

# Work Ethic and Family Background

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# Executive Summary

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by Casey Mulligan

Government policies dealing with employment and wages have both short term and long term effects. This is especially true with welfare reform. Clearly, the welfare policies now being developed in response to massive changes in the federal law will have immediate effects on individuals currently dependent on public aid. But what long term effect will these policies have on the children of welfare-dependent parents? When they become adults, will these children be more likely to be employed if their parents have worked more during their children's formative years?

These and related questions are examined by University of Chicago economist Casey B. Mulligan in his paper, "Work Ethic and Family Background." As Dr. Mulligan illustrates, there is a direct correlation between the success this generation of welfare recipients has in finding jobs and the likelihood that their adult children will be employed 20 years later.

Using a unique data set that provides decades of detailed information on families, income, employment and welfare participation, Dr. Mulligan quantifies the extent of this employment relationship. A child's work ethic, shows Dr. Mulligan, is determined both by his or her parents' inherent work ethic and the amount the parents actually work. By separating these two forces through advanced regression techniques, Mulligan estimates the employment effects that policies such as minimum wage hikes and unemployment insurance might have on future workforces.

Among the patterns uncovered by the study:

- The sons of men whose weekly work hours are ten hours above average tend to work two hours more per week themselves.
- Government policies which lead to three more weeks of unemployment by men are associated with one more day of unemployment by their sons.
- Based on the correlations found in the study, a policy that cuts in half today's percentage of women participating in welfare will, 20 years later, reduce the welfare participation rate by 5 percent.

Mulligan's estimates stress to an extent not previously considered the importance of moving welfare recipients into the workforce. Now that welfare reform is a reality, jobs must be found for individuals who lack experience, skills and education. According to government data, more than one-third of welfare recipients are functionally illiterate. High minimum wages and burdensome regulations that hamper this group's ability to find jobs threaten to seriously impede welfare reform efforts. As this paper shows, the effects of such a failure could be felt for generations.

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## I. Introduction

Poverty is, and should be, a concern of government policymakers. Poverty is related to crime. Poverty affects government expenditures and tax revenues. Some voters would like government programs to alleviate poverty while others worry about the creation of a dependency of the poor on government anti-poverty programs. For these and other reasons we need to know about the causes of poverty.

There are two obviously important determinants of poverty — a person's upbringing and his or her effort and determination. Investment and care by parents provide children with an important head start in life, but effort and determination also determine economic success. This paper studies the links between these two determinants of poverty — do children learn to work hard from their parents? Does the example of a hard-working parent contribute to the success of children over and above the extra income that parental work creates? Does parental participation in government welfare programs encourage children to participate as adults?

Section II discusses how hard work by parents might stimulate children to work hard as adults. The forces outlined there accord with common sense, but what is the quantitative importance of those forces? For instance, what effects might the recent federal welfare reform ACT have on the next generation? Does a reduction of the welfare rolls by ten families today create ten fewer children who will eventually participate in welfare or only one? Quantitative estimates from the Panel Study of Income Dynamics are provided in Section III. I find a strong relationship between the unemployment, work hours and welfare participation of parents and, 20 years later, their grown-up children. I interpret the results of Section III as indicators of an intergenerational transmission of a willingness to work, but there are some alternative explanations. Section IV explores those explanations and provides some evidence that my interpretation is the more accurate. Section V concludes this report with some quantitative estimates of the long-run impact of work disincentives created by today's government policies, such as welfare, unemployment compensation, minimum wages, or any other employment regulation to the extent it discourages or encourages employment.

## II. A Model of the Intergenerational Transmission of "Work Ethic"

### II.A. Determinants of Work and Program Participation

What determines a person's willingness to work or his willingness to participate in a government welfare or unemployment program? One important factor is the wage or amount of money after taxes that a person can make by working in the marketplace. If a lot of money can be made by working in the marketplace, work there is attractive relative to leisure, work at home, or work in the criminal sector. Because there can be penalties for earning money while simultaneously collecting welfare or unemployment benefits, participation in the government programs is often an alternative to work in the marketplace. A higher wage in the marketplace therefore makes government program participation relatively unattractive. Nonwage income is a second important factor affecting the decision to work. People with more income can afford the luxury of working less. Similarly, men or women with spouses who make a lot of money can afford to forgo income from a job in order to work in the home or in order to enjoy leisure.

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A third factor influencing the decision to work or participate in a government welfare or unemployment program is a person's willingness to work. Part of a person's willingness to work is moral or psychological. The cliché "the Protestant Work Ethic" is an example of a moral or psychological attitude that, regardless of one's wage or income, it is "good" for a person to work (especially for an adult male). In recent decades, many people also feel that it is "good" and "important" for an adult woman to work in the marketplace rather than — or in addition to — working at home. A more traditional attitude — but an attitude that also affects the work decisions of some women - is that it is preferable for a woman to work in the home rather than in the marketplace. "Welfare stigma" — a psychological or moral aversion to receiving "handouts" from government — is an example of an attitude that discourages participation in government welfare or unemployment programs and therefore an attitude that encourages work.

Psychological and moral attitudes are not the only examples of a willingness to work. Habits, preparation, knowledge and experience also affect a person's willingness to work. Ownership of an automobile or knowledge of public transportation routes and schedules, for example, make it easier for a person to work and therefore make him or her more likely to work regardless of wages or income. Knowledge of the practical details of collecting welfare or unemployment compensation — because it makes nonwork relatively more attractive — is an example of knowledge and experience that decreases a person's willingness to work. Ownership of an appropriate wardrobe is another example of experience or preparation that makes a person more ready to accept work in the marketplace.

The three factors affecting a person's decision to work — the wage, nonwage income, and the willingness to work — can be represented by a single equation:

$$u_i = \alpha_i + \beta w_i - \gamma I_i \quad (1)$$

**Net Utility from working =  
Willingness to Work + Wage - Nonwage Income**

$u_i$  is person  $i$ 's net utility from working, which depends on his or her willingness to work  $\alpha_i$ , his or her wage  $w_i$  in the marketplace, and his or her nonwage income  $I_i$ . A person works if his or her net utility  $u_i$  is positive. I use the variable  $d_i$  to denote work status:  $d_i = 1$  if person  $i$  works and  $d_i = 0$  if person  $i$  does not work. If  $\alpha_i$ ,  $w_i$ , or  $I_i$  vary over time, then person  $i$  may work at some times but not at others. In this case,  $d_i$  can represent the fraction of time worked.

The wage  $w_i$  enters with a positive sign because a high wage in the marketplace increases the net utility from working and increases the likelihood that a person works. Nonwage income enters with a negative sign because it decreases the likelihood that a person works. (Although, in principle, a higher wage does not always lead to more work, my data show a definitive positive relationship between the two.)

The determinants of the willingness to work — "work ethic" or habits or experience or attitudes — enter the mathematical model through  $\alpha_i$ . A woman's desire to work in the home reduces  $\alpha_i$ . A person who is ashamed not to have a job has a high  $\alpha_i$ . A person with an automobile or with knowledge of public transportation has a higher  $\alpha_i$  because he or she does not have to acquire the automobile or the knowledge in order to have a job.

The model (1) is a model of the decision to work, but it can also serve as a model of participation in a government welfare program. For example,  $u_i$  can represent the net utility of not collecting welfare benefits and  $d_i = 1$  represents nonparticipation in the program. A high willingness to work, a high wage, or low nonwage income increase a person's likelihood of working and therefore increase his or her likelihood of nonparticipation.<sup>1</sup>

## II.B. How Parents Might Influence a Child's Willingness to Work

Parents and adult children have many characteristics in common; IQ, height, mannerisms, schooling and income are only a few of the many variables that are similar. My model of the intergenerational transmission of work ethic allows the willingness to work to be correlated across generations. A child may be very willing to work (a high  $\alpha_i$ ) because his parents were very willing to work (a high  $\alpha$  for the parents) or because his parents actually worked. In other words, an adult child may work regardless of his wage and nonwage income because he observed his parents working as a child. Equation (2) models the intergenerational transmission of the willingness to work:

$$\alpha_i = \rho \alpha_i^{\text{parent}} + \pi d_i^{\text{parent}} + \varepsilon_i \quad (2)$$

