

Left Behind by Globalization: Why Christians Care About Educating Women ¹

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ABSTRACT

The purpose of this paper is to outline empirical research finding globalization to have a negative effect on the economic status of women, and to discuss the policy implications – in particular, why Christian faculty should have a special concern about these trends.

The general issues surrounding the impact of globalization on the American workforce have been highly visible in the news and political debates. These issues have also been a hot topic for economists. It is critical for Christian business faculty to understand the economic impact of globalization, and to understand not only its positive influence on worldwide production, but also its potential damaging effects on widening income inequality.

This paper outlines empirical findings of research on the impact of globalization on American women, and highlights the policy implications brought to bear by the empirical work. Specifically, the empirical work implies that America should be focusing on the education of American women, and particularly female heads. This finding has particular relevance for the Christian academy, and for Christians who care about making a human capital investment in people. Investing in the education of women elevates their worth and dignity, and improves their economic self-sufficiency.

The empirical results of this research provide evidence that globalization has negatively impacted American women. Specifically, female heads of households who are exposed to global industries are found to have lower economic status. The empirical results are attained from a pooled time-series cross-section sample of 21,946 female heads, by merging data from the Panel Study of Income Dynamics and the National Bureau of Economic Research. Multiple regression analysis is used, controlling for personal

¹ Early stages of this research were made possible by a gift from the PEW Foundation, and originated during a faculty summer seminar in Christian Scholarship at Calvin College, entitled "Globalization and Inequality." I wish to thank the director of the Calvin Summer Seminar, David Richardson, for his keen insights and mentorship. I wish to thank my seminar colleagues for expert advice and wisdom, especially my discussant, Timothy Wedding. I would like to acknowledge Anthony Roney, my student research assistant, for valuable assistance in later stages of the research. I wish to thank several individuals at my home institution for travel and software support: Patrick Allen, Margaret Stevenson and Barbara Rutledge; and for research advice and mentorship support: Senyo Adjibolosoo and Maggie Bailey. All shortcomings that remain herein are entirely my responsibility.

and family characteristics, detailed work variables, labor market variables, industry fixed effects (unique characteristics of industries), and individual fixed effects (unique characteristics of individuals).

In particular, this paper sheds light on who is left behind by the widening income inequality generated in part by free trade. This empirical work finds evidence that female heads of households are being left behind by globalization.

The policy implications are significant, especially for Christians, because we are called to care about social and economic justice, and human dignity. Christian faculty have a key role to play in the policy solution, as we are entrusted with students who have God-given talents, to play a critical role in teaching, shaping and investing in their lives. Policy solutions that improve the education of women elevate the goal of economic justice, as they are both efficient and compassionate. These solutions give attention to higher order needs beyond survival, to fulfillment in the workplace, and they impact future generations by providing a means for women to improve the health and education of their children.

As Lester Thurow said in *Building Wealth: The New Rules for Individuals, Companies, and Nations in a Knowledge-Based Economy*, “the human beings who possess knowledge cannot be made into slaves” (xv). This paper, through increased understanding of the impact of global capitalism, and through careful empirical study, suggests policy alternatives that focus attention on the value of educating women in a global economic environment.

Introduction: Motivating the Issues

This paper provides a backdrop for the CBFA session on Gender and the Christian Academy, by discussing how the economic forces of globalization have increased the value of educating women.

There has been a debate in the world of academia, in the news, and even in presidential campaigns, about the impact of free trade on the US economy. Politicians hear “sucking sounds”² and the news media reports protest marches and public opinion polls of skeptical Americans concerned about job losses due to globalization.³ University economists have documented growing inequality in the distribution of incomes in virtually all OECD countries and in many developing countries as well.⁴ Economists have also attempted to compare poverty across countries.⁵ International trade experts, Dani Rodrik (1997) and Robert

² Ross Perot, in his 1992 presidential campaign, reported hearing “a giant sucking sound” from American jobs lost to the Mexican economy due to NAFTA (Lawrence, p. 6).

³ “Economists challenge free-trade orthodoxy,” *Chicago Tribune*, June 8, 1997. The orthodox position on free trade is one of the few sacred theories held almost universally by economists. It dates back to early economic philosophers, David Ricardo (1821) and Claude Frederic Bastiat (1845). David Ricardo theorized that though one of two countries is more efficient at producing everything, if each country specializes in the production of the good in which it has a *comparative advantage*, world output will increase through free trade. Claude Frederic Bastiat was a French economist, whose satirical essay about the need for protectionism from competition from the sun is illustrative of his strong opinions about the merits of free trade.

⁴ The OECD is the Organisation for Economic Co-operation and Development, an international organization to assist governments in handling the economic, social and governance challenges of a global economy. For a literature review of cross-national comparisons, see Peter Gottschalk and Timothy Smeeding (1997). For a review of the literature for the United States, see Frank Levy and Richard Murnane (1992). See also Adrian Wood (1997), Gary Burtless (1996), Robert Haveman (1996), Klaus Deininger and Lyn Squire (1996), Anthony Atkinson, Lee Rainwater and Timothy Smeeding (1995), Jeffrey Sachs and Howard Shatz (1994).

⁵ See Timothy Smeeding (1997), United Nations (1997), Klaus Deininger and Lyn Squire (1996), McKinley Blackburn (1994), Abhijit Banerjee and Andrew Newman (1994), Andrew Foster (1994), Jonathan Morduch (1994), Harsha Aturupane, Paul Glewwe and Paul Isenman (1994), Lars Osberg (1991), Timothy Smeeding (1991), Buhmann, Rainwater, Schmauss and Smeeding (1988), Smeeding, O’Higgins and Rainwater (1988).

Lawrence (1996), have entered the debate, asking the question: has international trade and increased globalization contributed to widening inequality in the distribution of incomes in nations around the globe? Many economists blame widening income inequality primarily on technology and higher compensation to skilled labor, and to a much lesser degree blame trade. However, Wood (1997) blames about 30 percent of the damage to low-skilled workers on trade, which is notably larger than prior studies. And Rodrik in his book, *Has Globalization Gone Too Far?* (1997), argues that trade has indeed hurt workers in industrialized nations. These economists find evidence to link globalization and higher rates of return to college education, as developed countries increasingly specialize in high technology and knowledge industries.

At the same time the debate is raging about what factors are responsible for larger income inequality, there is a growing concern about gender equity issues from academic economists and world organizations alike, who believe ethics and justice compel action and solutions for the world's women.⁶ In his article on teaching the ethical foundations of economics, Jonathan B. Wight quotes economic thought historian R.D. Collison Black, who says that Adam Smith's economics is a "system of thought which [places] economic problems firmly in the context of ethics...informed throughout by a concept of justice."⁷ Robert Solow, in an essay titled "How Race and Gender Issues Arise in Economics," speaks about economic justice when he says,

Are questions about the economic status of women and minorities important? They certainly are if you are a woman or a member of a minority group. That covers a lot of people. Even if you are not, I should think that any decent and curious person would want to know the facts about group differences in economic outcomes and then understand why things happen as they do. There is something wrong with a society that punishes some people and rewards others just because they have personal characteristics for which they are not responsible and cannot control.⁸

Solow's thoughts ring true, especially for Christians, as we are called to care about social and economic justice, and minister to the hearts and souls, minds and bodies of men and women. If the economic forces of globalization, over which individual economic agents in the American economy have no control, do in fact dampen the economic status of women, there is cause to speak strongly in favor of policy intervention to correct this damaging impact.

At the 1994 International Conference on Population and Development (ICPD) in Cairo, participants from 180 countries agreed on the principle "that advancing gender equality and equity and the empowerment of women, and the elimination of all kinds of violence against women, and ensuring women's ability to control their own fertility, are cornerstones of population and development-related programmes."⁹ Feminist economists are opening the field of economics to issues of value, well-being, and power for women, and call for mainstream economists to broaden their attention to issues of altruism, cooperation, and the redistribution of abundance.¹⁰

Much economic research has been undertaken to assess whether globalization has led to increasing inequality in the distribution of incomes, and whether it has hurt individuals and households in poverty on a country-comparison basis. But there is not a wide research stratified by gender, particularly to assess the

⁶ On ethics and economics, see Amartya Sen (1987) and Richard Chewning (1991).

⁷ Jonathan B. Wight, "Teaching the Ethical Foundations of Economics," 2003, p. B7.

⁸ In Susan Feiner, editor, *Race and Gender in the American Economy: Views from Across the Spectrum*, Englewood Cliffs, New Jersey: Prentice Hall, 1994, p. 5.

⁹ Nancy Riley, "Gender, Power and Population Change," *Population Bulletin*, Volume 52, Number 1, Population Reference Bureau, May 1997, p. 2.

¹⁰ For a discussion of feminist economics, see Myra Strober (1994), Susan Feiner (1994), and Marianne Ferber and Julie Nelson (1993).

impact of globalization on women's economic status.¹¹ And the methods of studies used to determine the impact of globalization on poverty and inequality have not considered the impact of a globalization "exposure" component that has been disaggregated to the level of an individual household. That is where this paper contributes to the existing research.

This paper seeks to determine how globalization has impacted American women, and the policy implications as a result. An important contribution to the research in the field is made, by constructing a database which merges Panel Study of Income Dynamics (PSID) households and National Bureau of Economic Research (NBER) industry import-export data, and which includes a measure of global exposure entered on an individual household basis.

The results of the paper are based on a neoclassical model of income determination estimated over the period 1981-1993 with both industry and individual fixed-effects. After controlling for personal characteristics, work behavior, education, family characteristics, macroeconomic factors, industry effects, and individual effects, American women who work in industries with greater global activity (specifically higher exports, higher bilateral trade, or higher trade balances) have a significantly smaller income with which to meet their economic needs.¹²

Policy implications of the empirical research, which suggest both efficient and compassionate solutions, are also a key contribution of this paper. These policy solutions should speak loudly to Christians, as they call for an investment in the human potential of women, lead to increased economic justice, and influence future generations through giving women the means to improve their children's health, education, and well being.

