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THE HAPPINESS OF SINGLE MOTHERS AFTER WELFARE REFORM

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Abstract

U.S. welfare programs were transformed by PRWORA. The changes were life altering for those on welfare, or prone to be. What was the impact on happiness? To investigate, I compare the happiness of single mothers before and after PRWORA. Using data from the General Social Survey and the World Value Survey, I find that single mothers' happiness increased during the period. To demonstrate that the observed increase was likely the result of policy changes, I use a Difference in Difference test. Specifically, I compare the happiness of single mothers with low levels of education to the happiness of three comparison groups before and after PWRORA; each comparison group is similar to the single mothers in many respects but unlikely to be affected by the policy changes. PRWORA appears to have increased, and certainly did not decrease, happiness. Alternate explanations, such as robust economic growth and the EITC expansion, are considered.

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I. Introduction

U.S. welfare programs were profoundly altered a little over a decade ago. The reforms eliminated the entitlement to benefits, introduced a lifetime time limit, and imposed compulsory work requirements. The changes were fundamental and presumably life altering for those on welfare, or prone to be.

A basic question naturally follows: What was the impact on *well-being*? Interestingly, this question has not been a focus of the empirical research. That is not to say that welfare reform is understudied. Quite to the contrary, there is a substantial literature that investigates welfare reform's impact on welfare use, employment, earnings, consumption, family structure, and child welfare (excellent reviews include Blank, 2002; Grogger and Karoly, 2005; and Moffitt, 2003). The prior empirical research, however, focuses on programmatic and economic indicators, and not on well-being.

In contrast, well-being is central to economic theory; normative analysis of welfare reform assumes that individuals maximize well-being. Further, economic models predict that compulsory work requirements, all else equal, decrease well-being, since hours spent working generally enters one's utility function negatively (for example, see Besley and Coate, 1992). Thus, based on such models, welfare reform should decrease well-being without a sizeable, offsetting increase in consumption.

This prospect, that welfare reform reduced well-being, should be of concern. Single mothers with low levels of education already reported below average well-being before the reforms. Thus, the preexisting well-being gap could have been exasperated by welfare reform. Further, 'fixing' welfare at the expense of an already disadvantaged group may strike some as unfair.

One paper does discuss welfare reform's impact on poor single mothers' (non-economic) well-being (Meyer and Sullivan, 2006). However, the authors are unable to provide a complete and unconditional answer to the question. The authors find that for each hour of lost non-market time, consumption increased by an average of three dollars. They argue that welfare reform reduced well-being if poor single mothers value their time more than that. To draw this conclusion the authors had to assume that consumption is the only return to working, and that the tradeoff between non-market time and earnings is constant. Thus, using conventional methods, the authors are limited to estimating welfare reform's impact on an economic indicator, consumption, and extrapolating a conditional answer regarding the impact on well-being.

Furthermore, a growing body of research demonstrates that economic indicators are not necessarily a good proxy for well-being. For example, Diener and Seligman (2008) report that, "there are distressingly large, measurable slippages between economic indicators and well-being." These slippages are larger in countries with higher per capital income. Thus, it is potentially misleading to make inferences regarding welfare reform's impact on well-being from the extensive empirical literature.

Thus, economists who study welfare reform face a challenge. They would like to determine the reforms' impact on well-being, but are unable to do so using conventional methods. This challenge is not unique to the study of welfare reform. Economists investigating a host of other questions face a similar dilemma.

One solution that has been suggested is to measure well-being directly. The exact procedure can vary, but it usually involves asking survey respondents how happy, or satisfied with their life, they are. As the reliability and validity of such measures has

been demonstrated, the number of economic research papers that use them has grown markedly (Kahneman and Kreuger, 2006). Researchers have investigated the relationship between self-reported well-being and an array of interesting variables including national income, individual income, governance, health, social relationships, and work (Diener and Seligman, 2008).

In this paper, I extend the use of self-reported well-being measures to the evaluation of social welfare programs. Specifically, I attempt to identify the impact of welfare reform on the happiness of those most likely to be affected by it, single mothers with low levels of education. To do so, I use a difference in difference model. Three comparison groups are used: single women without children and low levels of education, single mothers with high levels of education, and married mothers with low levels of education. Each of these groups are similar in many respects to single mothers with low levels of education but are unlikely to be affected by welfare reform. The data for this study comes from the General Social Survey.

The findings appear to indicate that welfare reform significantly increased the happiness of those most likely to be affected by it. This conclusion is reached only after discrediting a series of alternate explanations, such as, robust economic growth and the expansion of the earned income tax credit. The next section of this paper provides a brief description of welfare reform and the prior research regarding its impact. The third section discusses the importance and feasibility of investigating welfare reform's impact on well-being. The fourth section outlines the identification strategy. The fifth section describes the data that is used for the study. The sixth section examines the average happiness of single mothers with low levels of education. The seventh section presents

the results of the difference in difference model. The final section summarizes and discusses the results.

II. Welfare reform and its estimated impact

In 1935, the Aid to Families with Dependent Children (AFDC) program was established as part of the Social Security Act. It was the nation's first federal welfare program. The program's objective was to support single mothers so that they did not have to work (Grogger and Karoly, 2005). Over the subsequent sixty years, the percentage of mothers who worked outside the home increased dramatically (O'Neill, 2003). As might be expected, societal expectations of welfare recipients evolved in concert. Overtime, AFDC's objective – to support single mothers so that they did not have to work – became obsolete. In response, the welfare reform movement was launched in the 1960s. A primary goal was to move recipients from welfare to work.

A period of policy experimentation culminated in 1996 with the passage of The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which sought to promote work, reduce welfare dependency, support marriage, and reduce illegitimacy (Grogger and Karoly, 2005). PRWORA replaced the AFDC program with the Temporary Assistance for Needy Family (TANF) program. In contrast to the AFDC program, the TANF program had a five year lifetime time limit, required recipients to work in exchange for their benefits, increased state control over program design, included incentives to reduce illegitimate births and single-parent households, and substituted block grants for matching grants (Blank, 2002).

A vast literature has developed to identify the resulting changes in welfare use, employment, earnings and consumption, family structure, and child welfare (again

excellent reviews include Blank, 2002; Grogger and Karoly, 2005; and Moffitt, 2003). The findings appear to indicate that, at least in the short run, welfare reform had the intended effect, reducing welfare use and increasing employment. Further, poor single mothers' consumption does not appear to have been compromised in the process, and may have actually increased (Meyer and Sullivan, 2006). While some questions remain, including what role the robust economy played (Blank, 2002), it appears that welfare reform was successful, at least from the government's perspective.