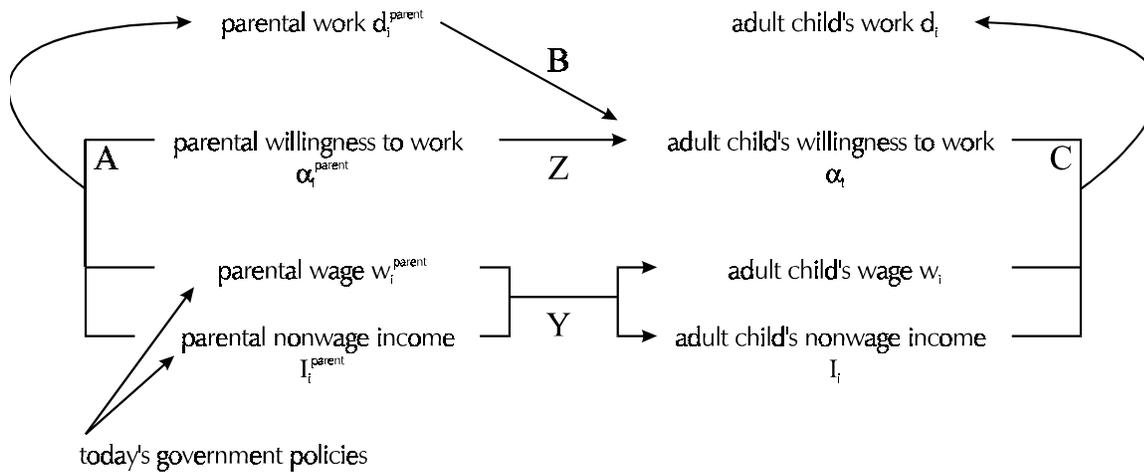
**Child's Willingness to Work =  
Parents' Willingness to Work + Amount Parent Worked + Other Factors**

An adult child's willingness to work  $\alpha_i$  depends on his parents' willingness to work  $\alpha_i^{\text{parent}}$ , the amount that his parents actually worked  $d_i^{\text{parent}}$ , and other factors  $\varepsilon_i$ . More willingness of parents to work tends to increase the child's willingness to work as an adult, with the magnitude of the effect depending on the parameter  $\rho$ . More work by parents increases a child's willingness to work. The magnitude of this effect depends on  $\pi$ .<sup>2</sup>

Equation (2) can also be used to represent the intergenerational transmission of a willingness to collect benefits from a government welfare program. Under this interpretation,  $\alpha_i$  includes factors such as "welfare stigma" that make an adult child unwilling to collect welfare or unemployment benefits.  $\alpha_i^{\text{parent}}$  represents those factors that make a parent unwilling to participate in a government program and  $d_i^{\text{parent}}$  represents actual nonparticipation by parents.

Models (1) and (2) represent the idea that a government program that discourages work by parents decreases a child's likelihood of working as an adult. For example, a welfare program decreases the after-tax wage available in the marketplace (according to the rules of the welfare program, a person loses his/her welfare benefits by working — rules which are very much like a tax on work) and decreases work by parents according to the parameter  $\beta$  in equation (1). Less work by parents appears as a smaller  $d_i^{\text{parent}}$  in equation (2) which decreases a child's willingness to work according to the parameter  $\pi$  in equation (2).<sup>3</sup>

The basic ideas embodied in models (1) and (2) can be illustrated in a schematic diagram, a diagram which is useful for thinking about alternative explanations of my results. The left side of the diagram displays the determination of the parental work decision. The parental willingness to work, the parental wage and parental income, as illustrated by the arrows labeled "A", determine parental work. In other words, the arrow A illustrates a version of equa-



**Figure 1** Diagram of the Effects of Family Background on Work Decisions

tion (1) for parents. The arrow labeled “B” is the effect that is the focus of this report — the effect of parental work on a child’s willingness to work as an adult modeled with the parameter  $\pi$  in equation (2). The arrow labeled “C” illustrates the effects modeled in equation (1): the effects of the child’s willingness to work, the child’s wage, and the child’s income on his or her work decision. The direct effect of the parental willingness to work on the child’s willingness to work is illustrated with the arrow “Z” and is mathematically modeled with the parameter  $\rho$  in equation (2). The arrow “Y” is discussed in sections III and IV.

### II.C. The Malleability of Work Ethic, or “Heterogeneity” vs. “State Dependence”

The purpose of this report is to provide some evidence that shows whether or not the parameter  $\pi$  is different from zero and, if it is different from zero, the magnitude of the parameter. The following section shows that adult children are more likely to work (or more likely to participate in a government welfare program) if his or her parents worked (or if his or her parents participated in a government welfare program). The finding is consistent with  $\pi > 0$ , but it is also consistent with  $\pi = 0$ . The difficulty of distinguishing  $\pi > 0$  from  $\pi = 0$  from comparisons of the work decisions of parents and children is a problem that has been labeled “distinguishing heterogeneity from state dependence” in the econometrics literature.<sup>4</sup>

The reason for this ambiguity is that the willingness to work is *automatically* transmitted from parents to children regardless of actual employment experiences or government policies. Some families are less willing to work while others are more willing to work (“heterogeneity”) so the work decisions of parents of children are related even if  $\pi = 0$ . On the other hand, it is also possible that the actual work experience of parents affects the willingness of a child to work as an adult (“state dependence”). Our goal, therefore, is to differentiate between two forces that will eventually affect an adult child’s willingness to work: “hetero-

geneity,” or the parents’ *willingness* or attitude towards work, and “state dependence,” or the amount parents actually do work. There are three ways of distinguishing between the two. First, one could use three generations of data (data on the work decisions of adult children, parents *and* grandparents). However, this first strategy is not currently possible because the Panel Study of Income Dynamics only links parents and adult children. A second strategy is to quantify limits on the effect of heterogeneity, a strategy which I pursue in Section IV. A third strategy is to identify some parents who work more than others, not because they have a different willingness to work, but for other reasons such as different wage and tax rates. Section IV reports some results from the third strategy.

### III. Estimates from the Panel Study of Income Dynamics

#### III.A. Data Description

The Panel Study of Income Dynamics (PSID) actually began in 1968 as two studies. One was a nationally representative sample of 2,930 families drawn by the Survey Research Center (SRC). The other was a nonrepresentative sample of 1,872 low income families drawn by the Bureau of the Census.<sup>5</sup> These two samples, the “SRC sample” and the “SEO sample” were combined to form the first wave of the Panel Study of Income Dynamics. Except for death and nonresponse, each member (and their offspring) of the SRC and SEO samples have been interviewed annually as part of the subsequent waves of the PSID. The Survey Research Center is still interviewing these people and my study utilizes the 1968-1989 waves.

Information is also gathered on any person who may cohabit with one of the original sample members. Suppose, for example, that a 10-year-old girl was part of an original SRC family. She turned 25 in 1983 and married a 30-year-old man with two children. If she lives with these three people, then information about them is included in the PSID. It is the children from the original wave of the PSID who, in later waves, form their own households (such as the woman in my example) that make up my intergenerational samples. These adult children are particularly interesting because we know a lot about their economic activity *and* have many years of data on their parents.

A variety of information is gathered on each PSID family, including employment, income, earnings, schooling, religion, housing, some expenditures, family background and even attitudes. My analysis uses the data on age, earnings, schooling, employment, government program participation and income. Because I focus on PSID children who eventually form their own households, all of this information is available for both the adult children and their parents. I use the information to construct measures of the economic status of parents in the years 1967-1971 and measures of the economic status of the adult children nearly 20 years later — 1984-88.

The PSID sample that I use for my analysis includes all children of 1968 PSID households who responded to the PSID survey while living in their own adult household (either as head, wife of head, or cohabitor of head) in at least three of the six years 1984-89, who were born in the years 1951-61, who report their schooling, who report the number of siblings, and who report nonzero consumption in at least one of the years 1984-87 and nonzero income in at least one of the years 1984-88. Parents of these children must also report

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nonzero consumption in each of the years 1969-72 and nonzero income in at least one of the years 1967-71.<sup>6</sup>

The Panel Study of Income Dynamics has two very important advantages that make it the superior data source for a study of work ethic and family background. First, it permits the linkage of information on adult children and, years earlier, information on their parents. Second, it is a panel study and therefore follows both parents and adult children for several years, permitting me to obtain more accurate measures of lifetime income and lifetime employment experiences than could be obtained from a single year.

It should be noted that there are important macro differences between the late 1960's and the mid 1980's. First, the late 1960's included a recession, while the mid 1980's did not. And second, economic inequality was greater in the 1980's. However, this paper estimates the intergenerational covariance between work or program participation as measured across families. The estimates are therefore insensitive to changes over time as long as the effect is the same for all families. Estimates are only affected if the macro-trends inordinately affect rich or poor families. Moreover, the regression used in this analysis emphasizes *work over income*, so the increased *income* inequality of the 1980's should have little effect on the results. Additionally, my estimates are aggregated over five-year time periods (1967-1971 for parents and 1984-1988 for kids). This should mitigate the effect of one-or two-year macro idiosyncrasies such as recessions.