Globalization: The Issues Facing America

The current world economic climate undeniably includes the economic forces of globalization, which intensified in the early 1980's. Ghose defines globalization as "a process of integration of national markets into a global market," including not only products, but factors of production as well – capital and labor.¹³ Burtless, Lawrence, Litan and Shapiro, in their important book, *Globaphobia*, define globalization as "the increasing economic linkage between the United States and other nations," or economic openness.¹⁴ And Krugman, in his insightful book that attempts to shed economic light about international economics on the masses, *Pop Internationalism*, talks about the issues surrounding what the news media and public discourse calls globalization, in terms of international trade.¹⁵

What are the general issues pertinent to America today regarding globalization?

¹¹ For a recent study describing the status of women in the global economy, see Nancy Riley (1997). For recent studies of American women and children in poverty, see Harrell Rodgers (1996) and Ann Nichols-Casebolt and Judy Krysik (1995). For an earlier women's status study, see Barbara Bergmann (1986). For a discussion of "gender gaps" which compare male and female earnings differentials, see Steven Pressman (1995) and Francine Blau and Lawrence Kahn (1994). For general poverty literature on the US, see Rebecca Blank (1997), Schiller (1998), Ehrenreich (2001), Sheldon Danziger, Gary Sandefur and Daniel Weinberg (1994), Danziger and Gottschalk (1993), Dimitri Papadimitriou and Edward Wolff (1993), Haveman (1987, 1988), and Michael Harrington (1963, 1984).

¹² The dependent variable used in the empirical analysis is income divided by needs. Use of the word "significant" throughout the paper refers to statistical significance.

¹³ This definition is from Ajit Ghose, *Jobs and Incomes in a Globalizing World*, 2003, p. 5.

¹⁴ Gary Burtless, Robert Z. Lawrence, Robert E. Litan, and Robert J. Shapiro, *Globaphobia: Confronting Fears about Open Trade*, 1998, p. 4.

¹⁵ Paul Krugman, *Pop Internationalism*, 1996, pp. vii-xiv.

Krugman outlines the myths and involved in American public perception. First, there is a perception that America needs to buck up and move into higher productivity sectors and jobs, as we face tougher international competition in a global economy. Krugman responds,

One of the most popular, enduring misconceptions of practical men is that countries are in competition with each other in the same way that companies in the same business are in competition. Ricardo already knew better in 1817. An introductory economics course should drive home to students the point that international trade is not about competition, it is about mutually beneficial exchange. Even more fundamentally, we should be able to teach our students that imports, not exports, are the purpose of trade. That is, what a country gains from trade is the ability to import things it wants. ...We need to teach them [students] that trade deficits are self-correcting and that the benefits of trade do not depend on a country having an absolute advantage over its rivals.¹⁶

International trade is not a zero sum, head to head, or win-lose competition, but it enables the consumption of a bigger world economic pie, due to the production of a larger world output through the specialization of production by countries with a comparative advantage. Burtless, Lawrence, Litan and Shapiro stress the fact that open trade benefits consumers, and that “lowering barriers to foreign goods delivers the equivalent of a tax cut to American consumers, while encouraging U.S. firms to innovate. The net result is higher living standards for Americans at home.”¹⁷

A second myth is the belief that high productivity is important because it increases our competitive edge in a global economy. “Students should learn that high productivity is beneficial, not because it helps a country to compete with other countries, but because it lets a country produce and therefore consume more.”¹⁸

Dispelling these myths help Americans understand the true benefits of globalization. However, there are also real economic costs to open trade, primarily in potential income inequality, negative effects on the low-skilled labor market, and social disintegration.

A significant issue for compassionate Christians who care about economic growth is – how will a growing economic pie, growing *because of* globalization, be distributed? Burtless, Lawrence, Litan and Shapiro point out that “the whole point of engaging in trade is to shift resources—capital and labor—toward their most productive uses, a process that inevitably causes pain to those required to shift.”¹⁹ They also acknowledge that, while the benefits to Americans from globalization have been significant, there have been losers.²⁰

There are solid theoretical economic reasons, based on the Heckscher-Ohlin-Samuelson factor price equalization theory, to believe that if a country abundant in skilled labor, such as the United States, begins to trade freely with a country having plentiful unskilled labor, such as Mexico, that the wage rates will converge, and so the US labor markets will experience declining wage rates.²¹

Economists have observed slower wage growth and greater wage inequality throughout the 1980's and 1990's, during a period of increased globalization. Most economists believe that liberalized trade played a role in dampening the relative wages of less-skilled American workers, not in depressing average

¹⁶ Krugman (1996), p. 120, 125.

¹⁷ Burtless, Lawrence, Litan and Shapiro (1998), pp. 8-9.

¹⁸ Krugman (1996), p. 121.

¹⁹ Burtless, Lawrence, Litan and Shapiro (1998), p. 9.

²⁰ Burtless, Lawrence, Litan and Shapiro (1998), pp. ix-x.

²¹ Burtless, Lawrence, Litan and Shapiro (1998), p. 61.

wages.²² It has also been thought that the role of trade is small, because imports from developing economies make up only about 2 percent of combined Gross Domestic Product (GDP) from Organisation for Economic Cooperation and Development (OECD) countries. However, in his book, *Has Globalization Gone Too Far?*, Rodrik points out that the impact of trade has been underestimated. This is because import competition has driven out low-skilled intensive activities that would have been present in developed countries and induced labor saving technological change. So, the technological changes that economists traditionally thought to cause the increase in the skill premium is itself due in part to trade. In addition, economists have found evidence that open trade has made the demand for labor more elastic. This means workers abroad can more easily be substituted for workers at home by companies who invest abroad, or import products (or parts) made by foreign workers.²³

So the costs of trade on the US labor markets include both an inward shift of the demand for low-skilled labor and an increase in the elasticity of low-skilled labor. An inward shift occurs when a country trades with another country that is more abundant in low-skilled labor, such as the US and Mexico. An increase in elasticity occurs because low-skilled workers in the United Kingdom, Germany or France, are in competition with similar workers in the United States.²⁴ As Rodrik points out,

And while North-North trade may have little perceptible impact on the relative demand for unskilled labor, it certainly makes this demand more elastic in all countries involved. ... That is, workers now find themselves in an environment in which they can be more easily 'exchanged' for workers in other countries. For those who lack the skills to make themselves hard to replace, the result is greater insecurity and a more precarious existence.²⁵

Rodrik also speaks of the social consequences of globalization – political backlash and social disintegration. A political backlash is likely to occur as public opinion embraces myths and seeks protectionism. Social disintegration may result as Americans split according to differential economic status, become disengaged in the civic process, and destabilization unravels the glue that holds American society together.²⁶

The next question is – can these costs be reduced by policy intervention? Economists must have concrete and pragmatic solutions to offer. Rodrik points out the complexities involved in tackling the costs of globalization with policy solutions, stating that “the broader challenge for the 21st century is to engineer a new balance between market and society, one that will continue to unleash the creative energies of private entrepreneurship without eroding the social basis of cooperation,” and that “there is no magic formula that can be applied.”²⁷ It is important to keep this in mind as this paper focuses on the solutions for labor, in particular.

Burtless, Lawrence, Litan and Shapiro recommend a more effective safety net that eases the transition of workers displaced by economic change, including global trade.²⁸ Rodrik highlights the need for labor advocates to detach themselves from protectionist policies and shed misconceptions by recognizing that workers in developing economies not only bear lower wages but significantly lower productivity which makes them less a threat and the main competition to US labor comes from workers in other advanced countries. Labor advocates should work toward enhanced worker mobility and reduce risks faced by

²² Burtless, Lawrence, Litan and Shapiro (1998), p. 88.

²³ Dani Rodrik, *Has Globalization Gone Too Far?*, 1997, 13-17.

²⁴ Rodrik (1997), pp. 25-27.

²⁵ Rodrik (1997), p. 26.

²⁶ Rodrik (1997), pp. 69-70.

²⁷ Rodrik (1997), pp. 69-70.

²⁸ Burtless, Lawrence, Litan and Shapiro (1998), pp. ix-x.

workers. The lack of mobility forces workers' interests to take second place in political discussions about attracting global capital. Social insurance that is refocused more directly on labor markets would reduce the risk (economic insecurities) workers face.²⁹ Despite recent attempts to reduce waste and free-riding behavior in the American welfare system, which is all well and good, Rodrik says, "the need for social insurance does not decline but rather increases as global integration increases. So the message to reformers of the social welfare system is, don't throw the baby out with the bath water."³⁰

A common economic argument has long been that if you begin more evenly slicing the economic pie through policy intervention, the pie itself will begin to shrink. In other words, imposing policy solutions that increase equity will cost our economy in efficiency, or will reduce our country's economic growth.

This paper seeks to determine if American women are among the losers during a period of increased trade liberalization, and then find policy solutions that are both equitable and efficient. In the context of a growing economic pie due to globalization, can a safety net be built which will catch those left behind, without jeopardizing the growth itself? Can we provide assistance for those left behind, without shrinking the size of the economic pie? The conjecture proposed in this paper is that education offers an equitable and efficient solution, as it raises worker productivity, offers economic independence to the disenfranchised lower socioeconomic members of society, and because it invests in the economic future of the next generation by elevating the health and education of the children in these households.

The Impact of Globalization on Women

As economists have documented growing inequality in the distribution of incomes in both developed and developing nations around the world, a potential link between free trade and growing inequality must be examined. In addition, the proportion of poor American households headed by women has more than doubled since 1960, and women are becoming a growing proportion of those who are economically disadvantaged in the world economy.³¹ Evidence shows that an average woman's economic status declines following divorce, and children add a significant financial burden to households headed by women.³² The empirical research in this paper attempts to link this growing feminization of poverty to globalization.

This section of the paper assesses the impact of globalization on American women's economic status. Specifically, it asks the question: how have female-headed households in the United States been affected, either adversely or otherwise, by free trade? This empirical work contributes to research in the field by entering a measure of global exposure at the level of an individual household. A database is constructed that merges Panel Study of Income Dynamics (PSID) households with National Bureau of Economic Research (NBER) data on industry imports and exports. Pooled time-series cross-sectional data for 1981-1993 is used to explain US female-headed households' income-needs ratios, both on a pre- and post-transfer income basis. Several measures of global exposure are constructed for individual households based on industry of employment (imports, exports, intra-industry trade, trade balance).

