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Welfare reform and the subjective well-being of single mothers

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Abstract Although a large body of research examines the impact of welfare reform, there remains considerable uncertainty as to whether single mothers' *well-being* improved in the wake of these policy changes. Using unique data from the DDB Worldwide Communications Life Style™ survey, this paper exploits a large battery of survey questions on self-reported life satisfaction and physical and mental health to study the impact of welfare reform on the subjective well-being of single mothers. The identification strategy relies on a difference-in-differences framework to estimate intent-to-treat effects for the welfare waiver and *TANF* periods. Results indicate that the bundle of *TANF* reforms had mostly positive effects on single mothers' subjective well-being. These women experienced an increase in life satisfaction, greater optimism about the future, and more financial satisfaction. Furthermore, these improvements did not come at a cost of reducing mental and physical health. Welfare waivers, in contrast, had largely neutral effects on well-being. I provide indirect evidence that the increase in single mothers' employment after welfare reform can plausibly explain the gains in subjective well-being.

Keywords Happiness · Single mothers · Welfare reform

JEL Classification I38 · J08 · I31

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1 Introduction

The 1996 passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) marked the culmination of the USA's transition to a work-based social safety net. Indeed, the early-1990s witnessed an explosion of state-level policy innovation that was aimed at encouraging low-skilled single mothers to reduce welfare dependency and increase participation in the paid labor force. These incremental policy changes became the basis for the federal PRWORA, which ended the legal entitlement to cash assistance by imposing a 60-month lifetime time limit on benefit receipt, requiring welfare recipients to work within 2 years, and sanctioning families that fail to comply with the work requirements.

The descriptive evidence alone provides a compelling case in favor of the employment effects of welfare reform: the fraction of single mothers working without welfare increased from 59% in 1990 to 76% in 2000, 2 years after the last state (California) implemented its reform plan (Herbst 2008). Econometric evaluations confirm that the PRWORA led to sizeable increases in single mothers' employment rates throughout the 1990s, with some studies estimating that the legislation accounts for over one-quarter of the growth (Blank 2002; Fang and Keane 2004; Grogger 2003; Grogger and Karoly 2005; Herbst 2008; Kaestner and Kaushal 2005; Meyer and Rosenbaum 2001).

Less clear, however, are the results regarding single mothers' *well-being* following the implementation of welfare reform. For example, early descriptive studies using nationally representative data document declines in *income* among welfare leavers, compared to the mix of earnings and welfare benefits prior to exit (Bavier 1999; Primus et al. 1999). More recent work by Bollinger et al. (2009) finds that although welfare reform increased the *earnings* of low-skilled single mothers by 20%, much of this gain was offset by reductions in means-tested assistance. Studies of *consumption*, furthermore, suggest that while mothers' material well-being improved over the last few decades, the consumption gains attributable to welfare reform are highly questionable (Meyer and Sullivan 2004). Finally, a review of studies on *health* outcomes by Bitler and Hoynes (2006) points to reductions in health insurance coverage, declines in health services utilization, and inconsistent changes in health outcomes following welfare reform.

The conflicting evidence regarding single mothers' well-being leaves considerable uncertainty as to how these women have fared during the transition to a work-based welfare system. In this paper, therefore, I take a different approach to studying this issue, one that focuses on the influence of welfare reform on mothers' subjective well-being, as captured by survey questions on happiness and life satisfaction. Although there are numerous ways to conceptualize subjective well-being, scholars generally agree that such measures tap both the affective (instantaneous) and cognitive ("remembered") dimensions of quality-of-life (Diener 1984; Kahneman and Deaton 2010). These indicators are increasingly used by economists and psychologists in light

of the growing disconnect between measures of objective well-being (e.g., income and consumption) and self-reported happiness and life satisfaction (Ifcher 2011). In fact, there is mounting evidence that individuals value the attainment of happiness over material goods as a life goal (e.g., Diener and Oishi 2004). Thus, it appears that subjective well-being is fertile ground for the evaluation of public policies.

Yet very little is known about the influence of recent social policy reforms on single mothers' subjective well-being. To my knowledge, the only available evidence comes from two studies documenting trends in mothers' happiness and life satisfaction over time (Herbst 2010; Ifcher and Zarghamee 2010) and one study evaluating the impact of welfare reform (Ifcher 2011). Results in Herbst (2010) and Ifcher and Zarghamee (2010) find that single mothers have historically reported lower levels of well-being than other groups of women. However, the subjective well-being gap narrowed considerably in recent years, with single mothers witnessing absolute and relative increases in most dimensions of subjective quality-of-life. These studies also find that nearly all of the well-being gains occurred after the 1990s tax and transfer reforms were fully implemented (Herbst 2010), and that the passage of the 1996 PRWORA by itself had sizeable positive effects on single mothers' happiness (Ifcher 2011).