### III.B. Work and Program Participation of Parents and Children

This section compares measures of work and government program participation for parents and adult children. The measures for parents and children — which include weeks of unemployment, annual hours of work, AFDC participation and Food Stamp participation — are positively correlated. Children of parents who were unemployed often are more likely to be unemployed as adults. Children of parents who participated in the AFDC, Food Stamp, or other welfare program are more likely to participate in welfare programs as adults. Four explanations for these positive intergenerational correlations are suggested by Figure 1:

- (i) Families with parents who work less and participate in government welfare programs more are poorer and have poorer children who may therefore be less likely to work and more likely to participate in government welfare programs. This explanation is modeled as the arrow “Y” in Figure 1 and the parameter  $\beta$  in equation (1).
- (ii) Some parents are less willing to work (or more willing to participate in government programs) and have children with similar willingness. This is the “heterogeneity” explanation and is modeled as the arrow “Z” in Figure 1 and the parameter  $\rho$  in equation (2).
- (iii) Children are more willing to work because they observe their parents working. This is the “state dependence” explanation and is modeled as the arrow “B” in Figure 1 and the parameter  $\pi$  in equation (2).

In addition to showing a positive intergenerational correlation of measures of work and welfare participation, this section shows that explanation (i) cannot explain the whole intergenerational correlation. With explanations (ii) and (iii) still alive, Section IV shows that explanation (iii) (“state dependence”) is as important as explanation (ii) (“heterogeneity”).

*Unemployment*

Table 1 reports estimates of the relationship between the unemployment of fathers and, years later, of adult sons.<sup>7</sup> I estimate a Tobit-style regression of the average weeks per year that the adult son is unemployed in the years 1984-88 that we observe him in his own household (perhaps with a spouse) on quadratic functions of the age of parents and children, a marriage variable for the parents, the average weeks per year that the father is unemployed in the years 1968-71, and the log of average parental household income for the years 1967-71.

<b>Table 1: Unemployment and Family Background</b>					
<b>Sample</b>	<b>father's unemp.</b>	<b>log parental income</b>	<b>log child wage</b>	<b># obs w/positive child unemp. # obs w/ zero child unemp.</b>	<b>Description</b>
sons	0.73 (0.15)			301 419	One year of additional unemployment by a father is associated with 8.76 months more unemployment by his son. Controlling for parental income, extending a father's unemployment correlates to 5.64 months of more son unemployment.
	0.47 (0.16)	-5.34 (1.04)			
sons child wage observed	0.49 (0.15)	-5.10 (1.02)		299 412	Eliminating from the calculation the nine children who reported no wage, and controlling for parental and child income, one additional year of parental unemployment is associated with 5.52 months of son unemployment (5.88 months when only controlling for parental income).
	0.46 (0.14)	-1.61 (1.02)	-8.56 (1.00)		
sons father unemployed at least 1 week	0.57 (0.19)			110 90	Only looking at cases where fathers were unemployed at least 1 week, one year of additional unemployment is associated with 6.84 months of additional unemployment for the son, or 4.20 months when controlling for parental income.
	0.35 (0.20)	-.499 (1.88)			
sons father unemployed at least 1 week child wage observed	0.34 (0.20)	-4.90 (1.87)		110 85	Controlling for both parental and child income and only looking at cases where the father was unemployed at least 1 week, one additional week of father unemployment corresponds to 3.48 months of extra son unemployment (or 4.08 months of son unemployment when controlling for just the father's wages).
	0.29 (0.18)	-1.64 (1.78)	-10.27 (1.80)		

**Notes:** (1) Reported are coefficients on father's unemployment, log parental income, and log child wage in a Tobit regression of adult child unemployment on those variables, age polynomials for parent and child, and a parental marriage variable.  
(2) Standard errors are in parentheses.  
(3) "Unemployment" is average weeks per year unemployed in 1968-71 for parents and 1984-88 for adult children.  
(4) A Tobit regression is used, with censored observations defined to be those families which report exactly zero weeks of unemployment for adult children in the years 1984-88.

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Parental unemployment is positively correlated with the unemployment of adult children. Without controlling for parental income, the coefficient on the unemployment of the parental household head is 0.73. However, Figure 1 illustrates that there are multiple reasons that work decisions are correlated across generations. For example, the arrow labeled “A” shows that a higher parental wage increases the parental likelihood of working while the arrow labeled “Y” suggests that more parental income can increase the wage of a child which — even if the child’s willingness to work is unaffected — increases the child’s likelihood of working. Including parental income in the regression is an attempt to isolate the effects of the arrow “Y” from the effects of the arrow “B”. More parental income decreases the unemployment of adult children; including that variable decreases the coefficient on parental unemployment to 0.47, but that coefficient is still substantially greater than zero. Notice the substantial magnitude of the coefficients. An unemployment coefficient of roughly 0.5 means that, holding constant parental family income, a father whose typical unemployment is two weeks per year more tends to have a son whose unemployment is one week per year more. The log parental income coefficient of -5 means that parents with twice as much income have children who are unemployed roughly five weeks less per year.<sup>8</sup>

According to models (1) and (2) and Figure 1, the regression results in the second row of the Table need not indicate a direct effect of parental work on the child’s willingness to work (illustrated as the arrow “B”). It is conceivable that my measure of parental income does not fully capture the effects of the parental wage and nonwage income on the wage of a child (illustrated as the arrow “Y”). The third and fourth row of the Table provide a check on this possibility. The third row reports results for the same specification as the second row, but on the more limited sample of families for whom I observe the adult wage of the son. The mere change of sample appears to have almost no effect on the results. With the more restricted sample, the fourth row introduces the log adult wage of the son. The coefficient on father’s unemployment is not substantially affected, but the coefficient on parental income is. The similar parental employment and lower parental income coefficients with the introduction of the child wage suggests that (a) the effect of parental income on the work decisions of a child operates through the child wage (as illustrated by the arrow “Y” in Figure 1) and (b) the father’s unemployment is not an important proxy for the child’s wage. Even if father’s unemployment did proxy for the child’s wage, it would not be clear that arrow “B” is unimportant. For example, less work by the father may decrease a child’s willingness to work as an adult and, because of the unwillingness to work, the family may rationally decide to limit investment in the child’s human capital. In other words, the child’s unwillingness to work may be the *reason* why a child’s wage is low. Because of the difficulty of interpreting the results with the child’s wage in the regression and because of my finding in Table 1 that introducing the child’s wage does not substantially affect the parental unemployment coefficient, I emphasize in my report empirical results from the simpler specifications that omit the child’s wage.

Many parents report exactly zero weeks of unemployment for the years 1968-71 and these parents may be very different from the other parents. For example, the first week of unemployment by a parent may have a different effect on a child than the second or third week. The last four rows of the Table therefore check the sensitivity of my results to the omission of parents that are never unemployed. Coefficients on father’s unemployment are slightly decreased, although in a statistically insignificant way. The slightly smaller coeffi-

cients when fully employed parents are omitted suggest that the first week of parental unemployment has the largest effect on the adult behavior of a child.

A Tobit regression, rather than an ordinary least squares regression, is appropriate for an analysis of unemployment spells because some adult children are “inframarginal.” A majority of adult children report exactly zero weeks of unemployment for the years 1984-88. Does that mean that a small decrease in the incentives to work would cause all or most of those adult children to report strictly positive unemployment? A plausible answer is “no” because, although some sons are just on the margin between zero and positive unemployment, others are very far from the margin or are “inframarginal.” The marginal sons would respond to a small change in incentives but the inframarginal sons would remain at the zero position. The Tobit specification explicitly allows for the existence of some marginal and inframarginal sons as opposed to the ordinary least squares approach which, strictly speaking, requires all sons to be marginal. The right-hand column in Tables 1, 2, 3 and 4 displays the number of “marginal” and “inframarginal” observations (also known as “uncensored” and “censored” observations). Consider, for example, the first two rows of Table 1. In the sample of 720 sons, 301 of them report strictly positive weeks of unemployment for the period 1985-88 while 419 report exactly zero weeks. The 301 are the “marginal” or “uncensored” observations while the 419 are “inframarginal” or “censored.”

### *Annual Work Hours*

Table 2 reports estimates of the relationship between the work hours of parents and, years later, of adult children. I estimate a Tobit-style regression of the average hours per week (total hours divided by total weeks) that the adult child works in the years 1984-88 that we observe him or her in their own household (perhaps with a spouse) on quadratic functions of the age of parents and children, a marriage variable for the parents, the average hours per week that the father or mother works in the years 1968-71, and the log of average parental household income for the years 1967-71.

