay-setting institutions (like unions) and social norms have removed certain implicit barriers to wage increases in America or (3) the belief that executives got better at raising their own wages.[28] Unfortunately all of these explanations are very difficult to quantitatively test.

Despite the difficulties in measuring the impact of institutions on wage inequality, the theories can account for a fair amount of the empirical data. De-unionization would cause increasing inequality at the top-end but decreasing inequality at the bottom-end, which indeed happened in the latter half of the 20th century. The decrease in real terms of the minimum wage in the 1980s could also account for the expanding inequality in the low-end of the wage distribution. Still, the data and analytical techniques are not sufficient enough to determine the exact effect of institutions on wage inequality.

CONCLUSION

This paper has attempted to provide a general survey of the various explanations for increasing income inequality over the later part of the 20th century. From the breadth of the discussion, it is clear that many factors could reasonably contribute to income inequality. A comprehensive theory would have to take into account all of the possible causes mentioned here and how they could potentially interact with each other, so the construction of such a theory would be incredibly difficult. Still, a comprehensive model for income inequality is a noble goal, and further research into the area will continue to elucidate the subject.

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25 Lemieux, Thomas. "The Changing Nature of Wage Inequality." *Journal of Population Economics* 21.1 (2007): 21-48. Print.

26 DiNardo J, Fortin NM, Lemieux T (1996) Labor market institutions and the distribution of wages, 1973–
1992: a semiparametric approach. Econometrica 64(5):1001–1046

27 Lee, David S. 1999. "Wage Inequality in the United States during the 1980s: Rising
Dispersion or Falling Minimum Wage." Quarterly Journal of Economics 114:
977–1023.

28 Piketty T, Saez E (2006) The evolution of top incomes: a historical and international perspective. Am Econ Rev 96(2):200–205