This paper contributes to this nascent policy literature by providing evidence on the impact of welfare reform on single mothers' subjective well-being. In doing so, I extend the literature in several ways. First, I utilize novel data from the DDB Worldwide Communications Life Style survey, an annual survey that began in the mid-1970s when the advertising agency DDB Worldwide Communications commissioned a polling firm to inquire about Americans' consumer preferences and habits. These data provide several advantages over the General Social Survey—the standard data source on Americans' happiness—for evaluating welfare reform, including greater periodicity in survey implementation, larger samples of low-income individuals, and access to state identifiers. Second, I exploit the richness of the Life Style survey and explore a variety of subjective well-being measures, ranging from self-reported life satisfaction and financial security to various measures of physical and mental health. Third, the identification strategy relies on a difference-in-differences (D-in-D) framework that allows for heterogeneous well-being effects across the welfare waiver and PRWORA periods. This is an important distinction, as my results suggest that these policy reforms have different consequences for single mothers' subjective well-being.

Drawing on repeated cross-sections of Life Style surveys between 1985 and 2005, the D-in-D results suggest that the passage of states' *TANF* reforms had mostly beneficial effects on single mothers' subjective well-being. Indeed, low-skilled mothers in the post-*TANF* period reported higher levels of life satisfaction, fewer regrets about the past, and greater optimism about the future than single childless women in the comparison group. Interestingly, single mothers also reported higher levels of financial satisfaction following the

implementation of *TANF*. These improvements, moreover, did not come at a cost of reductions in physical and mental health. Single mothers became no more likely to experience stress and anxiety, problems with sleep, or deteriorating physical condition. Welfare waivers, in contrast, had largely neutral effects on mothers' subjective well-being. These results hold after conducting a large number of specification tests and discounting several alternative explanations, including the favorable economic environment throughout the 1990s and the implementation of other social policy reforms.

Results in this study imply that welfare reform influenced single mothers' subjective well-being in ways that are at odds with the findings on objective well-being. A reasonable interpretation of the empirical evidence is that material well-being did not improve markedly following the implementation of PRWORA. On the other hand, results in this study and Ifcher (2011) paint a different picture, one in which mothers' own view of their happiness and life satisfaction did improve. That these women experienced increases in subjective well-being without concomitant increases in material well-being strongly suggests that welfare reform generated large non-pecuniary benefits in the form of higher self-esteem, more personal control, and reductions in the psychic costs associated with welfare receipt. I present indirect evidence in support of this proposition in the final section of the paper.

Two other points are noteworthy. First, by increasing participation in the paid labor force, states' waiver, and *TANF* reforms likely altered the reference group against which single mothers evaluate their own subjective well-being. Assuming that average quality-of-life is higher within the non-welfare population, it appears that mothers' well-being improved despite growing comparisons to happier people. Second, these results are remarkable in light of the evidence that women in general experienced reductions in subjective well-being over the past few decades (Stevenson and Wolfers 2009). That welfare reform—or any public policy—has the potential to inoculate one group against broad well-being changes is provocative and should be the subject of further inquiry.

2 Background

2.1 What is subjective well-being?

The term "subjective well-being," as operationalized by psychologists and economists, captures subjective evaluations about quality-of-life from a given person's point of view (Fischer 2009). As previously mentioned, there is widespread scholarly agreement that measures of subjective well-being comprise both affective and cognitive components. Often referred to as emotional well-being, the former dimension captures instantaneous feelings of and momentary changes in happiness, sadness, and other affectations that indicate the degree of pleasantness or unpleasantness in one's short-run experiences. The latter, in contrast, refers to the rational or intellectual components of

well-being. In particular, it reflects "remembered" well-being that stems from cognitive evaluations about one's life as a whole.[1]

Survey-based measures of subjective well-being generally elicit views on the cognitive dimensions of quality-of-life (Kahneman and Deaton 2010). Such questions tend to inquire about the direction and magnitude of happiness or life satisfaction. For example, the General Social Survey (GSS) since 1972 has asked respondents "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 Life Style survey, in contrast, poses the following statement to its participants: "I am very satisfied with the ways things are going in my life these days." Respondents are then asked to indicate on a six-point Likert scale the intensity of their agreement or disagreement with the statement. Both measures capture global evaluations of subjective well-being, as opposed to domain-specific well-being (e.g., work, leisure, and marriage), and both reflect an assessment of average quality-of-life over substantial time horizons.