²⁹ Rodrik (1997), pp. 75-79.

³⁰ Rodrik (1997), p. 79.

³¹ Single mother households with children have been a growing proportion of poor households in America. The percent of poor American households that are headed by women went from 24% in 1960 to 54% in 1995 (author's calculations from Census data). The Bureau of the Census reports that in 1996, 47% of female-headed households fell under the poverty line, and 20% of all children in America were poor.

³² See a compelling case study in Susan F. Feiner (1994), article 48 by Theresa Funicello, entitled "The Poverty Industry: Do Government and Charities Create the Poor?" pp. 294-301, which discusses the changing economic status of single mothers following divorce.

Using an Ordinary Least Squares model with industry and individual fixed-effects, this research finds evidence that ***American women who work in globally exposed industries have significantly lower income-needs ratios.*** Thus, this paper provides evidence to support findings by economists who have argued that trade has indeed hurt workers in industrialized nations. Specifically, this paper finds evidence that ***American women's economic status has been dampened by the globalization of the world economy.***

The model used in the empirical analysis is neoclassical economic theory, where income depends on the factors an individual possesses, and the relative payments those factors receive in the marketplace. Factor prices are determined by the interaction between supply and demand. Wages are determined by both the supply and the demand for labor. The individuals who receive very low income, or who are considered to be in poverty, would therefore possess labor for which there is little demand, or labor that is in abundant supply, or both.

The *demand for labor* by employers depends upon the productivity of that labor. Thus, education and experience, which increase the productivity of labor, are expected to increase the demand for labor and have a positive influence on wages. It is also possible that personal characteristics influence an employer's demand for labor. This is true if there is discrimination, or if employers use personal characteristics in hiring decisions as a substitute for imperfect information. Therefore, age, sex and race are expected to influence the demand side. Macroeconomic fluctuations and the make-up of the output of the economy (manufacturing vs. service, high tech vs. low tech) will also influence the demand for labor. Globalization is expected to have an impact on the make-up of the macroeconomy and the demand for labor. Whether an industry is import or export intensive will impact its demand for labor, and the type of labor required—skilled vs. unskilled. And, globalization is expected to positively impact the overall demand for labor in the long run, as the value of total output rises due to comparative advantage.

The *supply of labor* is influenced by the relative abundance of certain types of labor. Unskilled labor is in relatively abundant supply, while highly skilled labor is relatively scarce. Personal choice or family circumstances may also affect the supply of labor. For example, the need to provide childcare, elder care or care for sick family members, provide incentives for individuals to reduce work hours. Different eras of life may influence labor supply, and psychological factors may influence labor supply decisions. So-called “discouraged workers” leave the labor force for no apparent economic reason. Or, individuals raised or mentored with a strong work ethic or with religious commitment may exhibit different labor supply behavior.

The neoclassical income model can be translated into an empirical representation through regression analysis. The *empirical model* measures the impact of explanatory factors (X variables) on a dependent variable (Y), measured as an income-needs ratio for female-headed households.³³

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + u_{it}$$

where Y_{it} = income-needs ratio of female-headed household i in year t

X_{1it} = vector of labor productivity characteristics

X_{11it} = education of female-head, household i in year t

X_{12it} = work experience of female-head, household i in year t

X_{2it} = vector of personal and family characteristics

X_{21it} = ethnicity of female head, household i in year t

X_{22it} = number of children, household i in year t

X_{3it} = vector of head's parents' characteristics

³³ For an empirical model explaining income for female headed households, see Barbara Wolfe and Steven Hill, “The Health, Earnings Capacity, and Poverty of Single-mother Families,” in *Poverty and Prosperity in the USA in the late twentieth century*, edited by Dimitri Papadimitriou and Edward N. Wolff, 1994.

- X_{31it} = education of female head's father, household i in year t
 X_{32it} = education of female head's mother, household i in year t
 X_{33it} = parents of female head were poor, household i in year t
 X_{4it} = vector measuring macroeconomic factors
 X_{41it} = unemployment rate, female head's county, household i in year t
 X_{42it} = geographic mobility of female-head, household i in year t
 X_{43it} = vector of year dummies (time trend)
 X_{5it} = vector measuring impact of globalization on household i in year t
 X_{51it} = share of industry shipments which are imported, for the industry in which the female head works
 X_{52it} = share of industry shipments which are exported, for the industry in which the female head works
 X_{53it} = intra-industry (bilateral) trade, for the industry in which the female head works
 X_{54it} = trade balance, for the industry in which the female head works
 β_0 = constant term
 $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, are vectors of parameters to be estimated
 u_{it} = disturbance term

The dependent variable, measured by the female head's household income divided by her household's needs, represents economic status, since it measures how well the family income meets its needs. The income in the income-needs ratio includes income from all family members and the model will be tested using both pre-transfer and post-transfer income. Assessing both pre-transfer and post-transfer income-needs ratios is relevant, because pre-transfer represents economic status as determined by the free market, while post-transfer represents economic status after policy intervention. In addition, comparing equations for pre-transfer and post-transfer income-needs ratios may lead to new information about the controversial Rodrik effects: that social safety nets should compensate for external shocks, including exposure to globalization, but that such compensation may be losing ground for the very same reasons.³⁴

Of particular interest for this paper will be factor X_{5it} measuring the impact of globalization on female-headed households. The variables within each vector in the empirical model above (labor productivity, personal and family characteristics, parents' characteristics, macroeconomic factors, and global exposure) will provide possible measures of those factors, but all of these variables will not necessarily be entered simultaneously in the model, due to potential multicollinearity, or correlation between individual variables within the vectors.

Data from the Panel Study of Income Dynamics (PSID) is used to measure the factors identified in the model. The PSID provides longitudinal data on about six to nine thousand households each year, from 1968 to the present. One of its relative strengths is its coverage of the lower portion of the income distribution, which enables researchers to study poverty, inequality, and the unskilled labor force. In addition, the longitudinal nature of the database provides an ability to analyze trends over time. The database collects approximate 1200 items of information on each household every year. This research selects the households in the PSID sample that are headed by women for the analysis, which are approximately two to three thousand households each year.³⁵

Data collected by the National Bureau of Economic Research (NBER) on US imports and exports is linked to an individual household in the PSID sample by the industry in which the head of the household works, according to the Standard Industrial Classification (SIC) code. The PSID provides the SIC code of

³⁴ Rodrik (1997), pp. 78-79.

³⁵ Each year in the PSID sample is called a "wave." For the 1992 wave, female heads comprise 2929 out of 9829 heads.

employment for household heads in its sample, from 1981 to the present, and NBER provides data on imports, exports, and industry shipments for industries in the US, classified by SIC code.³⁶

Each female head is linked to her exposure to the global economy through the industry in which she works. Four measures of global exposure are used for female heads' industries of employment—her industry's world imports as a percent of total industry shipments, her industry's world exports as a percent of total industry shipments, the intra-industry (bilateral or overlapping) trade for her industry, and her industry's trade balance as a percent of industry shipments.

Ordinary Least Squares (OLS) estimation is used on a pooled cross-section time-series sample for 1981-1993, with a time trend, industry fixed effects, and individual fixed effects. Care is taken to reduce multicollinearity in the estimation, because if one or more of the X factors is highly correlated with another X factor, the relative impact of each factor is not distinguishable. In addition, time-series cross-section data analysis is likely to fail the classical assumptions of the econometric model, and formal testing revealed the existence of heteroscedasticity (errors of unequal variance) and potential autocorrelation (disturbances show patterns over time).³⁷ Corrections were made by adding a time trend, including individual and fixed effects in the regression model, and reporting heteroscedasticity-consistent standard errors.

The unique contributions in the methodology of this study are: the crafting of a data base merging NBER data and PSID data, the inclusion of a global exposure variable in a traditional income model at the level of an individual household, and constructing a dependent variable measured as income divided by needs to measure the economic status of female-headed households.

The estimates reported here represent a pooled sample from 1981-1993, extensive work variables, a time trend, and both industry and individual fixed effects.³⁸ Including industry and individual fixed effects in the model adjust for unique characteristics of each industry and individual, respectively, that lead to differential earnings potential.³⁹

Appendix A provides definitions for the explanatory variables in the model, and **Tables 1-4** display regression results for four different global exposure measures—imports, exports, bilateral trade, and trade balance, respectively. Each table contains six regressions, two dependent variables (post-transfer and pre-transfer income-needs ratios) for each of three different samples (all women, poor women, and non-poor women).

In each of the tables of results, explanatory variables (X) are listed in the first column, and each successive column displays coefficients, standard errors and t-statistics for an individual regression. Column headings identify the sample (all women, poor women, or non-poor women) and the dependent variable. The first two regressions, labeled (1) and (2) are for all women, the second two, labeled (3) and (4), are for poor women, and the last two, labeled (5) and (6), are for non-poor women. The poor women regressions are estimated by selecting *working poor* women only. This is because global exposure is

³⁶ Data is documented by Robert C. Feenstra (1997), *U.S. Exports, 1972-1994: With State Exports and Other U.S. Data*, Working Paper 5990, National Bureau of Economic Research, April 1997, p. 25. NBER data is given by 4-digit Standard Industrial Classification (SIC) and PSID provides the 3-digit SIC code for female heads, so conversions from 4-digit NBER SIC industry data to 3-digit SIC data are calculated by the author.

³⁷ The Durbin Watson d statistic was used to test for the existence of first-order autoregressive autocorrelation. The Durbin Watson test statistic was found to be in the zone of indecision for the all women and non-poor women regressions, before a time trend was added to the model.

³⁸ During the data collection phase of this research, 1993 was the latest wave officially released by PSID. See www.isr.umich.edu/src/psid/maindata.html.