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<b>Table 2: Average Weekly Work Hours and Family Background</b>						
<b>Sample</b>	<b>father/ mother's work hrs.</b>	<b>mother's hrs. &gt; 20</b>	<b>log parental income</b>	<b>log child wage</b>	<b># obs w/+ child hrs. w/0 child hrs.</b>	<b>Description</b>
sons vs. fathers father works at least one hour	0.25 (0.04)				692 9	Not controlling for parental income, each extra hour the father works corresponds to 15 minutes more work by the son.
	0.22 (0.04)		2.12 (0.91)			Controlling for parental income, the son works an additional 13 minutes.
sons vs. fathers father works at least one hour child wage observed	0.20 (0.04)		1.86 (0.85)		692 0	Removing the children who don't work from the calculation and continuing to control for parental income, each hour of father work relates to 12 minutes of additional son work.
	0.20 (0.04)		-0.13 (0.90)	4.77 (0.84)		Controlling for the child's wage as well, each extra hour of father work is associated with 12 minutes of son work.
daughters vs. mothers	0.07 (0.04)				847 64	Each additional hour of mother work is associated with an additional 4 minutes of daughter work.
	0.07 (0.04)		1.12 (1.00)			Controlling for parental income, the period remains at 4 minutes.
		1.60 (1.22)	1.19 (0.99)			
daughters vs. mothers child wage observed	0.02 (0.04)		0.46 (0.91)		847 0	Eliminating cases where the child has no wage, and controlling for parental income, each extra mother hour is associated with an extra 1.2 daughter minutes.
	0.07 (0.03)		-0.351 (0.88)	10.00 (0.75)		Controlling for child's income as well, each extra mother hour is associated with an extra 4 child minutes.
		2.04 (1.01)	-3.48 (0.88)	10.02 (0.76)		

**Table 2 Continued on Next Page**

**Table 2 Continued: Average Weekly Work Hours and Family Background**

Sample	father/ mother's work hrs.	mother's hrs. > 20	log parental income	log child wage	# obs w/+ child hrs. w/0 child hrs.	Description
daughters vs. mothers mother works at least one hour	0.08 (0.05)				607 40	Only looking at cases where the mother worked at least one hour, each extra mother hour is associated with an extra 4.8 daughter minutes.
	0.08 (0.05)		-0.11 (1.20)			Controlling for parental income, the period remains 4.8 minutes.
daughters vs. fathers father works at least one hour	0.07 (0.05)				685 42	When the father works at least one hour, each additional hour of father work is associated with an extra 4 minutes of daughter work, whether or not you control for parental income.
	0.07 (0.06)		-0.11 (1.12)			
daughters vs. fathers father works at least one hour child wage observed	0.11 (0.05)		-1.00 (1.03)		685 0	Controlling for parental income, when the father works at least one hour and only children who had some wage are observed, each additional hour of father work is associated with an extra 6.6 minutes of daughter work.
	0.10 (0.05)		-4.61 (0.99)	9.86 (0.85)		That figure becomes 6.0 minutes when you control for the child's wage as well.

**Notes:** (1) Reported are coefficients on a parent's average weekly hours, log parental income, and log child wage in a Tobit regression of adult child average weekly hours on those variables, age polynomials for parent and child, and a parental marriage variable.  
 (2) Standard errors are in parentheses.  
 (3) A Tobit regression is used, with censored observations defined to be those families which report exactly zero hours for adult children in the years 1984-88.

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Parental work hours are positively correlated with the work hours of adult children. Without controlling for parental income, the coefficient on the work hours of the father or mother is 0.25 in a sample of sons and 0.07 in a sample of daughters. Controlling for parental income and the wage of the child does not substantially change estimates for sons, which suggests that the intergenerational correlation of income is not an important reason for the intergenerational correlation of work hours. More parental income is associated with slightly more work by a son, an effect which — judging from the results in the third and fourth rows of the table — appears to work through the wage of the son. Also notice that there are relatively few inframarginal sons (9 of 701 in the main sample) when an inframarginal son is defined to be one who does not work at all in the years 1984-88 that we observe him.<sup>9</sup>

Results for the work hours of daughters are somewhat different from those for sons. Parental work and parental income are not strongly related to the work hours of adult daughters, a result which obtains when either maternal work or paternal work is considered to be the important variable. However, the 9th row, 10th row and last row of the table suggest that parental income appears to have two effects. First, higher parental income is associated with a higher wage for daughters which encourages work. Second, higher parental income appears to have another effect of decreasing work by daughters, perhaps because leisure is a normal good (the parameter  $\gamma$  in equation (1)) and because daughters from wealthy families are likely to marry wealthy husbands.

Work hours of daughters may not be linearly related to the work hours of mothers because the more relevant characteristic of a mother is not the precise number of hours she works but whether she works full time. In order to test this hypothesis, two rows of the table replace the hours of mothers with a dummy variable indicating whether, on average for the period 1968-71, the mother worked more than 20 hours per week. As with the continuous hours measure, work by the mother is associated with more work by the daughter but the effect is of marginal statistical significance.<sup>10</sup>

### *AFDC Participation*

Table 3 reports estimates of the relationship between the receipt of welfare income by parents and, years later, by adult daughters. I estimate a Tobit-style regression of the fraction of years 1984-88 that we observe the adult daughter in her own household and she received AFDC income on quadratic functions of the age of parents and children, a marriage variable for the parents, the fraction of years 1968-71 that the parental household received AFDC income and the log of average parental household income for the years 1967-71.

<b>Table 3: Welfare Participation and Family Background</b>						
<b>Sample</b>	<b>AFDC or all welfare</b>	<b>parental participation frequency</b>	<b>log parental income</b>	<b>log child wage</b>	<b># obs w/+ child part. # obs w/0 child part.</b>	<b>Description</b>
daughters	AFDC	0.75 (0.17)			160 761	For each additional year the parents spend on AFDC, the daughter will spend an additional 274 days on AFDC. Controlling for parental income, the daughter will spend an additional 193 days on AFDC.
		0.53 (0.17)	-0.45 (0.09)			

**Table 3 Continued on Next Page**

**Table 3 Continued: Welfare Participation and Family Background**

Sample	AFDC or all welfare	parental participation frequency	log parental income	log child wage	# obs w/+ child part. # obs w/0 child part.	Description
daughters child wage observed	AFDC	0.31 (0.18)	-0.44 (0.09)		134 722	Eliminating children with no observed wage and controlling for parental income, each additional year of parental AFDC participation is associated with an additional 113 days on AFDC for the daughter. Also controlling for the child's income, the period extends slightly to 120 days of additional AFDC for the daughter.
		0.33 (0.17)	-0.25 (0.09)	-0.47 (0.07)		
daughters parental participation n > 0	AFDC	0.12 (0.27)			68 100	Only examining families which have participated in AFDC, each additional year of parental participation is associated with an additional 44 days of daughter participation. Controlling for parental income, each additional year is associated with an additional 47 days of daughter participation.
		0.13 (0.27)	-0.05 (0.18)			
daughters	all wel.	0.78 (0.15)			185 736	Extending the analysis to other types of welfare income, one additional year of parental welfare participation corresponds to an additional 285 days of daughter participation. Controlling for parental income, the daughter's additional stay on welfare is reduced to 90 days.
		0.52 (0.15)	-0.41 (0.09)			
daughters child wage observed	all wel.	0.35 (0.16)	-0.39 (0.09)		154 702	Only looking at daughters with positive wages and controlling for parental income, one additional year of parental welfare participation is associated with an extra 128 days of daughter participation. Also controlling for daughters' wages, the daughter's extended time on welfare is reduced to 120 days.
		0.33 (0.15)	-0.21 (0.09)	-0.49 (0.07)		
daughters parental participation n > 0	all wel.	-0.04 (0.22)			93 117	When only examining families which have participated in welfare, an additional year of parental welfare participation does not appear to affect the daughter's future stay on welfare
		-0.03 (0.23)	0.03 (0.16)			

**Notes:** (1) Reported are coefficients on the fraction of years 1967-71 that parents received AFDC income (or, in the "all welfare" case, any kind of welfare income), log parental income, and log child wage in a Tobit regression of the fraction of years (1985-88) that the adult child's household received AFDC income (or, in the "all welfare" case, any kind of welfare income) on those variables, age polynomials for parent and child, and a parental marriage variable.  
(2) Standard errors are in parentheses.  
(3) A Tobit regression is used, with censored observations defined to be those families which report exactly zero welfare income for adult children in the years 1984-88.

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Parental AFDC participation is positively correlated with the participation of adult daughters. Without controlling for parental income, the coefficient on the frequency of participation by the parental household is 0.75. Even controlling for parental income, the second row of the table shows that the coefficient is still quite large, 0.53. One additional year of participation by the parental household means another half year of participation by adult daughters.