In contrast, the situation might appear quite different from the perspective of those most likely to be affected by the reforms. As was discussed in the introduction, there is reason to believe (based on simple theoretical models) that PRWORA might reduce the well-being of those affected by the reforms. Further, working, or participating in a welfare-to-work program, creates additional challenges, such as arranging childcare and managing a household while working, which may further reduce well-being.

Yet, there has been almost no discussion in the economics literature of the reform's effect on recipients' (*non-economic*) *well-being*; that is, investigating the impact on well-being beyond the impact on income and consumption. Of the three cited reviews, only two mention such an inquiry. For example, the last sentence of chapter seven in Grogger and Karoly (2005) states that, "further research on broader measures of well-being would usefully complement efforts that have focused on traditional, if limited, measures of income." Blank (2002) develops her thoughts slightly more stating that, "Finally, it is worth noting that many measures of well-being other than income, poverty, or even consumption might seem useful. One might want to know about quality of housing, food intake and nutrition, crime victimization, mental health, health insurance

access, or access to good public education.” Interestingly, each statement is tepid without a sense of urgency or conviction regarding the need for further research.

III. Welfare reform’s impact on well-being is important and measurable

From the discussion above one might conclude that measuring welfare reform’s impact on well-being is unimportant. The reforms were not overtly motivated by a desire to improve recipients’ well-being, and the empirical literature has not investigated the impact on well-being. Furthermore, as was previously discussed, there are large slippages between economic indicators and measures of well-being. Thus, welfare reform’s impact on well-being cannot be determined from the previous research.

Yet, a diverse and growing body of research suggests that it would be valuable and feasible to estimate welfare reform’s impact on well-being. First, four reasons that it is important.

1. It is a central assumption of economic theory that individuals attempt to maximize their well-being (utility). Every choice, including those regarding income, consumption, and welfare use, are a means to an end, and that end is maximizing well-being (Diener and Seligman, 2008). Further, under almost any conceivable social welfare function, when an individual’s well-being increases, or decreases, so does the society’s.
2. Well-being is positively correlated with beneficial outcomes. For example, individuals with higher self-reported well-being are more productivity at work, have higher incomes, and are healthier (Diener and Seligman, 2008).
3. A principal objective of welfare is to increase well-being. When the word ‘welfare’ is used to mean ‘welfare benefit,’ it is defined as ‘something that aids or

promotes well-being' (Wordnet 3.0, Princeton). Thus, it is interesting to determine whether PRWORA increased, or decreased, welfare's effectiveness in meeting a primary objective.

4. Single mothers with low levels of education reported below average well-being prior to PRWORA. If the reforms 'fixed' welfare, from the perspective of the government, but were costly to single mothers with low levels of education, in terms of their well-being, then some may consider the reforms unfair.

Further, welfare reform's impact on well-being can be estimated using self-reported happiness data. Economists were initially skeptical of the utility of such data. Overtime, however, many have come to accept its validity. That is, self-reported happiness data does provide information about a respondent's well-being (Gruber and Mullainathan, 2005). Many objective measures of well-being are positively correlated with self-reported happiness. Individuals who report being happier are:

- rated to be happier by others (spouses, family members, friends, and associates);
- absent from work less;
- more optimistic about the future;
- strikingly more energetic, flexible, and creative; and
- less likely to need psychological counseling (Frey and Stutzer, 2002).

A growing number of economists have been using self-reported happiness data (Kahneman and Kreuger, 2006). The first 'happiness question' that caught economists' attention was, not surprisingly, 'Can happiness be bought?' Interestingly, the answer turns out to be 'yes' and 'no.' 'Yes,' wealthier individuals within a country are happier,

and ‘yes,’ wealthier countries as a group are happier, but ‘no,’ raising per capita income within a country does not lead to increased average national happiness; this is the now famous ‘Easterlin Paradox’ (Graham, 2005). A series of other questions have also been investigated. These include how each of the following affects self-reported happiness: governance, inflation, health, and personal freedom (Frey and Stutzer, 2002).

Most relevant to this research is an innovative study by Gruber and Mullainathan (2005), which explores the impact of tax policy on well-being. The authors use self-reported happiness data to determine how cigarette taxes impact smokers’ well-being. To do so, they compare the happiness of those who are prone to smoking to the happiness of those who are not. Intriguingly, the results indicate that cigarette taxes increased smokers’ happiness. For their findings to be valid, Gruber and Mullainathan had to assert that they were measuring a change in happiness and not a change in measurement error. They argued that the latter was unlikely since they used inter-state time variance in the imposition of cigarette taxes to identify the effect. It is improbable that changes in states’ cigarette taxes corresponded with changes in measurement error. Thus, it was valid to use self-reported happiness for interpersonal comparisons.

IV. Identification strategy: a Difference in Difference (DD) model

In this paper, I extend the use of happiness data to the evaluation of social welfare programs. Specifically, I use self-reported happiness to determine whether welfare reform increased or decreased the well-being of those most likely to be affected by it. Given that the vast majority of welfare recipients are single mothers, and given that single mothers with low levels of education are more likely to be on welfare than are

highly educated single mothers, the study focuses on single mothers with low levels of education¹. This group is called the ‘treatment group.’

Identifying the treatment group based on demographic characteristics is an approach that was pioneered two decades ago by Ellwood and Bane (1985) to study welfare programs and has been used repeatedly since (Gruber and Mullainathan, 2005). This tactic is required here because survey respondents were not asked about their welfare use. The approach also has two distinct advantages over directly identifying welfare recipients. First, it avoids the potential problem of endogeneity between a recipient’s happiness and welfare use. Second, it captures ‘entry’ and ‘exit’ effects of welfare reform. A single mother with a low level of education is included in the treatment group whether or not her choice to use welfare was affected by the reforms².

The ‘first difference’ in the DD model is the change in happiness of single mothers with low levels of education before and after welfare reform. PRWORA was implemented in all fifty states within a seventeen month period, from September 1996 to January 1998 (Grogger and Karoly, 2005). Thus, the pre-reform period includes survey data collected prior to September 1996 and the post-reform period includes data collected after January 1998.

There are numerous plausible explanations (other than welfare reform) for any observed first difference. Thus, causation cannot be demonstrated using the first difference alone. To attempt to isolate welfare reform’s impact on happiness, this study uses three comparison groups, called ‘control groups.’ For these groups to effectively

¹ Women are considered single if they report being separated, divorced, widowed, or never married.