³⁹ 206 unique industries and 2,749 unique individuals are represented by fixed effects in the pooled sample of 21,947 cases in the all women regressions.

measured by linking female heads to the industry in which they are employed, and poor female heads are relatively unattached to the labor force.⁴⁰

In the first regression in each pair of regressions [(1), (3) and (5)], the dependent variable is measured as post-transfer income divided by needs, and in the second regression in each pair [(2), (4) and (6)], the dependent variable is pre-transfer income divided by needs. Needs are determined according to the census bureau's official poverty thresholds, adjusted for family size.⁴¹ Poor women are defined as women with income-needs ratios less than one, and non-poor women are those with income-needs ratios of one or greater.

Since this paper attempts to discover whether **global exposure** has helped or hurt women, the variables numbered 15-18 in Tables 1-4 are of particular interest. Although a general discussion of other explanatory factors is quite interesting, the detailed discussion of the empirical results will be restricted to the global exposure variable, and a brief summary of the other explanatory factors will be given. Findings for the all women and non-poor women groups will be reviewed first, then results for the working poor women will be discussed.

It is important to note that the impact of individual factors in this estimation is ascertained after adjustments have been made for all other factors, the time period (business cycle variations), individual industry characteristics of the 206 industries in the sample, and individual characteristics of each female head in the sample. **Industry fixed-effects** incorporates a unique dummy variable for each industry.⁴² Entering industry fixed-effects adjusts for the fact that each industry has unique qualities that generate differential income earnings potential. This improves the ability to distinguish the impact of global exposure from other work and industry variables in the analysis. Including **individual fixed-effects** in the model adjusts for unique qualities in individuals that lead to differential earnings power.⁴³ In addition, results are obtained after adjusting for extensive work behavior variables: a **work** dummy variable that takes the value one if the female head is working and zero otherwise, a **present experience** variable that measures how long the female head has worked at her present job, and a **years of experience** variable that measures the female head's lifetime work experience.

For the all women and non-poor women groups, income-needs ratios are positively impacted by **education, working, present experience, years of experience, job mobility**, and being **white**. Factors dampening both pre-transfer and post-transfer income-needs ratios for the all women and non-poor women groups include having more **children in the household**, higher **unemployment** rates, and the **time trend**. The parental influence variables, **dad's education, mom's education**, and having **poor parents** while growing up, show mixed results for different groups.⁴⁴

Focusing on the **global exposure** variables, labeled 15-18 in Tables 1-4, we find that three of the four global exposure measures (export share, intra-industry trade, and trade balance) significantly reduce the income-needs ratios for all women and non-poor women, and for one of the global exposure measures (import share), global exposure significantly improves the income-needs ratios.

⁴⁰ Variable number 4, labeled "work" in Tables 1-4 and Appendix A is a dummy variable that assumes the value 1 if the female head is currently working. The raw data in the PSID sample reveals that poor female heads are relatively unattached to the labor force. In the group of women who are poor before transfers, 14.92 percent work and in the group of women who are poor after transfers, 21.66 percent work. In the all women pooled group, 48.35 percent are working.

⁴¹ For a discussion of alternative measures of poverty, see Patricia Ruggles (1990).

⁴² There are 206 unique 3-digit SIC industry codes in the sample.

⁴³ There are 2,749 unique individuals in the all women pooled sample of 21,947 cases.

⁴⁴ For a detailed discussion of the results of all explanatory factors, see Rebecca A. Havens, "Are American Women Down and Out in a Global Economy?" March 28, 2003.

To get a sense of the magnitude of the results, a one unit increase in the ratio of trade balance to industry shipments leads to a lower income-needs ratio by about 2.0, or income that is lower by twice the needs. Or, if the trade balance to industry shipments ratio goes up by 1 unit, the income-needs ratio goes down by 2 units. The magnitude of this impact is quite deceiving until we consider what a one-unit increase in the trade balance to industry shipments ratio means. This ratio is very tiny. A 0.01 unit increase is much more realistic. A 0.01 unit increase in the trade balance to industry shipments ratio would mean a 0.02 unit decline in income-needs ratio, or income that is lower by 2 percent of household needs. Finally, as an example, for industry shipments of \$100,000 and family needs of \$20,000, a \$1000 increase in net exports (trade balance) leads to an income-needs ratio that changes by 0.02, or from 1.5 to 1.48, for example, which would be a \$400 decline in income.

These results mean that women's economic status is dampened by global exposure, as it is measured in this research. The magnitude of this dampening effect varies depending on the measure of global exposure, but for example, women who work for industries with a 0.01 unit higher trade balance to industry shipments ratio have approximately a 0.02 unit lower income-needs ratio.

Why do different measures of global exposure reveal opposite effects on women's economic status in the findings of this research, and do any general conclusions emerge? US import industries tend to employ low-skilled workers, while export industries employ primarily higher-skilled workers. This is because in a global environment, industrialized countries specialize in high technology industries, requiring higher-skilled labor, and export these products overseas, while importing low technology products and parts requiring assembly by lower-skilled labor. A plausible explanation for the opposite effects of the different measures of global exposure is that American women as a group fall into a relatively unskilled labor pool.⁴⁵ Therefore, the existence of import-intensive industries that employ unskilled workers will have a positive impact on women's incomes. Over time, globalization in general, and the presence of high technology industries that are export-intensive and employ highly-skilled labor, will dampen women's incomes if women are relatively unskilled.

Therefore, a general conclusion can be reached. This research provides evidence that American female heads of households have been hurt by globalization over the 1981-1993 period. This is after adjustments are made for education, work, personal characteristics, labor market variables, a time trend, and unique characteristics of each industry and each individual in the sample.

These conclusions are in conflict with classical trade theory, which predicts that there will be only winners from free trade, and no losers. According to general trade theory, exposure to trade should have an overall positive impact on regional economic activity and individual economic status. Exports are expected to have a positive impact on economic status.⁴⁶

So why does this study reveal that exposure to global industries has a potentially damaging impact on American female heads? American female heads of households respond to globalization as a pool of relatively unskilled labor. And with globalization has come the need for highly skilled workers in a specialized knowledge-based American economy. The workers who cannot bring knowledge needed by the new global economy to the workplace have been left behind. The results of this analysis provide evidence to substantiate this hypothesis.

Knowledge is the new basis for wealth. This has never before been true. In the past when capitalists talked about their wealth they were talking about their ownership of plant and equipment

⁴⁵ Indeed, the raw data confirms that female heads in the PSID sample over 1981-1993 comprise an unskilled labor pool. Only 8.55 percent have a college education, and only half (50.94 percent) have a high school education. That leaves 40.51 percent of the women in this sample with less than a high school education.

⁴⁶ These hypotheses about free trade—that there are only winners and that free trade positively affects individual economic status—are currently being tested in the current literature. See Dani Rodrik (1997), Robert Lawrence (1996), David Richardson and Karen Rindell (1995) and David Richardson and Elena Khripounova (1997).

and natural resources. In the future when capitalists talk about their wealth they will be talking about their control of knowledge.⁴⁷

Women are among those unskilled workers in developed countries that are hurt by the trend in world economic globalization that has led industrialized countries to specialize in high technology and information industries that require highly skilled labor.

What about poor female heads? Regressions in columns 3 and 4 of Tables 1-4 show results for poor female heads, but restrict the sample to women that are currently working. The reasons for selecting only working poor female heads, was outlined earlier. Since global exposure is measured through female heads' industries of employment, and poor women have relatively little attachment to the labor force, it is difficult to assess the impact of globalization through their employment histories.⁴⁸

Global exposure does not play a significant role for this sample of working poor female heads. It is possible that these individuals are primarily focused in low-wage domestic service occupations vs. globally exposed industries. Other factors that are insignificant are: **education**,⁴⁹ whether the female head is **white**,⁵⁰ and **parents' education**.⁵¹

Work experience has a significant positive effect and higher **unemployment** rates have a significant negative impact. Other explanatory factors – **job mobility**, more **children** at home, growing up with **poor parents**, and the **time trend** – have a significant impact either on pre-transfer or post-transfer income-needs ratios. One basic conclusion that can be drawn about working poor female heads is that work experience and macroeconomic factors (unemployment rates) play the greatest role in determining income-needs ratios for these women.

To determine the impact of globalization on poor women, one needs to know whether globalization dampens job formation and diminishes job opportunities for these women, or whether their lack of attachment to the labor force is in any way connected to globalization. That determination is beyond the scope of this research. However, it has been examined in the literature. Rodrik points out ways in which globalization affects labor markets. One is through its effect on the relative demands for skilled and unskilled workers, and another is through the ease with which substitutions can be made for low-skilled domestic workers, by other workers across national borders. Thus, prior research indicates the likelihood that poor women's job opportunities are dampened by globalization.

Since the developing countries tend to export goods that make relatively intensive use of low-skilled labor, trade with these countries displaces low-skilled, labor-intensive production in the United States and Western Europe and thereby reduces the demand for low-skilled labor there. In technical terms, trade results in an *inward shift* in the demand curve for low-skilled labor in these

⁴⁷ Lester Thurow, *Building Wealth: The New Rules for Individuals, Companies, and Nations in a Knowledge-Based Economy*, 1999, p. xv.

⁴⁸ The raw data in the PSID sample reveals that poor female heads are relatively unattached to the labor force. In the group of women who are poor before transfers, 14.92 percent work and in the group of women who are poor after transfers, 21.66 percent work. In the all women pooled group, 48.35 percent are working.

⁴⁹ A **high school education** improves the economic status of poor women in general (if all poor women are selected, rather than just working poor women), but a **college degree** does not impact poor women's incomes. This is because in the PSID pooled sample of female heads for 1981-1993, only 2.09 percent of female heads who were poor before transfers, and 1.58 percent of female heads that were poor after transfers, completed their college education.

⁵⁰ About 33 percent of the female heads who are poor before transfers, and 30 percent of those who are poor after transfers, are **white**, in this subgroup of working poor female heads.