As discussed in the analysis of unemployment, it is unclear whether one should control for the wage of the adult child in the estimation of the intergenerational transmission of work ethic because a lower wage may be the *result* of a child's unwillingness to work and willingness to participate in a welfare program. The third and fourth rows of Table 3 display some attempts to control for the wage of daughters. The third row reports estimates from the same Tobit regression as does the second row, with the only difference being the restriction of the sample in the third row to the set of daughters for whom a wage is observed. The sample restriction alone has a fairly large effect on the estimated coefficient on the parental participation frequency, decreasing it from 0.5 to 0.3. Once the sample is restricted, a daughter's wage is negatively correlated with her AFDC participation, but introducing the wage does not have an important effect on the estimated coefficient on parental participation.

Restricting the sample to parental households that receive AFDC income at least once in the years 1968-71 reduces the estimated coefficient on the parental participation frequency, a result which may suggest that it is the participation or nonparticipation of parents, rather than the intensity of participation, which affects children most.

The bottom half of the table extends the analysis to welfare income other than AFDC. Results for more general welfare participation appear to be similar to those for AFDC participation in particular.

### *Food Stamp Participation*

Table 4 reports estimates of the relationship between the receipt of Food Stamps by parents and, years later, by adult children. I estimate a Tobit-style regression of the fraction of years 1984-88 that we observe the adult child in his or her own household and the household received Food Stamps on quadratic functions of the age of parents and children, a marriage variable for the parents, the fraction of years 1968-71 that the parental household received Food Stamps, and the log of average parental household income for the years 1967-71.

**Table 4: Food Stamp Participation and Family Background**

Sample	parental particip. unemp.	log parental income	log child wage	# obs w/positive child participation # obs w/ zero child participation	Description
daughters	1.02 (0.15)			226 695	One additional year of parental Food Stamp participation is associated with just over a year of additional Food Stamp participation by daughters.
	0.61 (0.15)	-0.54 (0.08)			Controlling for parental income, the extension of the daughter's time on Food Stamps is reduced to 223 days.
daughters child wage observed	0.38 (0.17)	-0.55 (0.09)		195 661	Eliminating observations where there was no child wage and controlling for parental income, each additional year of parental Food Stamp participation corresponds to 139 days of daughter participation.
	0.38 (0.15)	-0.30 (0.08)	-0.63 (0.07)		Controlling for child's income as well, the period remains 139 days.
daughters parental participation > 0	0.58 (0.27)			138 187	Only examining families with some Food Stamp participation, each additional year of parental participation is associated with an additional 212 days on Food Stamps for daughters.
	0.52 (0.19)	-0.18 (0.11)			Controlling for parental income, the extension of the daughter's time on Food Stamps drops slightly to 190 days.
sons	0.84 (0.17)			122 747	Each additional year of parental Food Stamp participation is associated with an extra 307 days of participation by sons.
	0.49 (0.17)	-0.44 (0.09)			Controlling for parental income, the son period drops to 179 days.
sons child wage observed	0.51 (0.17)	-0.41 (0.09)		119 737	Eliminating observations where there was no child wage observed and controlling for parental income, each additional year of parental Food Stamp participation is associated with 186 days of son participation.
	0.44 (0.15)	-0.21 (0.09)	-0.56 (0.08)		Controlling for child's income as well, the son period is reduced to 161 days.
sons parental participation > 0	0.46 (0.21)			71 194	Only examining families with some Food Stamp participation, each additional year of parental participation is associated with an additional 168 days of Food Stamps for sons.
	0.31 (0.21)	-0.41 (0.13)			Controlling for parental income, the son period drops to 113 days.
<p><b>Notes:</b> (1) Reported are coefficients on the fraction of years 1967-71 that parents received Food Stamps, log parental income, and log child wage in a Tobit regression of the fraction of years 1985-88 that the adult child's household received Food Stamps on those variables, age polynomials for parent and child, and a parental marriage variable.            (2) Standard errors are in parentheses.            (3) A Tobit regression is used, with censored observations defined to be those families which never report the receipt of Food Stamps by adult children in the years 1984-88.</p>					

Parental Food Stamp participation is positively correlated with the participation of adult daughters. Without controlling for parental income, the coefficient on the frequency of participation by the parental household is 1.02. Even controlling for parental income, the second row of the table shows that the coefficient is still quite large, 0.61. One additional year of participation by the parental household means more than another half year of participation by adult daughters.

As discussed in the analysis of unemployment and AFDC participation, or its successor programs it is unclear whether one should control for the wage of the adult child in the estimation of the intergenerational transmission of work ethic because a lower wage may be the *result* of a child's unwillingness to work and willingness to participate in a welfare program. The case for including a wage is even weaker in the case of Food Stamps because Food Stamp participation is not as obvious an alternative to work as is AFDC participation. Although work generates income which decreases the chances of eligibility for Food Stamps, many states (even before the 1996 federal welfare changes) require a member of a Food Stamp household to have a job, or look for and accept a job.<sup>11</sup> The third and fourth rows of Table 4 display some attempts to control for the wage of daughters. The third row reports estimates from the same Tobit regression as does the second row, with the only difference being the restriction of the sample in the third row to the set of daughters for whom a wage is observed. The sample restriction alone has a fairly large effect on the estimated coefficient on the parental participation frequency, decreasing it from 0.6 to 0.3. Once the sample is restricted, introducing the daughter's wage does not have an important effect on the estimated coefficient.

A household with more children is more likely to be eligible for both AFDC and Food Stamps. I do not include the number of children in the participation regressions because it is likely that an unwillingness to work or a willingness to participate in welfare programs may equate with more children. In other words, the number of children may be an indicator of the willingness to work or participate in welfare programs.<sup>12</sup>

## IV. Alternative Explanations of My Results

### IV.A. Unmeasured Family Background

A variety of statistical studies, such as Antel (1992), Duncan et al. (1988), Gottschalk (1990), Gottschalk et al. (1994), and Zimmerman (1993) have documented a correlation between the AFDC participation of mothers and daughters. These authors note that the correlation is consistent with the claim that a child obtains his or her willingness to work from her parents, but they all caution that family background simultaneously determines the participation of parents and, through the wage and income of the child, the participation of children. This interpretation, for example, is espoused by the U.S. House Ways and Means Committee (U.S. House of Representatives, 1994, Section 10). My introduction of a good measure of parental income (a five-year average) in Table 3 shows that controlling for parental income does decrease the estimated intergenerational correlation, but the remaining correlation is still significant.

Fewer studies have documented an intergenerational correlation of unemployment, work hours, or Food Stamp participation,<sup>13</sup> but the same qualification applies: the intergenerational correlation may arise from family background simultaneously determining the work and

program participation of both parents and adult children. However, my Tables 1, 2 and 4 show that controlling for parental income may decrease the estimated coefficient on parental unemployment, work hours, or Food Stamp participation, but the estimates are still both economically and statistically significant.

Although inclusion of parental income in the regressions helps to isolate the arrows “B” and “Y”, proponents of the “unobserved family background” explanation may still not be satisfied. For example, parental income may not be measured perfectly. Parents who work less or participate in a welfare program have less unobserved income, which decreases the wage of an adult child, which — regardless of the child’s willingness to work — makes a child less likely to work. If instead the child’s willingness to work is the key variable, we should observe that wages of children with parents who work less or participate in a welfare program are actually *higher* because children that are unwilling to work only do so when the available wage is quite good. Children that are willing to work, on the other hand, work even when wages are low.<sup>14</sup> Table 5 reports the results from a regression of an adult child’s log average hourly wage for the years 1984-88 (which is only observed when the child is employed) on quadratic functions of the age of parents and children, a marriage variable for the parents, measures of parental work and program participation in the years 1968-71, and the log of average parental household income for the years 1967-71.

<b>Sample</b>	<b>parental work/ participation measure</b>	<b>parental work/ participation</b>	<b>log parental income</b>	<b>number of observations</b>	<b>R<sup>2</sup></b>
sons vs. fathers	unemployment	-0.005 (0.006)	0.41 (0.04)	711	.20
sons vs. fathers	annual hours	-0.002 (0.002)	0.43 (0.04)	711	.20
daughters vs. mothers	annual hours	-0.005 (0.002)	0.40 (0.04)	847	.13
daughters vs. fathers	annual hours	0.003 (0.002)	0.36 (0.04)	700	.14
daughters	AFDC participation	0.081 (0.096)	0.38 (0.04)	856	.12
daughters	welfare participation	0.002 (0.087)	0.37 (0.04)	856	.12
daughters	Food Stamp participation	-0.026 (0.096)	0.37 (0.04)	856	.12
sons	Food Stamp participation	-0.140 (0.081)	0.37 (0.04)	856	.20

**Notes:** (1) Reported are coefficients on parental unemployment and log parental income in an ordinary least squares regression of adult child’s wage on those variables, a polynomials for parent and child, and a parental marriage variable.  
(2) “Parent” is the parental household head from 1968-71.  
(3) “Unemployment” is the fraction of time unemployed in 1968-71 for parents and 1984-88 for adult children.