² For a discussion of entry and exit effects see Moffitt (1996).

control for underlying trends in happiness, the members of these groups must share many characteristics with single mothers with low levels of education, but should not be affected by welfare reform, the ‘treatment.’ Three control groups are used: single women without children and low levels of education, single mothers with high levels education, and married mothers with low levels of education. Members of each of these control groups share many characteristics with members of the treatment group. However, each differs from the treatment group in one dimension: parenthood, educational attainment, or marital status, respectively. These differences mean that the control groups are unaffected, or unlikely to be affected, by the reforms. Members of the first group were not eligible for welfare and members of the second and third group were unlikely to be.

The difference between the change in happiness of single mothers with low levels of education and the change in happiness of one of the control groups before and after the reforms is an estimate of welfare reform’s effect on happiness. Specifically, the DD estimator is:

$$(Happiness_{post-PRWORA}^{Treatment} - Happiness_{pre-PRWORA}^{Treatment}) - (Happiness_{post-PRWORA}^{Control} - Happiness_{pre-PRWORA}^{Control}) \quad (1)$$

For the DD estimator to be unbiased two identifying assumptions are necessary. First, there are no additional contemporaneous shocks, other than welfare reform, to the happiness of the treatment and control groups during the period of study. Second, there are no underlying trends in happiness that differ between the treatment group and all of the control groups.

Using three control groups increases the likelihood of satisfying the two identifying assumptions and helps to lessen the chance of generating spurious results. Specifically, if the results are consistent across the control groups, then it is unlikely that

contemporaneous shocks drove the results. This is the case since it is improbable that contemporaneous shocks affected all of the control groups, but did not affect the treatment group. Thus, the credibility of the findings relies on the consistency of the results across the control groups. Further, it is unlikely that there would have been a change in measurement error for the treatment group but not for each of the three control groups. Consequently, an inter-group comparison of happiness should be valid as well.

The DD estimators are calculated using an ordered logit. This is necessary since the primary dependent variable, happiness, is cardinal. Specifically, the following equation is estimated.

$$happy_i^* = \alpha^{post} post_i + \alpha^{treatment} treatment_i + \alpha^{post-treatment} (post_i * treatment_i) + \beta \bullet X_i + \varepsilon_i$$

(2)

where $post_i$ is a post-PRWORA dummy variable that equals one if the survey was administered after January 1998 and zero if it was administered before September 1996; $treatment_i$ is a dummy variable that equals one if the individual i was a single mother with a low level of education and zero otherwise; and X_i is a vector of demographic characteristics for individual i including her age, age squared, the log of real family income, race, self-reported health, employment status, region dummies, and year dummies. $happy_i^*$ is a continuous, unmeasured latent variable; and $happy_i$ is an observed cardinal variable which equals ‘very happy’ if $happy_i^* > \delta_2$, ‘pretty happy’ if $\delta_1 < happy_i^* \leq \delta_2$, and ‘not too happy’ if $happy_i^* \leq \delta_1$ where δ_1 and δ_2 are parameters that must be estimated. The DD estimator is the coefficient on $(post_i * treatment_i)$,

$$\alpha^{post-treatment}.$$

V. Data

The source of data for this study is the General Social Survey (GSS)³. The GSS is a nationally representative survey of households⁴. It has been administered in February, March, and April (almost) annually from 1972 to 1993, and biennially from 1994 to 2006. Since 1972, 51,020 households have been surveyed. The sample size has ranged from 1,371 to 4,510 households. The GSS contains a core set of demographic and attitudinal questions. These include questions that economists would traditionally be interested in, for example, questions regarding real income and years of schooling, as well as a range of other questions regarding attitudes toward religion, politics, and current events.

The GSS is of special interest because one of the core questions asks, “Taken all together, how would you say things are these days -- would you say that you are very happy, pretty happy, or not too happy?” The answer to this question is used as the primary dependent variable, h_i , for this study. h_i is defined to equal one if individual i reports being ‘not too happy,’ two if individual i reports being ‘pretty happy,’ and three if individual i reports being ‘very happy.’

At times, it is helpful to use ‘average happiness:’

$$average - happiness = \left(\sum_{i=1}^N happy_i \right) / N \quad (3)$$

³ The only other nationally representative survey that has asked about subjective well-being for enough years to complete this research is the World Value Survey (WVS). The WVS is only conducted periodically, approximately every five years, and has a smaller sample size. Thus, the GSS was used.

⁴ The 1982 and 1987 Black oversample is dropped. Phase weights are used for the 2004 GSS; the 2004 GSS was the first to introduce phased sampling. These steps ensure a nationally representative sample of households.

where h_i is defined as above and N is the number of observations. However, average happiness is a flawed measure since calculating the mean of a cardinal variable is technically not valid. Thus, average happiness is used for illustrative purposes only; again, all econometric tests use ordered logit.

All men, all full-time students, and all women above the age of 45, are dropped from the sample, since such respondents are unlikely to be on welfare and are not similar to those likely to be on welfare⁵. This leaves 14,374 women in the sample. Their average happiness is 2.2 with 31.8 % reporting being ‘very happy,’ 56.7 percent reporting being ‘pretty happy,’ and 11.5 percent reporting being ‘not too happy’ [see Column (1) of Table I]. Respondents are likely to be high school graduates (83.7 %); white (78.9 %); in good or excellent health (83 %); and employed (66.8 %). On average, they have 1.6 children, report a family income of \$30,214 (in \$2000), and are 32.5 years old.

Estimating equation (2) without the $post_i$, and $treatment_i$ dummies, one is able to estimate a ‘happiness function,’ or an estimate of the impact of various determinants on happiness (Frey and Stutzer, 2002). Specifically, the following equation is estimated using ordered logit:

$$happy_i^* = \beta \cdot X_i + \varepsilon_i \quad (4)$$

where all the variables are defined as before. The results indicate that women are happier if they have higher income, are in excellent health, and completed high school (marginally); and are less happy if they are black, working, unemployed, or in poor or fair health [see Column (1) of Table II]. These findings are generally consistent with

⁵ The minimum age of GSS respondents is 18.

those that have been found previously when estimating the happiness function (Frey and Stutzer, 2002).

VI. The happiness of single mothers with low levels of educations

In this section, single mothers with low levels of education are defined as those who did not complete 12th grade (high school). Comparing this group to all women in the sample, one observes that their demographic characteristics are quite different [compare Columns (1) and (3) of Table I]. The single mothers with low levels of education are less happy, on average, with a smaller percentage reporting being ‘very happy’ and a larger percentage reporting being ‘not too happy’. Further, on average, they have more children; are more likely to be black, unemployed, and in poor or fair health; and report about one-third the income. A difference of means test reveals that each of these differences is significant.