⁵¹ In this sample of working poor female heads, a very small percentage of their **parents** have a college degree—only about 5 percent of their fathers, and 4 percent of their mothers.

advanced countries. ...trade *flattens* the demand curve for labor at home and increases the elasticity of demand for labor—that is, trade increases the degree to which employers can react to changes in prevailing wages by outsourcing or investing abroad. Taken together, an inward shift and a flattening of the demand curves for low-skilled workers reduces average earnings for low-skilled workers while increasing both the dispersion of earnings among such workers and the volatility in wages and hours worked. This can explain why life has become more precarious, and insecurity greater, for vast segments of the working population.⁵²

This research finds evidence that women, specifically female heads of households, are among those left behind by globalization. As members of a group of relatively unskilled labor, female heads of households who work for global industries have lower economic status.

Are American women left behind in a global economy? This research finds evidence that they are. With appropriate adjustments for personal and family characteristics, work behavior, industry effects and individual effects, this research finds that ***American female heads working in industries with greater global activity have lower economic status.*** But there is also a difference in the impact of globalization on women, depending on the measure of global exposure. General global activity, as measured by intra-industry trade and trade balance, hurts the economic status of American women. And women who work in export-intensive industries are hurt. But women who work in import-intensive industries see an improvement in their economic status. A plausible explanation for the difference in the impact of the measures is that women represent a pool of relatively unskilled labor, and thus are helped by global activities that provide better opportunities for lower skilled workers, and are hurt by globalization in general, which has increased job opportunities for skilled workers.⁵³

Is there a link between the feminization of poverty and globalization? The question is really whether globalization has contributed to pushing women into poverty over the last 20 years. Because this research discovers that income-needs ratios are reduced for women who work in globally active industries, there is evidence that a link exists. Women's income-needs ratios are lower because of globalization. But this study cannot determine whether globalization has contributed to female heads falling into poverty *relative to males*. Yes, this paper establishes that *women are poorer* because of a global economy, but it does not provide evidence that globalization has led to a *higher proportion of the poor becoming women*, or that women are poorer *relative to men*.

This paper provides evidence to support prior findings by Rodrik and other economists, who discover that globalization contributes to widening income inequality.⁵⁴ Specifically, women are identified to be among those whose economic status is negatively impacted. The purpose of this work is also to illuminate the need for policy attention, particularly for women, in coping with the costs of trade. Instead of transfers to poor female heads of households in exchange for unskilled work, there is a critical need to pay attention to the skill development of American women, so that they can more fully engage in skilled work required by America's role in the global economy.

The Value of Educating Women

The 1980s and 1990s have been a tough period for women, with the feminization of poverty and growing numbers of women and children experiencing poverty. This research has attempted to discover whether globalization is a critical factor in the declining economic status for women. It is also timely because of the

⁵² Rodrik (1997), pp. 12-13.

⁵³ The PSID pooled sample for 1981-1993 reveals a pool of unskilled female heads. Only 8.55 percent have a college education, and only about half (50.94 percent) have a high school education. Thus, 40.51 percent of female heads have less than a high school education.

⁵⁴ For research by economists on whether globalization contributes to widening income inequality, see Dani Rodrik (1997), Robert Lawrence (1996), and Adrian Wood (1997).

debate that is currently raging in the political realm, and among free trade economists, about the impact of globalization on income inequality.

The empirical findings of this paper support the hypothesis that globalization leaves low-skilled, immobile female heads behind. Female heads of households, as a pool of relatively unskilled labor, are negatively impacted by globalization after adjustments are made for their work behavior, work experience, education level, personal characteristics, macroeconomic forces and individual industry characteristics. This means that the specific factor, globalization, has an impact on these female heads that is unique and devalues their work beyond other normal explanatory factors.

These empirical results support the existence of costs to globalization, specifically on the labor market for female heads whose income ability to meet their needs declines, and who find themselves with greater economic insecurity and a more precarious economic existence. This is because, as discussed earlier, there is less demand for these workers when the US trades with countries that have abundant low-skilled labor, such as Mexico, and the demand for these workers is more elastic in a global market where the US trades with other advanced countries, such as Canada or the United Kingdom, meaning their skills are easy to replace and they can be more easily substituted for workers in other countries.

We cannot underemphasize the social consequences of leaving these women behind. Rodrik mentions social disintegration, or the detachment these individuals that are economically disadvantaged experience as they become disengaged in the civic process, which causes destabilization of American society.⁵⁵

On a personal level, individuals who cannot meet basic survival needs cannot be productive members of society. Neither can they experience the quality of life that includes health care and education for themselves and their children, and the freedom to pursue higher order priorities and fulfillment in living their lives. In the thinking of psychologist, A. H. Maslow, survival needs must be met before any kind of higher order needs, such as self-esteem and self-actualization, can be realized.⁵⁶

Research on women in the global economy has discovered that women who receive increased incomes use it to significantly benefit the health and well being of their children. Mayra Buvinic cites research on households where women control resources in developing countries, as follows:

In Brazil, for instance, economist Duncan Thomas has found that income in the hands of mothers has an effect on child health that is almost 20 times greater than income that is controlled by the father. Similar results have been reported in Chile, Guatemala, Kenya and Malawi. The key appears to be that in households where women control resources, they prefer (whether for reasons of nature or nurture) to invest scarce resources in child well-being. In Jamaica, for instance, studies have found that female-headed households spend more on food and other family-oriented goods than male-headed households.⁵⁷

This fact brings us full circle back to the impact on society of providing assistance to the women who are left behind by global economic forces, because providing an investment in these women will impact future generations.

These differences in the way that men and women prefer to spend scarce resources in poor households suggest that the income that poor women earn can yield higher health or social

⁵⁵ Rodrik (1997), pp. 69-70.

⁵⁶ Psychologist, A. H. Maslow, ranked basic human needs according to their importance in motivating and influencing behavior. The levels of *Maslow's Hierarchy*, are ranked from the lowest, or most basic and necessary needs, to higher order needs. Lower levels must be met before higher order needs can be fulfilled. From lowest to highest, they are: physiological needs, safety needs, belongingness and love needs, esteem needs, and self-actualization needs. This is from A. H. Maslow, *Motivation and Personality*, chapter 5, and referenced in Richard McKenzie and Gordon Tullock, *The Best of the New World of Economics*, pp. 43-44, Figure 3-1.

⁵⁷ Mayra Buvinic, "Women in Poverty: A New Global Underclass," 1997, p. 47.

benefits than that earned by men. They are a strong argument for the desirability of expanding poor women's economic opportunities.⁵⁸

Policy solutions, therefore, should expand women's economic opportunities. In a global economic environment where highly skilled labor is in demand, policy interventions must therefore increase women's skills, and so it follows that policy initiatives must contain an educational component. A serious investment in developing women's skills and expanding women's education must be made if these women are to become productive economic agents and self-sufficient members of the American workforce.

What type of education is needed in an advanced country in the global economy? For women to become real, sought-after members of the current American labor force, they will need either a college education or highly specialized training. As a member of the global economy, America specializes in knowledge and technology industries, and therefore strongly depends upon a labor force that can contribute to these high-skilled industries. A liberally educated person, who can communicate effectively, think critically, understands the breadth of issues pertaining to relevant problems in our world, and has a deep knowledge in a subject area that is in demand by employers in the American economy, will gain full entry into the labor force at income levels that enable them to earn living wages, sustain themselves and their children, and attain economic independence.

Are other policy components important? The short answer is yes. The longer answer bears a laundry list of all sorts of supportive elements that enable women to enroll and effectively succeed in a college level or specialized educational program, such as childcare, transportation, part-time employment, health care, and perhaps preparatory schooling.

In addition, there are many other broader policy components that are required to reduce the costs of globalization, and balance the incentives to creatively pursue private enterprise in an open global setting, while caring for social cooperation and tending to those left behind. Economists, labor advocates, national government, and international institutions all have a role to play.⁵⁹ A strong macroeconomy and a workable social welfare system are critical. The American welfare system has been reformed in an attempt to eliminate waste and free riders, and improve work incentives. The Temporary Assistance to Needy Families (TANF) system requires that individuals work, and limits assistance to 60 months.⁶⁰ A more liberal allowance for educational preparation is needed for low-skilled workers, even encouragement and support to seek education, so that they can gain the type of education discussed above. Without a liberal education, it will be very difficult for them to become productive members of the American workforce. As we attend to social welfare system reform, we need to throw out the bath water but keep the baby! Rodrik suggests, "Gearing social insurance more directly toward labor markets, without increasing the overall tax burden, would be one key step toward alleviating the insecurities associated with globalization."⁶¹

The empirical results of this paper suggest some specific policy solutions. Given that American female heads are among the low-skilled labor force, and this empirical research finds their economic status as measured by income-needs ratios to be dampened by their exposure to global industries, these empirical results lead us to the critical need for intervention by way of education for those left behind by globalization.

Finally, it is important to recognize that despite the costs of trade, as identified in this paper, trade is not without serious benefits. This study supports a sentiment shared by economists, and articulated by Gary Burtless: "*The most significant problem faced by underpaid workers in the United States is not foreign*

⁵⁸ Mayra Buvinic (1997), p. 47.

⁵⁹ For a full discussion, see Rodrik (1997), pp. 69-85.

⁶⁰ Rebecca Blank, "Policy Watch: The 1996 Welfare Reform," Winter 1997, pp. 170-172.

⁶¹ Rodrik (1997), p. 79.

*competition. It is the mismatch between the skills that employers increasingly demand and the skills that many young adults bring to the labor market.*⁶² As this research shows, American female heads of households can now be recognized as a part of this mismatch. Rather than sucking sounds, we hear the hacking cough of women who are ill prepared to work in an America that specializes in industries requiring highly skilled labor, and are being left farther and farther behind.

“The human beings who possess knowledge cannot be made into slaves.”⁶³

The changing nature of work wrought by globalization requires new and flexible skills of the American workforce. Just as women in developing countries must adapt their work to the significant changing forces of global capitalism, so must American women.⁶⁴ Policy initiatives in America, the richest country in the world, must improve economic opportunity and economic justice for all citizens, including those left behind by globalization. Americans must commit to policies that promote equity and efficiency, by developing the human capital of female heads of households, as well as for others who are hurt by globalization. This labor-focused policy will impact the future of American women, and their ability to become self-sufficient and take care of their children. It is not only smart, it is compassionate, because it influences women's attainment of higher order needs and it impacts the well being of American children. In addition, policies to promote skill development and investment in human capital for those left behind by globalization will make America a more productive member of the global economy.