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My results are inconsistent with the theory that there is a strong relationship between unobserved family background and the work and program participation of parents and children. The first row of Table 5, for example, reports a slightly negative coefficient on the unemployment of fathers. The sign of the coefficient is consistent with the “unobserved family background” story, but the magnitude of the coefficient is economically and statistically insignificant. According to the point estimate, an increase of father’s unemployment by one week per year only decreases the wage of the adult son by half a percentage point which would only have a very minor effect on the son’s unemployment. Similarly, the signs of the coefficients reported in the last two rows of Table 5 are consistent with the “unobserved family background” story but the magnitudes are too small.

For the case of work hours and welfare participation, parental work and program participation have the wrong sign from the point of view of the “unobserved family background” story. More parental work hours and less parental AFDC and welfare participation are actually associated with a *higher* wage being observed when the child is working. The estimated coefficient is statistically significant at the 95% confidence level in the case of the work hours of daughters and mothers.

### IV.B. Heterogeneity and Regional Labor Markets

As discussed in Section II, it is possible that the willingness to work or participate in a welfare program is automatically transmitted from parents to children regardless of actual employment experiences or government policies. Some families are less willing to work while others are more willing to work (“heterogeneity”) so the work decisions of parents of children are related even if  $\pi = 0$  in equation (2) (“state dependence”).

It is difficult to distinguish heterogeneity from state dependence. The challenge is to identify cases where a parent works (or participates in a welfare program) more or less than average not because the parent is more or less willing to work (or participate in a welfare program) than average, but because of other factors. If there is an intergenerational correlation of work (or program participation) in these cases, then there is state dependence. One possibility is to study the local labor market conditions faced by parents. If a parent lives in a region and time period where jobs are difficult to find or welfare programs are especially generous, then one might suppose that parents would work less and participate more in government programs and do so not necessarily because they are especially unwilling to work or willing to go on welfare.<sup>15</sup> John Antel (1992) pursues this strategy in his analysis of the intergenerational correlation of welfare participation in the National Longitudinal Study of Youth (NLSY) and argues that little of the observed intergenerational correlation can be attributed to “unobserved heterogeneity.” I pursue the same strategy in my PSID sample using PSID reports of local labor market conditions and the Fraker et al. (1985) estimates of welfare generosity by state. The magnitude of the estimated intergenerational correlations are not much different from those reported in Tables 1, 2, 3 and 4, but the estimates are not very precise.<sup>16</sup>

### IV.C. Heterogeneity and the Magnitude of the Family Background Effect

The local labor market strategy is not the only way to refute the importance of “unobserved heterogeneity.” I believe that the *magnitudes* of the intergenerational correlations reported

in Tables 1, 2, 3 and 4 are too high to be fully explained by unobserved heterogeneity. Suppose that the willingness to work or participate were *perfectly* correlated across generations. If the willingness to work (or participate in a welfare program) determined as much as half of observed parental work (or program participation), then the estimated coefficient on parental work would be about 0.5 — an estimate that is not too far from those reported in reported in Tables 1, 3 and 4. But is it really plausible that the unobserved heterogeneity is perfectly transmitted across generations? After all, variables that we do observe — such as height or schooling — are not so perfectly correlated. Based on intergenerational correlations estimated for observable variables, a more realistic estimate of the intergenerational correlation of unobserved heterogeneity is something like  $\frac{1}{3}$  or  $\frac{1}{2}$ .<sup>17</sup> With the unobserved heterogeneity explaining less than half of observed parental work (or program participation), the “unobserved heterogeneity” story can explain an estimated intergenerational correlation of work (or program participation) of no more than  $\frac{1}{6}$  or  $\frac{1}{4}$ . Only Table 2 reports estimates that are so small. The statistical challenge remains to determine exactly how much of the correlation can be attributed to “unobserved heterogeneity” and how much to “state dependence,” but it is clear that “state dependence” is important.

## V. Estimates of the Long-Run Impact of Government Work Disincentives

Many government tax and spending programs discourage work (or in the case of the recent federal welfare reform law, encourage work). How will today’s policies affect the work experiences of the next generation of workers? My results support the hypothesis that more work and less welfare program participation by parents will, with time, encourage work and discourage program participation by children. Furthermore, the estimates reported in Tables 1, 2, 3 and 4 provide the ingredients for an estimate of the magnitude of the effects on children.

Consider the case of unemployment. Suppose that a change in today’s tax, minimum wage, or unemployment compensation policies increase the annual time spent unemployed by men by three weeks. This is a fairly large change in time unemployed if it affects all men, but one might think about the change as affecting mainly a subset of the male population. How much will the policy increases future unemployment by today’s children? Will the increased unemployment arise because some adult children will spend a short amount of time unemployed who otherwise would not have spent any time unemployed? Or will the increase arise from more intense unemployment by those who would have already been unemployed to some degree? To answer these questions, four ingredients are required:

- (i) The magnitude of the effect of parental unemployment on the adult unemployment of a child. This is the parameter  $\pi$  in equation (2).
- (ii) The fraction  $\theta$  of children who would otherwise experience some unemployment (over a typical four-year period).
- (iii) The fraction  $\lambda\theta$  of parent-child pairs for which *both* parents and children otherwise experience some unemployment.
- (iv) The standard deviation  $\sigma$  of nonparental factors ( $\varepsilon$  in equation (2)) determining the unemployment of adult children.

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Ingredient (i), estimates of the parameter  $\pi$  in equation (2), is provided in Table 1. Ingredients (ii) and (iii) are necessary because some sons and fathers are “marginal” while others are “inframarginal.” Under some fairly general assumptions, ingredient (ii) is a good estimate of the fraction of marginal sons and therefore the fraction of sons whose time unemployed would be affected by small changes in the willingness to work. Ingredient (iii) is a good estimate of the fraction of sons who are marginal *and who have marginal fathers* and therefore the fraction of sons whose time unemployed would be affected by a policy that changes the unemployment of fathers. The standard deviation  $\sigma$  of nonparental factors is a measure of the importance of those factors, telling us how changes in the parental factors might affect the fraction of marginal sons.

Table 6 displays the calculations necessary to answer our two questions. We have a typical estimate of  $\pi = 0.5$  from Table 1. The fraction of sons who experience some unemployment during the years 1985-88 who also have fathers that experience some unemployment in the years 1968-71, an estimate of the fraction  $\lambda\theta$  of father-sons pairs with both marginal sons and marginal fathers, is 0.09.<sup>18</sup> The proposed change ( $\delta$ ) in the unemployment of fathers is three weeks, so the product  $3 \times 0.5 \times 0.09$  is 0.135 weeks or 1 day and is displayed in the right-hand column of Table 6.<sup>19</sup> “Marginal” sons — sons who already experience some unemployment during a four-year period — with marginal fathers experience an additional 1.5 weeks of unemployment, but not all sons are marginal and have marginal fathers. The unemployment of nonmarginal sons is, by definition, not affected by small policy changes — it remains zero. Since the direct effect of the policy is assumed to be on today’s parents and the unemployment of nonmarginal fathers is not affected, there are even some marginal sons who are not affected by the policy because the unemployment of their fathers is not affected. The effect on a “typical” son is therefore the product of 1.5 and the fraction 0.09. Note that the effect of one day per year on a *typical* son is not negligible. When the unemployment rate of sons is 6%, a typical son is unemployed three weeks per year. Adding one week to that unemployment time is like increasing the unemployment rate by 2 percentage points and one additional day is like 0.4 percentage points.<sup>20</sup>

34% of sons experience some unemployment during the four-year period that I observe them. How many would experience some unemployment during a four-year period under the proposed policy? The Table displays the prediction of 1.5 additional percentage points. If, in the absence of the policy, the future fraction of sons who would experience some unemployment during a four-year period were 34% as it was for the period 1985-88, then the pool of sons experiencing some unemployment grows by 4%. The 1.5 percentage points prediction is obtained by multiplying  $\delta$  and  $\pi$  by an estimate of the number of currently inframarginal sons who will become marginal. My estimate is  $(1/\sigma)\phi(\Phi^{-1}(\theta))$ , where  $\phi$  and  $\Phi^{-1}$  are the standard normal density and distribution functions, which is an appropriate estimate under the assumption of the Tobit model that unobserved determinants of unemployment are normally distributed across sons. The full product  $\delta\pi(1/\sigma)\phi(\Phi^{-1}(\theta))$  is 0.015 and is reported in the right-hand column of the table.