Figure I compares the average happiness of these two groups from 1972 to 2006. Single mothers with low levels of education reported lower happiness in each year. This is perhaps not surprising given the significant differences between the two groups’ demographic characteristics and the results of estimating equation (4), the happiness function. That is, the demographic characteristics that are associated with being a single mother with a low level of education are also associated with being less happy.

To test whether, after controlling for differences in demographic characteristics, single mothers with low levels of education are still less happy than are other women in the sample, I add a ‘single mother with a low level of education’ dummy to equation (4). That is,

$$happy_i^* = \alpha^{sm-low-educ} sm-low-educ_i + \beta \bullet X_i + \varepsilon_i \quad (5)$$

where $sm-low-educ_i$ equals one if individual i is a single mother who did not complete 12th grade and zero otherwise, and all other variables are defined as before.

The coefficient on $sm-low-educ$ is $-.57$ ($z = -4.5$, $p = 0$), indicating that single mothers with low levels of education are significantly less happy than are all other women in the sample even after controlling for demographic differences [see Column (4) of Table II]. As is always the case with ordered logit, the marginal effects are not directly apparent from the coefficient and must be calculated. They are as follows.

Being a single mother with a low level of education is predicted to:

- increase the probability of being ‘not too happy’ by 5.9 percentage points ($z = 3.8$, $p = 0$),
- increase the probability of being ‘pretty happy’ by 4.6 percentage points ($z = 8.8$, $p = 0$), and
- decrease the probability of being ‘very happy’ by 10.5 percentage points ($z = -5.2$, $p = 0$).

If one estimates equation (5) without any covariates, the coefficient on $sm-low-educ$ doubles in size [see Column (2) of Table II]; the first and third marginal effect also grow substantially. This illustrates that a portion of the difference in average happiness between single mothers with low levels of education and other women in the sample is the result of the demographic characteristics of single mothers with low levels of educations.

The other coefficients from estimating equation (5) are strikingly similar to those from estimating equation (4), the happiness function [compare Columns (1) and (4) of Table II]. Each significant coefficient from the latter remains so for the former. The one

exception is the coefficient on *completed high school or more* which is marginally significant, $p < .10$, when equation (4) is estimated, and is not, when equation (5) is estimated. Finally, it should be noted that the relationship between happiness and being a single mother with a low level of education is simply a correlation and does not imply that being a single mother with a low level of education causes a woman to be less happy.

VII. The impact of welfare reform on the happiness of single mothers with low levels of education

Since this analysis is attempting to identify PRWORA's impact, it is limited to the period immediately preceding and succeeding the implementation of the act. The pre-PRWORA period includes data from the 1991, 1993, 1994, and 1996 GSS. The post-PRWORA period includes data from the 1998, 2000, 2002, and 2004 GSS. Data from the 1996 and 1998 GSS can be included in the study, since 47 out of 50 states implemented PRWORA between September 1996 and July 1997 (Grogger and Karoly, 2005). That is, at least five months after the 1996 GSS was administered, and at least six months before the 1998 GSS was administered. The three remaining states implemented PRWORA between September 1997 and January 1998, still prior to the administration of the 1998 GSS.

Four waves of data are included in the pre- and post-PRWORA period to ensure that the treatment group is sufficiently large⁶. Initially, single mothers with low levels of education are defined as those who did not complete 12th grade. There are 356 such

⁶ The results are similar when one drops the 1991 and 2004 GSS data from the analysis. The sign and magnitude of the coefficients remain similar; however, the associated z-scores are generally smaller.

single mothers in the sample, 158 in the pre-PRWORA period and 198 in the post-PRWORA period. Then, to focus the study further on those single mothers most likely to be affected by PRWORA, the analysis is repeated twice more with progressively more restrictive definitions of ‘low level of education.’ First, limiting single mothers with low levels of education to those who did not complete 11th grade, and second, limiting it to those who did not complete 10th grade. There are 207 and 112 such single mothers in the sample, respectively. The three variants of the treatment group are denoted treatment group (less than 12th grade), treatment group (less than 11th grade), and treatment group (less than 10th grade).

A. Control group 1: single women without children with low levels of education

Single ‘non-mothers,’ women without children, with low levels of education are defined as those who, at most, completed 12th grade. Note the discrepancy in the definition of ‘low level of education’ between members of control group 1 and the treatment groups; members of control group 1 could have completed 12th grade, but members of the treatment groups could not have. This difference is necessary since there are not enough single non-mothers who did not complete 12th grade in the sample (94). In contrast, there are 359 single non-mothers who, at most, completed 12th grade.

Comparing members of control group 1 and treatment group (less than 12th grade), one observes that the single mothers are less happy, on average, than are the single non-mothers, with a smaller percentage reporting being ‘very happy’ and a larger percentage reporting being ‘not too happy’ [compare Columns (2) and (5) in Table II]. Further, on average, the single mothers are:

- older and poorer, reporting half the family income;

- less likely to work; and
- more likely to be black, and in poor or fair health.

A difference of means test reveals that each of these differences is significant.

Estimating equation (2) with control group 1 and treatment group (less than 12th grade), the DD estimator, the coefficient on the interaction between $post_i$ and $treatment_i$, is .53 ($z = 1.31$, $p < .189$) [see Column (1) of Table IV]. Although this coefficient is not statistically significant, its positive sign suggests that single mothers with low levels of education may be happier after welfare reform in comparison to members of control group 1.

To focus the analysis on single mothers who are most likely to be affected by the reforms, equation (2) is estimated with control group 1 and each of the two additional treatment groups. The DD estimators are .89 ($z = 1.83$, $p < .067$) and 1.48 ($z = 2.16$, $p < .031$) with treatment group (less than 11th grade) and treatment group (less than 10th grade), respectively [see Columns (2) and (3) of Table IV]. The magnitude and significance of the DD estimator increases as the analysis is progressively more focused on those most likely to be affected by welfare reform; the least educated single mothers. This pattern is consistent with the argument that PRWORA increased happiness.