Why Should Christians Care?

This research finds evidence that women, specifically female heads of households, are among those who are left behind by globalization. As members of a group of relatively unskilled labor, female heads of households who work for global industries have lower economic status. This has particular relevance for Christian business faculty, as we are in the teaching and shaping profession, and because we care about investing in human capital and providing interventions for those to whom economic forces have been unkind.

It is worth noting here that Christian and societal norms sometimes send a message with a double standard to moms regarding whether they “should” work. Married career moms are criticized for working, while single moms (receiving assistance) are criticized for *not* working. The role of the church community is to enter into mutual responsibility with those in need, to provide for the needs of members of the Christian body, without passing judgment on the reasons for the needs. This is not meant to diminish the expectation of personal responsibility, but it recognizes that God (not humans) is judge over all motivation, and that a blending of accountability and mercy is needed to live faithfully in the Christian community.

About half of the female-headed households in America are under the poverty line, and about 20 percent of American children live in poverty in America. The proportion of poor households in America that are headed by women has increased from about a quarter in 1960 to over half in the mid to late 1990s. Because of who they are, and what they believe, Christians think this is significant data, and a significant problem in America. This research has discovered that globalization has contributed to the growing economic disadvantage of these female heads. Christians are compelled to care, and to do something about it.

⁶² This is one of many cautions against rushing to apply a policy of protectionism when costs of free trade are identified, by Burtless, Lawrence, Litan and Shapiro (1998), p. 8.

⁶³ Thurow (1999), p. xv.

⁶⁴ See a recent article, “Of celebrities, charities and trade,” in *The Economist*, June 1, 2002, p. 68. On a recent tour of Africa with Paul O’Neill, America’s treasury secretary, Irish rock star, Bono, comments that the “back-breaking drudgery” of women growing flowers in Uganda “represents ‘globalisation at its best.’ Everyone benefits: Europeans get roses in winter, and Ugandan rose-growers eat better and put their children through school.”

Matthew 25:1-46 calls us to feed the hungry, give a drink to the thirsty, invite in the strangers, clothe the naked, care for the sick, and visit the prisoners. Doing these things is equivalent to offering these compassions to Christ himself. Not doing them brings the final judgment of eternal punishment by the Son of Man.

Christians should care about economic justice. “The God of the Bible desires justice and righteousness, and He orders us to act in just and righteous ways in our dealings with one another,” which is stated boldly in Psalm 33:5: “The Lord loves righteousness and justice.”⁶⁵ Admonition to assist the poor and weaker members of our society is a theme running throughout the Bible. Christians are to have a special concern for the poor, and respond compassionately toward them. The community should bear the main responsibility for caring for its needy members, and the poor themselves must bear mutual responsibility, but the state should assist needy citizens when private charity is insufficient.⁶⁶ Regarding the Biblical view of public welfare policy, John D. Mason states,

So it was, then, that when poverty afflicted some members of society, all members were to bear responsibility. The primary means for assisting the poor were a compassionate loan (most likely for families with able bodied workers), gleanings (most likely for the more dependent members of society), and access to the fallow-year fields; each obligated the poor to work in some way. The nonpoor members of society bore responsibility as well: to make the compassionate loan (zero interest, with the possibility that full repayment would not be forthcoming); to allow gleaners into their productive fields and the poor generally into fallow-year fields; and in a much longer-run sense, to make sure that each Israelite family had a secure productive base (the Jubilee provision of Lev. 25). The elders (the main form of primitive state in early Israelite communities) ideally would assure that all those activities transpired (a likely implication of passages such as Job 29:11-16 and Amos 2:6-7), and when God allowed a king to rule over Israel, he was charged with the same responsibility (see Ps. 72:1-4).⁶⁷

“For [John] Wesley, the only legitimate claim to the earth’s resources is based not on industry or capital or enterprise or labor, but on the needs of our neighbor. This is the heart of evangelical economics.”⁶⁸

This Biblical call to Christians is clear. We are called in Christian community to care for the needy, in covenant and mutual responsibility with them. As Christian educators we have a key role to play in partnering with our Christian sisters who find themselves alone with children, financially insecure, and in need of the knowledge and skills required by the global economy to become productive and self-sufficient.

Around the globe, women work more hours than men and they are compensated less. In developing economies, the poorer the household, the longer women work.⁶⁹ Spiritual hope for women is in Christ. Economic hope for women around the globe is in literacy and education.⁷⁰ For women in advanced industrial economies, education at a level to provide them with highly skilled labor productivity is required. This will promote economic justice and enable these women and their children to have human dignity, which should be mutually sought by both these women and those who can provide the education.

⁶⁵ John D. Mason, “Biblical Principles Applied to a Public Welfare Policy,” in *Christians in the Marketplace Series – Biblical Principles and Public Policy: The Practice*, edited by Richard C. Chewning, 1991, p. 87, and footnote 2, p. 318.

⁶⁶ John D. Mason (1991), pp. 88-89.

⁶⁷ John D. Mason (1991), p. 89.

⁶⁸ Theodore W. Jennings, Jr., *Good News to the Poor: John Wesley’s Evangelical Economics*, 1990, p. 117.

⁶⁹ Mayra Buvinic (1997), p. 42.

⁷⁰ See an excellent illustration of this in the video documentary, *Hope is a Literate Woman*.

Furthermore, when women have higher incomes and economic self-sufficiency, they use the increase to help their children.

“If you educate a boy you educate a human being. If you educate a girl, you educate generations.”⁷¹

The case has been made that it is critical to prepare women to be liberally educated members of the American workforce, through policy intervention. As Christians, we understand that it is just as critical to prepare ethical individuals as well. A person who is liberally educated, but also understands the ethical implications of life and work, and can live, behave, and solve problems in ethical ways with the broader society in mind, is even more valuable to her industry, to her society, and to her world. This is where Christian business faculty can have a key impact in shaping individuals not only to work effectively in our world, but also to live effectively and make a meaningful contribution to our society and our world.

Christian business faculty members are uniquely positioned to care about the women left behind by globalization. They understand what liberal education is; they have the knowledge and ability to deliver it, and the call to minister to those in need of their gifts.

⁷¹ This is a quote by World Bank vice president, Mieko Nishimizu, in Mayra Buvinic (1997), p. 49.

Table 1. Income-Needs Regressions for Female Heads, PSID 1981-1993¹
Model with Industry Fixed-Effects and Individual Fixed-Effects
Using Measures of Global Exposure by Industry: Imports/Industry Shipments²

Independent Variables	ALL WOMEN		POOR WOMEN ³		NON-POOR WOMEN	
	Post-Transfer Income/Needs (1)	Pre-Transfer Income/Needs (2)	Post-Transfer Income/Needs (3)	Pre-Transfer Income/Needs (4)	Post-Transfer Income/Needs (5)	Pre-Transfer Income/Needs (6)
1. constant	6.172 (0.154) [40.14]*	4.143 (0.152) [27.22]*	1.008 (0.190) [5.32]*	0.544 (0.163) [3.33]*	7.062 (0.193) [36.64]*	7.121 (0.266) [26.73]*
2. high school	0.545 (0.082) [6.67]*	0.646 (0.081) [8.00]*	0.022 (0.054) [0.41]	-0.017 (0.044) [-0.39]	0.618 (0.104) [5.94]*	0.739 (0.151) [4.88]*
3. college	1.939 (0.154) [12.62]*	2.076 (0.152) [13.65]*	0.042 (0.141) [0.30]	-0.078 (0.131) [-0.59]	1.975 (0.181) [10.88]*	2.053 (0.229) [8.98]*
4. work	0.787 (0.130) [6.06]*	1.044 (0.129) [8.12]*	Not Entered ³	Not Entered ³	0.848 (0.156) [5.42]*	0.852 (0.195) [4.37]*
5. present experience	0.00781 (0.001) [15.48]*	0.00850 (0.000) [17.02]*	0.001 (0.000) [2.20]**	0.0004 (0.000) [1.88]***	0.00733 (0.001) [12.55]*	0.00683 (0.001) [9.56]*
6. years experience	0.0179 (0.003) [6.89]*	0.0117 (0.003) [4.53]*	0.005 (0.002) [2.23]**	0.005 (0.002) [2.34]**	0.0164 (0.003) [5.31]*	0.0263 (0.005) [5.72]*
7. white	1.367 (0.141) [9.72]*	1.135 (0.139) [8.16]*	-0.049 (0.081) [-0.60]	-0.023 (0.073) [-0.31]	1.380 (0.174) [7.95]*	1.334 (0.217) [6.14]*
8. kids	-0.307 (0.027) [-11.51]*	-0.299 (0.026) [-11.31]*	-0.001 (0.016) [-0.06]	-0.040 (0.014) [-2.90]*	-0.374 (0.036) [-10.31]*	-0.487 (0.051) [-9.55]*
9. dad education	-0.0915 (0.160) [-0.57]	0.135 (0.158) [0.86]	0.116 (0.134) [0.87]	-0.065 (0.111) [-0.59]	-0.133 (0.186) [-0.71]	0.269 (0.218) [1.23]
10. mom education	-0.448 (0.170) [-2.64]*	-0.0992 (0.168) [-0.59]	-0.128 (0.131) [-0.98]	-0.137 (0.120) [-1.14]	-0.423 (0.198) [-2.13]**	-0.0171 (0.239) [-0.07]
11. poor parents	-0.116 (0.081) [-1.44]****	-0.263 (0.080) [-3.29]*	-0.068 (0.048) [-1.42]****	-0.022 (0.043) [-0.53]	-0.0682 (0.102) [-0.67]	-0.370 (0.135) [-2.73]*
12. unemployment	-0.230 (0.011) [-20.46]*	-0.185 (0.011) [-16.64]*	-0.018 (0.001) [-1.95]**	-0.016 (0.007) [-2.13]**	-0.281 (0.014) [-20.67]*	-0.291 (0.018) [-16.55]*
13. moved for job	0.566 (0.111) [5.13]*	0.552 (0.109) [5.04]*	-0.007 (0.079) [-0.09]	0.126 (0.073) [1.73]***	0.572 (0.129) [4.42]*	0.467 (0.157) [2.97]*
14. time trend	-0.316 (0.007) [-47.10]*	-0.248 (0.007) [-37.39]*	-0.014 (0.006) [-2.33]**	-0.004 (0.005) [-0.93]	-0.335 (0.008) [-39.50]*	-0.330 (0.011) [-29.51]*
15. imports	1.575 (0.688) [2.29]**	1.215 (0.681) [1.78]***	-0.841 (1.414) [-0.59]	-0.288 (0.373) [-0.77]	1.656 (0.782) [2.12]**	1.646 (0.884) [1.86]***
16. exports	--	--	--	--	--	--
17. IIT	--	--	--	--	--	--
18. trade balance	--	--	--	--	--	--
R ² within	0.1984	0.2039	0.2559	0.2230	0.1709	0.1423
R ² between	0.3865	0.4017	0.0243	0.0077	0.2967	0.2436
R ² overall	0.3258	0.3478	0.0676	0.0380	0.2545	0.2161
F statistic	21.85*	22.61*	1.13	1.38*	14.67*	8.45*
Number of groups	2,749	2,749	471	667	2,445	2,077
number of cases	21,946	21,946	924	1,452	17,888	13,038