**Table 6: Quantitative Estimates of Long-Run Policy Effects**

policy change (measured by the effect on today's adults)	Assumptions fraction marginal:				1/σ	quantitative predictions for the future work and welfare program participation of children
	π	child (θ)	both (λθ)			
three more weeks per year of unemp. by men	0.5	0.34	0.09	0.08		<ul style="list-style-type: none"> <li>• one more day per year of unemployment by sons</li> <li>• 1.5% of sons experience some unemployment in a typical four-year period who would not otherwise</li> </ul>
10 more weekly work hours for men	0.2	0.995	0.97	0.08		<ul style="list-style-type: none"> <li>• 2 more weekly work hours for sons</li> <li>• 0.2% of sons do some work in a typical four-year period who would not otherwise</li> </ul>
10 more weekly work hours for women	0.1	0.94	0.65	0.07		<ul style="list-style-type: none"> <li>• 0.7 more weekly work hours for sons</li> <li>• 0.8% of daughters do some work in a typical four-year period who would not otherwise</li> </ul>
increased welfare participation frequencies by 10 percentage points	0.5	0.09	0.03	1.10		<ul style="list-style-type: none"> <li>• 0.2 percentage point higher participation frequencies for daughters</li> <li>• 0.9% of daughters participate for some amount of time who would not have otherwise</li> </ul>
increased Food Stamp participation frequencies by 10 percentage points	0.5	0.12	0.06	1.25		<ul style="list-style-type: none"> <li>• 0.3 percentage point higher participation frequencies for daughters</li> <li>• 1.3% of daughters participate for some amount of time who would not have otherwise</li> </ul>
increased Food Stamp participation frequencies by 10 percentage points	0.4	0.08	0.03	1.25		<ul style="list-style-type: none"> <li>• 0.1 percentage point higher participation frequencies for sons</li> <li>• 0.7% of sons participate for some amount of time who would not have otherwise</li> </ul>

**Notes:** (1)  $\pi$  is the effect of parental work/participation on an adult child's work/participation.  
(2)  $\theta$  is the fraction of adult children who are "marginal" in their work/participation decision.  
(3)  $\lambda\theta$  is the fraction of parent-child pairs in which both parent and child are "marginal."  
(4)  $\sigma$  is the standard deviation of the error term in the Tobit equation. It is estimated with the Tobit regressions reported in Tables 1-4, although not reported in those tables.  
(5) The first of two quantitative estimates for each policy is computed according to the formula  $\delta\pi\lambda\theta$  where  $\delta$  is the policy change. The second is computed according to  $\delta\pi(1/\sigma)\phi(\Phi^{-1}(\theta))$  where  $\phi$  and  $\Phi^{-1}$  are the standard normal density and distribution functions. The normality assumption of the Tobit specification is required for the second.

Based on the estimates in Tables 1, 2, 3 and 4, Table 6 produces similar calculations for weekly work hours, welfare participation, and Food Stamp participation. In the case of weekly work hours, large effects of the policies are found even though the estimates of  $\pi$  seem relatively small. The reason is that the effect on a typical child depends not only on  $\pi$ , the effect on a marginal child with a marginal parent, but on  $\lambda\theta$ , the relative number of such children. Nearly all sons and daughters do some work for pay during a four-year period, so  $\theta$  is quite large.  $\lambda\theta$  is also quite large in this case because, among those sons and daughters who do some work for pay, most have parents who work for pay sometime during the years 1968-71. The proposed policy, however, does not dramatically increase the fraction of marginal children because those fractions are already so high (0.995 for sons and 0.94 for daughters).

Consider the case of welfare participation. Suppose that a change in today's welfare policy doubles the welfare rolls. Since, in the period 1985-88 slightly less than 10% of adult daughters in my PSID-SRC sample received at least some welfare income, doubling the

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welfare rolls would increase the frequency of participation by a typical mother by about 10 percentage points. How much will the policy increase future participation by today's children? The table provides a calculation. The effect on the participation frequency by a typical daughter is fairly small: 0.2 percentage points. With the current participation frequency of roughly 10%, this is a 2% increase in the participation frequency by a typical daughter and therefore 2% of the budgetary cost of welfare for these daughters. Even if we consider the change in the number of daughters who spend at least some time on welfare, the 0.9 percentage point change is 10% of the current figure of 0.09. Why is the aggregate effect so small when the parameter dictating the intergenerational transmission of welfare participation is fairly high? The reason is that relatively few families (3-6% of my PSID-SRC sample) have two consecutive generations participate in the welfare program (which would still be true even if welfare rolls were doubled), so relatively few children are affected. Effects are large for those families affected, but relatively few families are affected. The aggregate effects of the intergenerational transmission of work hours are more important because more parents do some work.

Because the participation frequencies and my estimates are similar for the food stamp and welfare income programs, the quantitative predictions in Table 6 and the reasons for them are similar.

Although the welfare policies analyzed in Table 6 have fairly small effects on the typical member of the next generation because participation in welfare programs is not typical, they do have nonnegligible effects on the fraction of children that do participate. The doubling of the welfare rolls considered in the fourth row of the table increases the fraction of children who participate as adults from 9% to 9.9% — a 10% increase in the number of adult child participants. The Food Stamp policy considered in the fifth and sixth rows has similar effects — a 10% increase in the number of adult child participants (from 12% to 13.3% in the case of daughters and from 8% to 8.7% in the case of sons). This answers the question posed in the introduction — ten additional welfare program participants today means, due to the intergenerational transmission of work ethic, one additional participant among the next generation.<sup>21</sup>

The direction of any of the policy changes in my examples can easily be reversed. Rather than increasing unemployment time by three weeks per year as in the first row of the table, unemployment time could be decreased by three weeks and the predictions are one *less* day per year for a typical son and 1.5 percent of sons do *not* experience unemployment who otherwise would have.

As another example, consider again the case of welfare participation. Suppose that welfare reform succeeds in cutting the welfare rolls in half. Rather than, as in the fourth row of the Table, a 10 percentage point increase, we are now considering a 5 percentage point decrease. How much will the policy decrease future participation by today's children? Once we reverse the direction and cut things in half (a 5 percentage point decrease is half the effect in the opposite direction of the 10 percentage point increase analyzed in the Table), the fourth row of the table provides a calculation. The effect on the participation frequency by a typical daughter is fairly small: 0.1 percentage points. With the current participation frequency of roughly 10%, this is a 1% increase in the participation frequency by a typical daughter and therefore 1% of the budgetary cost of welfare for these daughters (in addition to the 50% effect of the welfare reform itself). Even if we consider the change in the number

of daughters who spend at least some time on welfare, the 0.4 percentage point change is 5% of the current figure of 0.09.

Why is the aggregate effect so small when the parameter dictating the intergenerational transmission of welfare participation is fairly high? The reason is that relatively few families (3-6% of my PSID-SRC sample) have two consecutive generations participate in the welfare program (which would still be true even if welfare rolls were cut in half), so relatively few children are affected. Effects are large for those families affected, but relatively few families are affected.

The calculations in Table 6 neglect some potentially important factors. First, a government policy that changes the current unemployment rate, work hours, or rate of welfare participation may also affect family income. My results in Tables 1, 2, 3 and 4 show that the work decisions of adult children are in fact related to the income of their childhood household. Depending on the form of the policy, family income might increase or decrease but a full calculation for any particular policy would also consider its effects on family income. Second, my analysis considers family influences on family background, but not social influences. An increase in work or decrease in welfare program participation by adults is likely to increase the social value placed on work and decrease the social acceptability of welfare participation.<sup>22</sup> Estimates of the magnitude of social determinants of work and program participation are beyond the scope of this paper, but taking them into account in a calculation of the long-run impact of government work incentives would produce calculations that are larger than those reported in Table 6.

## VI. Summary

This report extends a literature on the intergenerational transfer of welfare dependency — including Antel (1992), Duncan et al. (1988), Gottschalk (1990), Gottschalk et al. (1994), and Zimmerman and Levine (1993) — in several important ways. First, I view unemployment, work hours, AFDC participation and other welfare participation as related behaviors that can be studied with common economic and statistical models. Second, I provide some convincing evidence that the observed intergenerational correlation of work and program participation cannot be entirely attributed to the effects of parental income. Looking at parental income clearly does not provide the whole story. My evidence on this point includes the use of a good measure of parental income in the regression analysis and the consideration of the determination of *both* adult child wages and adult child work and program participation. Third, I add to the argument of Gottschalk (1990) that the entire intergenerational correlation of program participation cannot be attributed to “unobserved heterogeneity.” Fourth, I provide some estimates of the *magnitude* of the importance of the intergenerational transmission of “work ethic” — and by “work ethic” I mean a willingness to work and an unwillingness to participate in welfare programs which may derive from tastes, attitudes, habits, or information — for the long run impact of government policies.