In terms of the marginal effects, one is statistically significant using the latter two treatment groups. The probability that single mothers with low levels of education reported being ‘not too happy’ after welfare reform is predicted to decrease by 11.0 percentage points ($z = -2.17$, $p < .030$) and 14.2 percentage points ($z = -3.2$, $p < .001$) using treatment group (less than 11th grade) and treatment group (less than 10th grade), respectively. This coefficient is also negative when using treatment group (less than 12th

grade), but is not statistically significant, -8.0 percentage points ($z = -1.41, p < .157$). Thus, it appears that the happiness of single mothers with low levels of education increased because fewer reported the lowest levels of happiness. It is unclear whether those reporting the highest level of happiness, 'very happy,' changed. The coefficient was positive with all three treatment groups, but it was only marginally significant with the last treatment group, +30.4 percentage points ($z = 1.89, p < .059$).

The coefficients on race and health have the same sign and significance level as they had when estimating equation (4), the happiness function. In contrast, the coefficients on income and employment status are now not statistically significant. Finally, the coefficient on *treatment_i* is negative and statistically significant, indicating that single mothers with low levels of education are less happy than are members of control group 1 during the entire study period.

B. Control group 2: single mothers with high levels of education

Highly educated single mothers are defined as those who completed at least 16 years of education (college or more). There are 217 such single non-mothers in the sample. Comparing members of control group 2 and treatment group (less than 12th grade), one observes that single mothers with low levels of education are less happy, on average, than are highly educated single mothers, with a smaller percentage reporting being 'very happy' and a larger percentage reporting being 'not too happy' [compare Columns (2) and (6) in Table III]. Further, on average, the single mothers with low levels of education are:

- younger and poorer, reporting one-third the family income;

- less likely to work; and
- more likely to be black, unemployed, and in poor or fair health.

A difference of means test reveals that each of these differences is significant.

Estimating equation (2) with control group 2 and each of the three treatment groups, the DD estimator increases in magnitude and significance as the analysis focuses on single mothers with progressively fewer years of education, that is, those most likely to be affected by the reforms. The coefficients are .77 ($z = 1.69$, $p < .091$), .89 ($z = 1.83$, $p < .067$), and 1.48 ($z = 2.16$, $p < .031$), respectively [see Columns (4), (5), and (6) of Table IV]. Each coefficient is at least marginally significant, and the positive sign indicates that single mothers with low levels of education are happier after welfare reform compared to members of control group 2. This pattern is again consistent with the argument that PRWORA increased happiness.

The predicted marginal effects indicate that single mothers with low levels of education are less likely to report being ‘not too happy’ after welfare reform. The predicted probabilities are -11.7 percentage points ($z = -1.88$, $p < .060$), -14.8 percentage points ($z = -2.81$, $p < .005$), and -15.7 percentage points ($z = -3.35$, $p < .001$), respectively. In terms of reporting being ‘very happy’ after welfare reform, the results are more ambiguous. The predicted probability is positive using each treatment group, but is only marginally significant using the last two treatment groups. The predicted probability are +11.8 percentage points ($z = 1.52$, $p < .128$), +21.3 percentage points ($z = 1.86$, $p < .063$), and +35.7 percentage points ($z = 1.92$, $p < .055$), respectively. Thus, it appears that the happiness of single mothers with low levels of education increased because fewer single mothers reported the lowest level of happiness; it may also be the

case that happiness increased because more single mothers reported the highest level of happiness.

The sign and significance of the other coefficients are similar to what was found using control group 1. Again, being non-white and being in poor or fair health is associated with lower levels of happiness and being in excellent health is associated with higher levels of happiness. Finally, the coefficient on $treatment_i$ is consistently negative but not statistically significant. This hints, but does not demonstrate, that single mothers with low levels of education are less happy than are highly educated single mothers over the entire study period.

C. Control group 3: married mothers with low levels of education

Initially, married mothers with low levels of education are defined as those who did not complete 12th grade; the same definition that is used for the initial treatment group. Then, as the definition of ‘low level of education’ becomes more restrictive for the treatment group, it also becomes so for control group 3. That is, when ‘low level of education’ is defined as those who did not complete 11th grade for the treatment group, it is defined that way for control group 3; and likewise for the final definition of ‘low level of education,’ those who did not complete 10th grade. In an effort to make this control group as comparable to the treatment group as possible, a restriction is also placed on spouses’ years of school completed. Specifically, all married mothers whose husbands completed more than 12 years of education are dropped from the control group as well.

Comparing members of control group 3 (less than 12th grade) and treatment group (less than 12th grade), one observes that the single mothers are less happy, on average, than are the married mothers, with a smaller percentage reporting being ‘very happy’ and

a larger percentage reporting being ‘not too happy’ [compare Columns (2) and (7) in Table III]. Further, on average, the single mothers are:

- poorer, reporting half the family income;
- less likely to be in fair health; and
- more likely to be black, unemployed, and in excellent health.

A difference of means test reveals that each of these differences is significant.

Interestingly, there is no significant difference in average age, number of children, and percent who report being in poor or fair health. These means were significantly different for treatment group (less than 12th grade) and each of the other two control groups. Thus, control group 3 is more similar to the treatment group on a few dimensions and may be an especially compelling comparison group.

Again, the DD estimator increases in magnitude and significance as the analysis focuses on the mothers with the least education. The coefficients are .67 ($z = 1.36$, $p < .174$), 1.46 ($z = 2.19$, $p < .029$), and 3.27 ($z = 3.25$, $p < .001$), respectively [see Columns (7), (8), and (9) of Table IV]. All three coefficients are positive and two are statistically significant. This pattern is again consistent with the argument that PRWORA increased happiness.

The marginal effects indicate that single mothers with low levels of education are less likely to report being ‘not too happy’ after welfare reform. The predicted probabilities are -11.3 percentage points ($z = -1.44$, $p < .151$), -21.8 percentage points ($z = -2.51$, $p < .012$), and -39.4 percentage points ($z = -4.31$, $p = 0$), respectively. In terms of reporting being ‘very happy’ after welfare reform, the results are again somewhat ambiguous. The predicted probability is always positive, but is only statistically

significant using the last treatment group and only marginally significant using the second to last treatment group. The predicted probability are +10.4 percentage points ($z = 1.25, p < .210$), +25.3 percentage points ($z = 1.91, p < .056$) and +62.1 percentage points ($z = 3.69, p = 0$), respectively. Thus, it appears that the happiness of single mothers with low levels of education increased because fewer single mothers reported the lowest level of happiness; it may also be the case that happiness increased because more single mothers reported the highest level of happiness.

The sign and significance of the other coefficients are similar to what was found using the first two control groups. Again, being black and being in poor or fair health is associated with lower levels of happiness and being in excellent health is associated with higher levels of happiness. Finally, the coefficient on *treatment_i* is consistently negative but not consistently significant. This hints, but does not demonstrate, that single mothers with low levels of education are less happy than are married mothers with low levels of education over the entire study period.