¹ Standard errors are in parentheses and t-statistics are in brackets.

² Variables are included for which data is available for all 13 years. See definitions in Appendix B.

³ Poor women regressions include working female heads only (cases selected if work=1).

* Confidence 99% or greater. ** Confidence 95% or greater. *** Confidence 90% or greater. **** Confidence 85% or greater.

Table 2. Income-Needs Regressions for Female Heads, PSID 1981-1993¹
Model with Industry Fixed-Effects and Individual Fixed-Effects
Using Measures of Global Exposure by Industry: Exports/Industry Shipments²

	ALL WOMEN		POOR WOMEN ³		NON-POOR WOMEN	
Independent Variables	Post-Transfer Income/Needs (1)	Pre-Transfer Income/Needs (2)	Post-Transfer Income/Needs (3)	Pre-Transfer Income/Needs (4)	Post-Transfer Income/Needs (5)	Pre-Transfer Income/Needs (6)
1. constant	6.142 (0.154) [39.92]*	4.111 (0.152) [26.99]*	1.014 (0.190) [5.34]*	0.546 (0.164) [3.33]*	7.036 (0.193) [36.50]*	7.092 (0.266) [26.62]*
2. high school	0.536 (0.082) [6.57]*	0.637 (0.081) [7.89]*	0.021 (0.054) [0.40]	-0.017 (0.044) [-0.39]	0.602 (0.104) [5.79]*	0.716 (0.152) [4.72]*
3. college	1.928 (0.154) [12.55]*	2.064 (0.152) [13.57]*	0.044 (0.141) [0.31]	-0.077 (0.131) [-0.59]	1.954 (0.181) [10.77]*	2.023 (0.229) [8.84]*
4. work	0.795 (0.130) [6.12]*	1.051 (0.129) [8.18]*	Not Entered ³	Not Entered ³	0.864 (0.156) [5.52]*	0.871 (0.195) [4.47]*
5. present experience	0.00784 (0.001) [15.55]*	0.00853 (0.000) [17.09]*	0.001 (0.000) [2.20]**	0.0004 (0.000) [1.90]**	0.00738 (0.001) [12.63]*	0.00685 (0.001) [9.59]*
6. years experience	0.0179 (0.003) [6.87]*	0.0116 (0.003) [4.49]*	0.005 (0.002) [2.26]**	0.004 (0.002) [2.31]**	0.0162 (0.003) [5.27]*	0.0261 (0.005) [5.67]*
7. white	1.366 (0.141) [9.72]*	1.135 (0.139) [8.16]*	-0.047 (0.081) [-0.58]	-0.024 (0.073) [-0.32]	1.378 (0.174) [7.94]*	1.332 (0.217) [6.13]*
8. kids	-0.307 (0.027) [-11.51]*	-0.298 (0.026) [-11.30]*	-0.001 (0.016) [-0.07]	-0.042 (0.014) [-3.04]*	-0.373 (0.036) [-10.30]*	-0.487 (0.051) [-9.55]*
9. dad education	-0.0762 (0.160) [-0.48]	0.151 (0.158) [0.96]	0.121 (0.134) [0.90]	-0.068 (0.111) [-0.61]	-0.116 (0.186) [-0.62]	0.289 (0.218) [1.33]
10. mom education	-0.462 (0.170) [-2.72]*	-0.114 (0.168) [-0.68]	-0.127 (0.131) [-0.96]	-0.138 (0.120) [-1.15]	-0.441 (0.198) [-2.22]**	-0.0384 (0.239) [-0.16]
11. poor parents	-0.111 (0.081) [-1.37]	-0.258 (0.080) [-3.23]*	-0.068 (0.048) [-1.42]****	-0.020 (0.042) [-0.47]	-0.060 (0.102) [-0.59]	-0.360 (0.135) [-2.66]*
12. unemployment	-0.229 (0.011) [-20.37]*	-0.184 (0.011) [-16.52]*	-0.019 (0.009) [-2.05]**	-0.015 (0.007) [-2.11]**	-0.280 (0.014) [-20.59]*	-0.290 (0.018) [-16.49]*
13. moved for job	0.570 (0.110) [5.16]*	0.555 (0.109) [5.07]*	-0.007 (0.079) [-0.09]	0.127 (0.073) [1.74]***	0.577 (0.129) [4.47]*	0.475 (0.157) [3.02]*
14. time trend	-0.313 (0.007) [-46.62]*	-0.245 (0.007) [-36.91]*	-0.014 (0.006) [-2.34]**	-0.004 (0.005) [-0.94]	-0.331 (0.008) [-39.07]*	-0.325 (0.011) [-29.10]*
15. imports	--	--	--	--	--	--
16. exports	-15.954 (4.667) [-3.42]*	-18.432 (4.619) [-3.99]*	0.675 (2.604) [0.26]	-0.681 (2.251) [-0.30]	-18.326 (5.433) [-3.37]*	-16.327 (6.083) [-2.68]*
17. IIT	--	--	--	--	--	--
18. trade balance	--	--	--	--	--	--
R ² within	0.1986	0.2044	0.2553	0.2224	0.1713	0.1426
R ² between	0.3876	0.4031	0.0220	0.0073	0.2968	0.2442
R ² overall	0.3261	0.3484	0.0689	0.0372	0.2546	0.2164
F statistic	21.88*	22.69*	1.12	1.38*	14.71*	8.47*
Number of groups	2,749	2,749	471	667	2,445	2,077
number of cases	21,946	21,946	924	1,452	17,888	13,038

¹ Standard errors are in parentheses and t-statistics are in brackets.

² Variables are included for which data is available for all 13 years. See definitions in Appendix B.

³ Poor women regressions include working female heads only (cases selected if work=1).

* Confidence 99% or greater. ** Confidence 95% or greater. *** Confidence 90% or greater. **** Confidence 85% or greater.

Table 3. Income-Needs Regressions for Female Heads, PSID 1981-1993¹
Model with Industry Fixed-Effects and Individual Fixed-Effects
Using Measures of Global Exposure by Industry: Intra-Industry Trade²

	ALL WOMEN		POOR WOMEN³		NON-POOR WOMEN	
Independent Variables	Post-Transfer Income/Needs (1)	Pre-Transfer Income/Needs (2)	Post-Transfer Income/Needs (3)	Pre-Transfer Income/Needs (4)	Post-Transfer Income/Needs (5)	Pre-Transfer Income/Needs (6)
1. constant	6.146 (0.154) [39.96]*	4.115 (0.152) [27.04]*	1.106 (0.190) [5.35]*	0.549 (0.163) [3.36]*	7.038 (0.193) [36.52]*	7.093 (0.266) [26.63]*
2. high school	0.540 (0.082) [6.62]*	0.641 (0.081) [7.94]*	0.023 (0.054) [0.42]	-0.016 (0.044) [-0.35]	0.610 (0.104) [5.87]*	0.726 (0.151) [4.80]*
3. college	1.930 (0.154) [12.56]*	2.067 (0.152) [13.59]*	0.045 (0.141) [0.32]	-0.077 (0.131) [-0.58]	1.961 (0.181) [10.81]*	2.032 (0.229) [8.89]*
4. work	0.791 (0.130) [6.09]*	1.047 (0.129) [8.15]*	Not Entered ³	Not Entered ³	0.854 (0.156) [5.46]*	0.866 (0.195) [4.45]*
5. present experience	0.00787 (0.001) [15.60]*	0.00857 (0.000) [17.16]*	0.001 (0.000) [2.20]**	0.0004 (0.000) [1.87]***	0.00740 (0.001) [12.68]*	0.00688 (0.001) [9.62]*
6. years experience	0.0179 (0.003) [6.87]*	0.0116 (0.003) [4.49]*	0.005 (0.002) [2.27]**	0.004 (0.002) [2.33]**	0.0163 (0.003) [5.28]*	0.0262 (0.005) [5.68]*
7. white	1.363 (0.141) [9.69]*	1.131 (0.139) [8.13]*	-0.046 (0.082) [-0.56]	-0.023 (0.073) [-0.32]	1.375 (0.174) [7.92]*	1.325 (0.217) [6.10]*
8. kids	-0.311 (0.027) [-11.65]*	-0.303 (0.026) [-11.47]*	-0.001 (0.016) [-0.05]	-0.041 (0.014) [-3.01]*	-0.379 (0.036) [-10.45]*	-0.495 (0.051) [-9.71]*
9. dad education	-0.0852 (0.159) [-0.53]	0.141 (0.158) [0.89]	0.118 (0.134) [0.88]	-0.073 (0.111) [-0.65]	-0.127 (0.186) [-0.68]	0.279 (0.218) [1.28]
10. mom education	-0.457 (0.170) [-2.69]*	-0.108 (0.168) [-0.64]	-0.126 (0.131) [-0.96]	-0.136 (0.120) [-1.13]	-0.433 (0.198) [-2.18]**	-0.0309 (0.239) [-0.13]
11. poor parents	-0.110 (0.081) [-1.36]	-0.257 (0.080) [-3.21]*	-0.070 (0.048) [-1.44]****	-0.021 (0.042) [-0.50]	-0.0608 (0.102) [-0.59]	-0.359 (0.135) [-2.66]*
12. unemployment	-0.228 (0.011) [-20.35]*	-0.183 (0.011) [-16.49]*	-0.019 (0.009) [-2.07]**	-0.016 (0.007) [-2.15]**	-0.280 (0.014) [-20.57]*	-0.290 (0.018) [-16.46]*
13. moved for job	0.567 (0.110) [5.13]*	0.551 (0.109) [5.04]*	-0.010 (0.079) [-0.12]	0.126 (0.073) [1.73]***	0.572 (0.130) [4.43]*	0.466 (0.157) [2.96]*
14. time trend	-0.314 (0.007) [-46.75]*	-0.246 (0.007) [-37.04]*	-0.014 (0.006) [-2.37]*	-0.005 (0.005) [-1.03]	-0.331 (0.008) [-39.20]*	-0.326 (0.011) [-29.20]*
15. imports	--	--	--	--	--	--
16. exports	--	--	--	--	--	--
17. IIT	-2.977 (0.813) [-3.66]*	-3.501 (0.804) [-4.35]*	0.214 (0.480) [0.44]	0.162 (0.387) [0.42]	-3.241 (0.925) [-3.50]*	-3.372 (1.059) [-3.19]*
18. trade balance	--	--	--	--	--	--
R ² within	0.1987	0.2046	0.2556	0.2225	0.1714	0.1428
R ² between	0.3875	0.4027	0.0233	0.0079	0.2969	0.2445
R ² overall	0.3262	0.3484	0.0705	0.0381	0.2548	0.2167
F statistic	21.89*	22.70*	1.12	1.38*	14.72*	8.49*
Number of groups	2,749	2,749	471	667	2,445	2,077
number of cases	21,946	21,946	924	1,452	17,888	13,038