At the micro level, the intergenerational transmission of unemployment and welfare program participation is strong. The intergenerational transmission of work hours is not as strong at the micro level. However, the aggregate effects of the intergenerational transmis-

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sion of work ethic depend not only on the strength of the micro-level transmission, but also on the likelihood of a family's being affected by a government policy. Since work and unemployment are more common than welfare participation, the aggregate intergenerational effects of government policies are likely to be stronger for work hours and unemployment than for welfare participation.

I analyze the effect of government policies as they operate through the family. However, another very important mechanism for the propagation of the effects of a policy may be a social mechanism. It seemed to become socially acceptable, for example, for women to work in the marketplace once a critical mass of women began to work there. Or, as discussed by Lindbeck (1995), participation in a welfare program may be more acceptable when many friends, neighbors and acquaintances are also participating. Future research on the impact of government policy on employment behavior needs to analyze social mechanisms in addition to the family mechanisms studied in this report.

**Appendix: Summary Statistics for the PSID Sample**

<b>Appendix Table 1: PSID Sample Characteristics</b>					
<b>Sons</b>					
	<b>N</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
age in 1986	869	31.4	2.74	27	36
avg. annual family income, (1984-88)	869	27,364	18,101	79	183,624
avg. annual parental fam inc, (67-71)	869	29,023	18,919	3575	234,521
avg. hourly "wage," (1984-88)	856	9.43	5.60	0.80	69.72
av. annual weeks unemp (1984-88)	720	3.23	7.27	0	50.75
dad's av annual wks unemp (68-71)	720	1.24	3.32	0	21.5
av. weekly work hours (1984-88)	720	39.1	12.8	0	112
dad's av hrs/wk (68-71)	720	41.2	13.6	0	89
Food Stamp frequency	869	0.07	0.21	0	1
parental Food Stamp frequency	869	0.14	0.27	0	1
<b>Daughters</b>					
	<b>N</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
age in 1986	921	31.2	2.53	27	36
avg. annual family income, (1984-88)	921	26,973	21,202	620	270,242
avg. annual parental fam inc, (67-71)	921	28,167	20,716	3575	234,521
avg. hourly "wage," (1984-88)	856	7.01	4.83	0.16	53.04
av. weekly work hours (1984-88)	746	25.1	15.6	0	81
mom's av hrs/wk (68-71)	736	12.0	13.5	0	68
dad's av hrs/wk (68-71)	746	41.6	13.3	0	88
welfare frequency	921	0.12	0.30	0	1
parental welfare frequency	921	0.15	0.31	0	1
Food Stamp frequency	921	0.17	0.34	0	1
parental Food Stamp frequency	921	0.16	0.27	0	1
<b>Note:</b> Monetary data (wage and income) converted to 1982 dollars using the CPI for all items (U.S. Council of Economic Advisers, 1992).					

<b>Appendix Table 2: Race</b>		
<b>race</b>	<b>sons</b>	<b>daughters</b>
White	61.2	54.9
Black	38.5	43.5
Other, not reported	0.4	1.6
Total	100.1%	100.0%

## Endnotes

- <sup>1</sup> A person with significant nonwage income may not want to work and therefore have a greater desire to participate in a welfare program, but the high nonwage income may make the person ineligible for the program.
- <sup>2</sup> My discussion implicitly assumes that more parental work and more parental willingness leads to a *greater* willingness to work by adult children. The model, however, allows for either a negative relationship or a positive one. If, for example, more parental work makes children *less* willing to work, the coefficient  $\pi$  in the model would be negative rather than positive. Although it can be interesting to think about negative intergenerational correlations, positive intergenerational correlations turn out to be the only empirically relevant ones — and the results found in this report are no exception.
- <sup>3</sup> The same idea can also be modeled as a government program that directly affects the willingness of a parent to work which affects the willingness of the child to work according to the parameter  $\rho$  in equation (2). The results of this report would not be substantially changed if this alternative modeling strategy were employed.
- <sup>4</sup> See Heckman (1981) for a survey of some of the related econometrics literature.
- <sup>5</sup> See Hill (1992, pp. 8-11) for more on the design of the PSID.
- <sup>6</sup> For more details on the PSID sample, see the Appendix to this report and Mulligan (1997).
- <sup>7</sup> The table necessarily excludes sons for whom a father was not present in any of the years 1968-71. A comparison of the unemployment of sons with the unemployment of his parental household head (which might be his mother) does not exclude these sons and yields smaller estimates of the coefficient on parental unemployment. It is unclear whether the results differ because the sample differs or because sons learn and imitate more from fathers than mothers.
- <sup>8</sup> My interpretation of the magnitudes of the coefficients is only a rough interpretation because Table 1 reports results from a *Tobit* regression rather than an ordinary least squares regression. See the discussion of Tobit regressions below and my quantitative estimates in Section V for more precise interpretations.
- <sup>9</sup> There are exactly zero nonworking sons in the sample where child wages are observed because a child must work for his wage to be observed.
- <sup>10</sup> Many of the other results in this report are robust to discretization of the work and participation variables. Defining the work and participation variables for a child to be 1 when the corresponding work or participation variable from the text is uncensored (as defined by the tables in the text) and 0 when censored, and running probit rather than Tobit regressions — with only one exception — does not change the qualitative results. Not surprisingly, the exception is work hours because they are rarely censored at zero. Detailed results are available from the author upon request.
- <sup>11</sup> U.S. House of Representatives (1994, Section 18).
- <sup>12</sup> It is beyond the scope of this paper to fully analyze determinants of family size. A useful research project would be to study the links between the welfare participation of parents and the fertility of daughters. See Rosenzweig (1995) for an analysis of the effect of today's welfare on current fertility.
- <sup>13</sup> See Altonji and Dunn (1991) for a study of unemployment and work hours in the NLSY. They do not attempt to sort out competing explanations for the intergenerational correlation.
- <sup>14</sup> Another possibility is that, holding constant income, less parental work means that parents spend more time with children which enhances their development and presumably their wage. This

would explain why less parental work or more parental program participation might be associated with a higher wage for children, but not why it would be associated with less work or more program participation by children.

Yet another possibility that is consistent with both the "unobserved heterogeneity" story and with my findings in Table 5 is that occupation is transmitted across generations and that some unemployment is high in some occupations while, in order to compensate for the unemployment, wages are higher in those same occupations.

- 15 Econometrically, I have treated the parental local labor market variables as an instrument for parental work. Of course, adult children are also affected by their local labor market conditions and those conditions might be correlated with the conditions faced by parents years earlier. Thus, one might argue that any permanence of local labor market conditions invalidates my use of the parental conditions as an instrument. While this may be true, I point out that region is part of what parents pass on to children and its effect on the decisions of children should be taken into account together with the other influences parents have on children.
- 16 Details of these results are available from the author upon request.
- 17 Galton's (1889) famous estimate of the correlation of the height of a parent and a child is  $(1/3)$ . Mulligan (1997) estimates roughly  $1/3$  and  $1/2$  for the intergenerational correlation of schooling and earnings, respectively.
- 18 The fraction of sons for my PSID sample is higher, but that sample overweights poor sons. I obtain the 0.09 fraction from the more representative subset of the PSID, the SRC sample. The other estimates of  $\theta$  and  $\lambda\theta$  in the table are also computed from the SRC sample.
- 19 These calculations can be motivated in a fairly simple algebraic model. Let  $x_t$  and  $x_{t+1}$  be the "latent" variables (such as the net utility  $u$  in equation (1)) determining the work/program participation of parent and adult child, respectively. Let  $y_t = \max\{0, x_t\}$  and  $y_{t+1} = \max\{0, x_{t+1}\}$  be the work/participation decisions of parent and child. Finally, let  $x_{t+1} = y_t + v_{t+1}$  describe the determination of the child's latent variable, with  $v_{t+1}$  normally distributed with variance  $\sigma^2$ . The change in average  $y_{t+1}$  per unit change in average  $y_t$  is  $\pi\lambda\theta$ . The change in the fraction of marginal children in average  $y_t$  is approximately  $\pi\phi(\Phi^{-1}(\theta))/\sigma$ .  
 Note that it is assumed that the child's latent variable  $x_{t+1}$  is determined by the parent's actual work/participation  $y_t$ . If instead it were determined by the parent's latent variable  $x_t$ , the change in average  $y_{t+1}$  per unit change in average  $y_t$  would be approximately  $\pi$ , which is much larger than  $\pi\lambda\theta$ . For this reason, the calculations in Table 6 are very conservative.
- 20 Another way to think about my example is that a policy that increases the unemployment rate of fathers today by 6 percentage points increases the future unemployment rate of sons by 0.4 percentage points.
- 21 As noted above in the context of the 0.2 percentage point effect on a typical daughter, the budgetary effects are smaller 1/10 because the new welfare participants participate less frequently than the typical welfare participants.
- 22 See Lindbeck (1995) for a model of such effects.

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