VIII. Discussion

The results appear to indicate that welfare reform increased the happiness of those most likely to be affected by it, single mothers with low levels of education. This increase was caused by a large decrease in the percent who reported being ‘not too happy.’ The marginal effects were predicted to be between 10 and 30 percentage points and were statistically significant using two of the three treatment groups. The evidence also suggests that there was an increase in the percent of single mothers with low levels of education who reported being ‘very happy.’ The marginal effects were again predicted to be sizeable (at least 10 percentage points), but were not consistently statistically

significant. Only one out of nine was statistically significant at $p < .05$ and three out of nine were marginally significant at $p < .10$.

To confirm the credibility of these findings, the following closely related assertions must be shown to be true. First, the observed increase in happiness was caused by welfare reform. Second, there are no plausible alternate explanations for the increase in happiness, for example, robust economic growth or the expansion of the Earned Income Tax Credit.

Two results help corroborate these assertions. First, the estimates were consistent across the three control groups. This implies that the average happiness of single mothers with low levels of education must have increased by a comparable amount in comparison to members of each of the three control groups (after welfare reform). Yet, members of the treatment and control groups were similar in many respects. There was, however, one key difference. Whereas treatment group members were likely to have been affected by welfare reform, few, if any, control group members were. Consequently, welfare reform is a likely cause for the observed increase in happiness. Further, for an alternate explanation to be plausible, it must have had a similarly divergent effect on the happiness of members of the treatment group and each of the control groups (after 1997). Given these parameters, there are no alternate explanations that appear plausible.

Second, the magnitude and significance of the DD estimator increased across the three treatment groups, from treatment group (less than 12th grade) to treatment group (less than 10th grade). Such a pattern should be expected if welfare reform was the cause of the observed increase in happiness, since less educated single mothers are more likely to have been affected by welfare reform. Again, for an alternate explanation to be

plausible, it would have to produce a similar pattern of DD estimators across the three treatment groups. Such an alternate explanation is not evident.

One alternate explanation, however, does deserve special consideration, the expansion of the Earned Income Tax Credit (EITC). The Omnibus Budget Reconciliation Acts of 1990 and 1993 incrementally increased the maximum credit, the phase-in and –out rate of the credit, and the income range that was eligible for the credit between 1991 and 1996. The largest increases occurred in 1994 and 1995, just a couple of years prior to the implementation of PRWORA. Moreover, single mothers with low levels of education who worked were certainly eligible for the EITC. Thus, the expansion of the EITC must be carefully ruled out as an alternate explanation.

As it turns out, there are three compelling reasons that the EITC expansion is not a plausible alternate explanation. First, the expansion would have affected members of control groups 1 and 3 (single non-mothers with low levels of education and married mothers with low levels of education) as well as members of the treatment group. The phase-in and –out rate, the maximum credit, and the eligible income range were increased for each of these groups. Further, each group’s average family income fell within the eligible income range. Yet, the DD estimators were positive, significant, and consistent across all three control groups. Second, the increase in magnitude and significance of the DD estimators across the three treatment groups is inconsistent with the EITC expansion being a valid alternate explanation. Specifically, as the definition of ‘low level of education’ became more stringent, the likelihood that a single mother worked decreased. Thus, one would expect the DD estimators to decrease, and certainly not increase substantially, across the three treatment groups if the expansion had caused the increase

in happiness. Finally, the EITC expansion preceded the implementation of welfare reform. Much of the EITC expansion occurred during the administration of the pre-PRWORA period surveys, specifically, the 1993, 1994, and 1996 GSS. Thus, the DD estimators would be negatively biased, and presumably not statistically significant, if the EITC expansion had caused the increase in happiness.

Interestingly, the findings appear to indicate that for single mothers with low levels of education the cost of working or participating in a welfare-to-work program, in terms of lost non-market time and additional stress, was more than offset by the benefits. Recall that welfare reform did not substantially increase consumption. Thus, there must be positive non-pecuniary effects from working. This may at first appear surprising given conventional economic theory. However, if one believes the findings from happiness research, it is not at all surprising. For example, it has been shown:

- that individuals take pleasure from working, even in mundane jobs;
- that in many cases work activities are more enjoyable than leisure activities; and
- that unemployment adversely affects well-being (Deiner and Seligman, 2008).

Apparently, these findings are true for single mothers with low levels of education (as well as for the general population).

Finally, this research demonstrates the importance and feasibility of incorporating measures of well-being into the evaluation of government policies. Without such measures, one is left with a partial picture of a policy's impact.

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Table I

Demographic characteristics:

entire sample, all single mothers, and single mothers who did not complete 12th grade

Variables	All (1)	Single mothers	
		All (2)	Less than 12th grade (3)
Subjective well-being			
Average happiness*	2.203 (0.63)	1.951 (0.62)	1.847 (0.65)
Very happy	0.318 (0.47)	0.167 (0.37)	0.146 (0.35)
Pretty happy	0.567 (0.50)	0.617 (0.49)	0.555 (0.50)
Very or pretty happy	0.885 (0.32)	0.784 (0.41)	0.701 (0.46)
Not too happy	0.115 (0.32)	0.216 (0.41)	0.299 (0.46)
Education			
Less than high school	0.163 (0.37)	0.254 (0.44)	1.000 (0.00)
High school or more	0.837 (0.37)	0.746 (0.44)	0.000 (0.00)
College or more	0.222 (0.42)	0.114 (0.32)	0.000 (0.00)
Race			
Black	0.156 (0.36)	0.330 (0.47)	0.357 (0.48)
White	0.789 (0.41)	0.605 (0.49)	0.565 (0.50)
Health			
Poor	0.024 (0.15)	0.039 (0.19)	0.059 (0.24)
Fair	0.146 (0.35)	0.208 (0.41)	0.316 (0.47)
Poor or fair	0.170 (0.38)	0.247 (0.43)	0.376 (0.48)
Good	0.474 (0.50)	0.476 (0.50)	0.418 (0.49)
Excellent	0.355 (0.36)	0.277 (0.45)	0.207 (0.41)
Employment status			
Working	0.668 (0.47)	0.676 (0.47)	0.430 (0.50)
Unemployed	0.027 (0.16)	0.049 (0.22)	0.070 (0.25)
Other			
Children	1.666 (1.53)	2.257 (1.36)	2.782 (1.66)
Family income (in 2000 dollars)	\$30,214 (25,784)	\$16,124 (15,147)	\$10,312 (11,344)
Age	32.532 (7.24)	33.678 (7.04)	31.956 (7.45)
Observations	14,374	3,514	890