¹ Standard errors are in parentheses and t-statistics are in brackets

² Variables are included for which data is available for all 13 years. See definitions in Appendix B.

³ Poor women regressions include working female heads only (cases selected if work=1).

* Confidence 99% or greater. ** Confidence 95% or greater. *** Confidence 90% or greater. **** Confidence 85% or greater.

Table 4. Income-Needs Regressions for Female Heads, PSID 1981-1993¹
Model with Industry Fixed-Effects and Individual Fixed-Effects
Using Measures of Global Exposure by Industry: Trade Balance²

Independent Variables	ALL WOMEN		POOR WOMEN ³		NON-POOR WOMEN	
	Post-Transfer Income/Needs (1)	Pre-Transfer Income/Needs (2)	Post-Transfer Income/Needs (3)	Pre-Transfer Income/Needs (4)	Post-Transfer Income/Needs (5)	Pre-Transfer Income/Needs (6)
1. constant	6.170 (0.154) [40.14]*	4.142 (0.152) [27.22]*	1.011 (0.190) [5.34]*	0.545 (0.163) [3.33]*	7.061 (0.193) [36.64]*	7.121 (0.266) [26.73]*
2. high school	0.544 (0.082) [6.66]*	0.645 (0.081) [7.99]*	0.023 (0.054) [0.43]	-0.017 (0.044) [-0.38]	0.617 (0.104) [5.93]*	0.737 (0.151) [4.87]*
3. college	1.939 (0.154) [12.62]*	2.076 (0.152) [13.65]*	0.043 (0.141) [0.30]	-0.078 (0.131) [-0.59]	1.975 (0.181) [10.89]*	2.053 (0.229) [8.98]*
4. work	0.785 (0.130) [6.05]*	1.043 (0.129) [8.11]*	Not Entered ³	Not Entered ³	0.847 (0.156) [5.41]*	0.851 (0.195) [4.37]*
5. present experience	0.00781 (0.001) [15.47]*	0.00850 (0.000) [17.02]*	0.001 (0.000) [2.18]**	0.0004 (0.000) [1.87]***	0.00733 (0.001) [12.54]*	0.00683 (0.001) [9.55]*
6. years experience	0.0179 (0.003) [6.88]*	0.0116 (0.003) [4.51]*	0.005 (0.002) [2.24]**	0.004 (0.002) [2.34]*	0.0164 (0.003) [5.30]*	0.0263 (0.005) [5.71]*
7. white	1.367 (0.141) [9.72]*	1.136 (0.139) [8.16]*	-0.050 (0.081) [-0.60]	-0.023 (0.073) [-0.32]	1.381 (0.174) [7.96]*	1.334 (0.217) [6.14]*
8. kids	-0.307 (0.027) [-11.50]*	-0.298 (0.026) [-11.30]*	-0.0005 (0.016) [-0.03]	-0.040 (0.014) [-2.89]*	-0.373 (0.036) [-10.29]*	-0.486 (0.051) [-9.53]*
9. dad education	-0.0912 (0.160) [-0.57]	0.135 (0.158) [0.86]	0.112 (0.134) [0.83]	-0.070 (0.111) [-0.59]	-0.132 (0.186) [-0.71]	0.269 (0.218) [1.24]
10. mom education	-0.449 (0.170) [-2.64]*	-0.0996 (0.168) [-0.59]	-0.128 (0.131) [-0.97]	-0.136 (0.120) [-1.14]	-0.424 (0.198) [-2.14]**	-0.0177 (0.239) [-0.07]
11. poor parents	-0.116 (0.081) [-1.44]****	-0.264 (0.080) [-3.30]*	-0.069 (0.048) [-1.44]****	-0.023 (0.043) [-0.53]	-0.0693 (0.102) [-0.68]	-0.372 (0.135) [-2.75]*
12. unemployment	-0.229 (0.011) [-20.42]*	-0.184 (0.011) [-16.60]*	-0.018 (0.009) [-1.98]**	-0.016 (0.007) [-2.14]**	-0.280 (0.014) [-20.63]*	-0.291 (0.018) [-16.52]*
13. moved for job	0.566 (0.110) [5.12]*	0.551 (0.109) [5.04]*	-0.007 (0.080) [-0.09]	0.126 (0.073) [1.73]***	0.571 (0.129) [4.42]*	0.465 (0.157) [2.96]*
14. time trend	-0.316 (0.007) [-47.15]*	-0.249 (0.007) [-37.44]*	-0.014 (0.006) [-2.36]*	-0.004 (0.005) [-0.95]	-0.335 (0.008) [-39.56]*	-0.331 (0.011) [-29.56]*
15. imports	--	--	--	--	--	--
16. exports	--	--	--	--	--	--
17. IIT	--	--	--	--	--	--
18. trade balance	-2.089 (0.717) [-2.91]*	-1.756 (0.710) [-2.47]*	0.812 (1.249) [0.65]	0.300 (0.393) [0.76]	-2.207 (0.814) [-2.71]*	-2.165 (0.922) [-2.35]*
R ² within	0.1985	0.2040	0.2561	0.2230	0.1711	0.1424
R ² between	0.3865	0.4016	0.0252	0.0078	0.2968	0.2437
R ² overall	0.3259	0.3479	0.0693	0.0381	0.2546	0.2162
F statistic	21.87*	22.63*	1.13	1.38*	14.69*	8.46*
Number of groups	2,749	2,749	471	667	2,445	2,077
number of cases	21,946	21,946	924	1,452	17,888	13,038

¹ Standard errors are in parentheses and t-statistics are in brackets.

² Variables are included for which data is available for all 13 years. See definitions in Appendix B.

³ Poor women regressions include working female heads only (cases selected if work=1).

* Confidence 99% or greater. ** Confidence 95% or greater. *** Confidence 90% or greater. **** Confidence 85% or greater.

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Appendix A. Data Definitions for 1981-1993 PSID Analysis.

Dependent Variables	Definition
Post-Transfer Income/Needs Ratio	Total family money income (taxable income plus transfers), divided by needs. Needs are based on Census assessment.
Pre-Transfer Income/Needs Ratio	Taxable family income without transfers, divided by needs. Needs are based on Census assessment.
Independent Variables	Definition
2. high school	1 if head has at least a high school education, but is not a college graduate; 0 otherwise
3. college	1 if head is a college graduate; 0 otherwise
4. work	1 if head is working now; 0 otherwise
5. present experience	months of experience head has with her present employer
6. years experience	number of years head has worked full-time during most or all of the year
7. white	1 if white; 0 otherwise
8. kids	number of children in head's family unit age 18 and under
9. father's education	1 if head's father has a college degree; 0 otherwise
10. mother's education	1 if head's mother has a college degree; 0 otherwise
11. poor parents	1 if head's parents were poor when head was growing up; 0 otherwise
12. cnty unemployment	annual average unemployment rate for head's county of residence
13. moved for job	1 if head has ever moved to take a job; 0 otherwise
14. time trend	1=1981; 2=1982; 3=1983; 4=1984; ...; 13=1993
Global Exposure Measures based on Industry in which Head Works	
15. imports	world imports divided by industry shipments in the industry in which head is employed (industry is based on 3-digit SIC code)
16. exports	world exports divided by industry shipments in the industry in which head is employed (industry is based on 3-digit SIC code)
17. IIT	intra-industry (bilateral) trade, or overlapping trade, in the industry in which head is employed (industry is based on 3-digit SIC code), defined as: $IIT = \frac{\min(\text{Imports}, \text{Exports}) \times 2}{(\text{Imports} + \text{Exports})}$
18. trade balance	trade balance = (exports - imports)/industry shipments, where exports, imports and industry shipments are from the industry in which female head is employed (industry is based on 3-digit SIC code)