* where 1 = 'not too happy,' 2 = 'pretty happy,' and 3 = 'very happy'

bolded implies that means are significantly different for 'all women' (column 1) and 'single mother who did not complete 12th grade' (column 3)

Table II

Coefficients from estimating equations (4) and (5)

Variable	(1)	(2)	(3)	(4)
Poorly-educated-single-mother	-	-1.225 (0.077)	-0.5973 (0.124)	-0.5654 (0.125)
Age	0.0195 (0.0275)		0.0183 (0.0273)	0.0260 (0.0275)
Age squared	-0.0004 (0.0004)		-0.0004 (0.0004)	-0.0005 (0.0004)
Log of real income	0.3289 (0.0278)		0.3041 (0.0275)	0.3068 (0.0280)
Black	-0.6060 (0.0659)		-0.5379 (0.0653)	-0.5789 (0.0662)
Other race (not black and not white)	-0.1019 (0.1139)		-0.1841 (0.1117)	-0.1102 (0.1138)
Poor health	-1.2336 (0.1713)		-1.2196 (0.1731)	-1.2358 (0.1723)
Fair health	-0.7279 (0.0691)		-0.7135 (0.0685)	-0.7270 (0.0690)
Excellent health	0.7110 (0.0475)		0.7068 (0.0473)	0.7162 (0.0475)
Completed high school or more	0.1205 (0.0676)		-0.1021 (0.0791)	-0.0704 (0.0793)
Completed college or more	0.0760 (0.0531)		0.0721 (0.0526)	0.0825 (0.0532)
Working	-0.2096 (0.0497)		-0.2218 (0.0483)	-0.2078 (0.0496)
Unemployed	-0.6330 (0.1524)		-0.6374 (0.1501)	-0.6095 (0.1538)
Region dummies	Yes	No	No	Yes
Wave dummies	Yes	No	No	Yes
Marginal effect (poorly-educated-single-mother)				
P(very happy)	-	-0.2036 (0.0091)	-0.1106 (0.0199)	-0.1051 (0.020)
P(pretty happy)	-	0.0245 (0.0072)	0.0472 (0.0046)	0.0464 (0.005)
P(not too happy)	-	0.1792 (0.0151)	0.0634 (0.0159)	0.0586 (0.016)

Bold coefficients are significantly different than zero with $p < 0.05$

Bold Italicized coefficients are significantly different than zero with $p < 0.10$

Table III

Demographic characteristics of the treatment and control groups

Variables	Single mothers (treatment group)				Single non-mothers (control group 1)	Single mothers (control group 2)	Married mothers (control group 3)
	All (1)	Less than 12th grade (2)	Less than 11th grade (3)	Less than 10th grade (4)	Completed 12th grade, at most (5)	Completed college or more (6)	Less than 12th grade (7)
Subjective well-being							
Average happiness*	1.954 (0.62)	1.860 (0.67)	1.870 (0.69)	1.880 (0.74)	2.073 (0.59)	2.058 (0.59)	2.110 (0.68)
Very happy	0.168 (0.37)	0.166 (0.37)	0.179 (0.38)	0.220 (0.42)	0.215 (0.41)	0.205 (0.40)	0.293 (0.46)
Pretty happy	0.617 (0.49)	0.528 (0.50)	0.511 (0.50)	0.440 (0.50)	0.644 (0.48)	0.647 (0.48)	0.524 (0.50)
Very or pretty happy	0.786 (0.41)	0.694 (0.46)	0.690 (0.46)	0.660 (0.48)	0.858 (0.35)	0.853 (0.36)	0.817 (0.39)
Not too happy	0.214 (0.41)	0.306 (0.46)	0.310 (0.46)	0.340 (0.48)	0.142 (0.35)	0.147 (0.36)	0.183 (0.39)
Education							
Less than high school	0.210 (0.41)	1.000 (0.00)	1.000 (0.00)	1.000 (0.00)	0.262 (0.44)	0.000 (0.00)	1.000 (0.00)
High school or more	0.790 (0.41)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.738 (0.44)	1.000 (0.00)	0.000 (0.00)
College or more	0.126 (0.33)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	1.000 (0.00)	0.000 (0.00)
Race							
Black	0.355 (0.48)	0.385 (0.49)	0.309 (0.46)	0.223 (0.42)	0.220 (0.41)	0.267 (0.44)	0.128 (0.33)
White	0.565 (0.50)	0.517 (0.50)	0.599 (0.49)	0.670 (0.47)	0.708 (0.46)	0.645 (0.48)	0.782 (0.41)
Health							
Poor	0.032 (0.18)	0.047 (0.21)	0.058 (0.23)	0.082 (0.28)	0.030 (0.17)	0.017 (0.13)	0.037 (0.19)
Fair	0.200 (0.40)	0.288 (0.45)	0.323 (0.47)	0.341 (0.48)	0.176 (0.38)	0.121 (0.33)	0.244 (0.43)
Poor or fair	0.232 (0.42)	0.335 (0.47)	0.381 (0.49)	0.424 (0.50)	0.206 (0.41)	0.139 (0.35)	0.281 (0.45)
Good	0.489 (0.50)	0.444 (0.50)	0.406 (0.49)	0.376 (0.49)	0.506 (0.50)	0.434 (0.50)	0.578 (0.50)
Excellent	0.279 (0.45)	0.222 (0.42)	0.213 (0.41)	0.200 (0.40)	0.288 (0.45)	0.428 (0.50)	0.141 (0.35)
Employment status							
Working	0.717 (0.45)	0.472 (0.50)	0.464 (0.50)	0.393 (0.49)	0.760 (0.43)	0.899 (0.30)	0.441 (0.50)
Unemployed	0.053 (0.22)	0.084 (0.28)	0.082 (0.28)	0.071 (0.26)	0.092 (0.29)	0.014 (0.12)	0.037 (0.19)
Other							
Children	2.174 (1.26)	2.663 (1.57)	2.850 (1.63)	2.973 (1.72)	0.000 (0.00)	1.805 (0.95)	2.553 (1.38)
Family income (in 2000 dollars)	\$16,042 (14,683)	\$9,511 (8,707)	\$8,651 (7,662)	\$8,345 (7,181)	\$19,006 (15,995)	\$29,396 (21,886)	\$19,165 (17,819)
Age	33.925 (7.03)	31.730 (7.35)	32.411 (7.15)	33.420 (7.08)	28.418 (8.25)	37.392 (5.79)	32.564 (7.31)
Observations	1,698	356	207	112	359	217	188

* where 1 = 'not too happy,' 2 = 'pretty happy,' and 3 = 'very happy'

bolded italicized in column (5) implies that means are significantly different for 'single mothers - less than 12th grade' (column 2) and 'single non-mothers - completed 12th grade, at most' (column 5), $p < 0.05$

bolded italicized in column (6) implies that means are significantly different for 'single mothers - less than 12th grade' (column 2) and 'single mother - completed college or more' (column 6), $p < 0.05$

bolded italicized in column (7) implies that means are significantly different for 'single mothers - less than 12th grade' (column 2) and 'married mother - less than 12th grade' (column 7), $p < 0.05$

Table IV

Coefficients from estimated equation (2)

Variables	Control group 1 - single non-mothers who completed 12th grade, at most			Control group 2 - single mothers who completed college, or more			Control group 3 - married mothers who completed as many grades as the treatment group		
	Treatment group			Treatment group			Treatment group		
	Less than 12th grade (1)	Less than 11th grade (2)	Less than 10th grade (3)	Less than 12th grade (4)	Less than 11th grade (5)	Less than 10th grade (6)	Less than 12th grade (7)	Less than 11th grade (8)	Less than 10th grade (9)
Post	-0.0463 (0.4107)	-0.2174 (0.4600)	-0.1928 (0.5046)	-0.1874 (0.6569)	-0.1707 (0.7283)	-1.5629 (0.6470)	-0.2026 (0.5836)	-0.6315 (0.6485)	-2.4126 (0.8755)
Treatment (i.e., poorly educated single mother)	-0.9430 (0.3167)	-1.013 (0.396)	-1.0893 (0.539)	-0.6067 (0.3585)	-0.655 (0.432)	-0.4919 (0.612)	-0.6980 (0.3238)	-0.721 (0.463)	-1.1951 (0.634)
DD estimator - (post * treatment)	0.5315 (0.4044)	0.886 (0.485)	1.4828 (0.686)	0.7749 (0.4584)	1.252 (0.567)	1.7848 (0.808)	0.6720 (0.4945)	1.461 (0.669)	3.2728 (1.007)
Age	0.1405 (0.1147)	0.165 (0.134)	0.0148 (0.1433)	0.1953 (0.1439)	0.198 (0.197)	0.2072 (0.3090)	0.0507 (0.1414)	0.023 (0.197)	0.1315 (0.2668)
Age squared	-0.0022 (0.0018)	-0.003 (0.002)	-0.0003 (0.0023)	-0.0031 (0.0021)	-0.003 (0.003)	-0.0034 (0.0043)	-0.0010 (0.0022)	-0.001 (0.003)	-0.0021 (0.0039)
Log of real income	-0.0402 (0.1064)	-0.08337 (0.122)	-0.0989 (0.1342)	0.0678 (0.1284)	0.10953 (0.159)	0.1201 (0.1978)	0.0802 (0.1232)	0.12196 (0.175)	0.0368 (0.2358)
Black	-0.6149 (0.2505)	-0.6046 (0.307)	-0.8293 (0.3759)	-0.4645 (0.2671)	-0.40568 (0.318)	-0.7573 (0.3913)	-0.7271 (0.2923)	-0.7452 (0.405)	-1.5889 (0.7097)
Other race (not black and not white)	-0.5797 (0.4734)	-0.20297 (0.447)	0.3398 (0.4508)	-0.9138 (0.4448)	-0.66716 (0.448)	-0.4237 (0.5076)	-0.9255 (0.5432)	-0.50735 (0.574)	0.6557 (0.7479)
Poor health	-1.6039 (0.5869)	-1.7384 (0.656)	-1.9584 (0.7362)	-1.4128 (0.6144)	-1.42974 (0.677)	-1.8038 (0.7560)	-1.0870 (0.7227)	-1.51158 (0.733)	-1.5661 (0.7310)
Fair health	-1.0303 (0.2800)	-1.2167 (0.354)	-1.1081 (0.4182)	-0.9230 (0.2664)	-1.09843 (0.342)	-1.1577 (0.4291)	-1.0216 (0.2627)	-1.26104 (0.389)	-1.0876 (0.5294)
Excellent health	0.5102 (0.2723)	0.55376 (0.298)	0.3960 (0.3213)	0.7110 (0.3058)	0.76675 (0.346)	0.5476 (0.3732)	0.5789 (0.3715)	0.84892 (0.462)	1.2180 (0.6566)
Completed high school or more	-0.4784 (0.2529)	-0.5308 (0.306)	-0.3431 (0.3551)	-	-	-	-	-	-
Working	-0.0375 (0.4478)	-0.10676 (0.360)	-0.2139 (0.4362)	-0.1208 (0.3212)	0.1525 (0.405)	0.3678 (0.5497)	-0.1815 (0.2636)	-0.21491 (0.346)	-0.2349 (0.5276)
Unemployed	0.0000 (0.0000)	-0.09316 (0.532)	-0.4907 (0.6435)	0.1475 (0.5349)	0.27771 (0.674)	0.0107 (0.9455)	-0.0506 (0.5269)	-0.00824 (0.663)	-0.5983 (0.8413)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marginal effect (poorly educated single mother)									
P(very happy)	0.0819 (0.068)	0.1534 (0.0966)	0.3040 (0.1609)	0.1177 (0.077)	0.2135 (0.1146)	0.3571 (0.1861)	0.1036 (0.083)	0.2529 (0.1324)	0.6214 (0.1686)
P(pretty happy)	-0.0016 (0.015)	-0.0435 (0.0499)	-0.1620 (0.1227)	-0.0002 (0.022)	-0.0657 (0.0688)	-0.2000 (0.1491)	0.0095 (0.015)	-0.0354 (0.0597)	-0.2274 (0.1158)
P(not too happy)	-0.0802 (0.057)	-0.1099 (0.0507)	-0.1420 (0.0445)	-0.1175 (0.063)	-0.1478 (0.0527)	-0.1571 (0.0469)	-0.1131 (0.079)	-0.2175 (0.0866)	-0.3940 (0.0913)

bold coefficients are significantly different than zero at $p < 0.05$

bold italicized coefficients are significantly different than zero at $p < 0.10$

Figure I

The average happiness of all women, single mothers who did not complete 12th grade, and all single mother since 1972