Such measures of subjective well-being are gaining considerable traction in applied empirical research, especially in economics.[2] As such, these items have been exposed to extensive reliability and validity tests (e.g., Bertrand and Mullainathan 2001; Krueger and Schkade 2008). Generally speaking, subjective well-being measures are highly correlated with one another and are strongly associated with other dimensions of well-being (Fordyce 1988).[3] For example, reports of global happiness and life satisfaction are highly correlated with such physical attributes as smiling, laughing, and verbal expressions of positive emotion (Frey and Stutzer 2002; Layard 2005). Indicators of physical health, including self-reported health status and sleep quality, also appear to be correlated with subjective well-being (Diener et al. 2006). Happy individuals are rated similarly happy by friends and family, tend to smile and display more positive affect during social interactions, and are less likely to commit suicide (Helliwell 2006; Kahneman and Krueger 2006). Reported happiness responds

[1]Kahneman and Krueger (2006) argue that subjective well-being does not contain a "single, unifying concept that motivates all human choices and registers all relevant feelings and experiences" (p. 4). Consistent with the multi-dimensional nature of subjective well-being, Diener (2006) suggests that it "refers to all of the various types of evaluations, both positive and negative, that people make of their lives. It includes reflective cognitive evaluations, such as life satisfaction and work satisfaction, interest and engagement, and affective reactions to life events, such as joy and sadness. Thus, subjective well-being is an umbrella term for the different valuations people make regarding their lives, the events happening to them, their bodies and minds, and the circumstances in which they live" (pp. 399–400).

[2]See, for example, Frey and Stutzer (2002), Gruber and Mullainathan (2005), and Kahneman and Krueger (2006).

[3]Measures of subjective well-being are also shown to be highly correlated with many objective measures, including income (Stevenson and Wolfers 2008) and macro-economic conditions (e.g., GDP, inflation, and the unemployment rate) (Di Tella et al. 2003).

in predicable ways to changing life events, even though basic personality traits maintain its stability (Ehrhardt et al. 2000). Such evidence led Diener (1984) to conclude that subjective well-being measures contain "substantial amounts of valid variance" (p. 551).[4]

2.2 Welfare reform and subjective well-being: inspecting the mechanisms

In the early-1990s, states began experimenting with aggressive changes to their AFDC programs. Between January of 1993 and August of 1996, 43 states obtained a waiver from the Secretary of Health and Human Services to implement one or more changes to existing federal AFDC statutes. Many of the waivers approved the use of strict and broad-based work requirements, time limits on benefit receipt, and sanctions on families that fail to comply with work requirements. Other states experimented with changes to earnings disregards, which affect the calculation of welfare benefits for employed recipients, and still other states ended the practice of incrementally increasing welfare benefits for each additional child in the family.

These initial changes to the welfare system culminated in the 1996 passage of the PRWORA. Congress repealed the Aid to Families with Dependent Children (AFDC) program and replaced it with Temporary Assistance to Needy Families (*TANF*). The PRWORA eliminated the legal entitlement to cash welfare by imposing a 60-month lifetime time limit on benefit receipt and requiring individuals to leave welfare for work after 2 years. States have the option of initiating sanctions that reduce or eliminate all or part of a family's welfare grant in cases where parents are not exempt from work requirements and not complying with them. In addition to these new federal rules, the PRWORA devolved programmatic and administrative authority to the states, resulting in considerable geographic variation in *TANF* implementation.

Given these dramatic policy changes, it is important to identify the mechanisms through which welfare reform is likely to influence single mothers' subjective well-being. A simple model of the demand for health is a useful way to highlight these mechanisms (Grossman 1972). The model specifies individual utility as a function of current health status, non-market leisure time, the consumption of goods and services, and other demographic characteristics that influence health (e.g., age, race/ethnicity, and educational attainment). In this model, consumption can be both health-promoting (e.g., medical care, physical activity, and healthy food) and health-degrading (e.g., sedentary activities and calorie-dense food). Also important are the environmental inputs

[4]These measures are, however, not without their criticisms (e.g., Bertrand and Mullainathan 2001). For example, a sizeable body of evidence indicates that subjective well-being measures are prone to reporting error stemming from questions order-effects and, more generally, the relative placement of these questions in the survey. It has been shown using the GSS that preceding the global happiness question with one on marital happiness has non-trivial effects on self-reported happiness. In addition, contemporaneous mood (at the time the survey is administered) is found to influence on how people respond to subjective well-being questions.

to the production of health, which, for the purposes of this paper, include the array of federal and state welfare reforms discussed above. An insight from this framework is that work-based welfare reform is predicted to have ambiguous effects on subjective well-being that operate primarily through changes in leisure time and consumption. I elaborate on these mechanisms below.

It is generally assumed that most aspects of welfare reform—particularly work requirements and time limits—increase the opportunity costs associated with leisure time, thus making time-intensive well-being investments (e.g., increased physical activity and healthy meal preparation) less probable. Similarly, increases in the time price of leisure reduce the likelihood that single mothers will participate in formal medical care. For mothers without extensive work histories, the rapid entry into employment coupled with the demands of securing reliable transportation and child care may lead to short-run increases in stress and anxiety. Some new workers, furthermore, might endure hazardous working conditions, substantial physical and emotional expenditures, and unpredictable work schedules. This discussion suggests that reform-induced changes in time allocation can affect mothers' subjective well-being indirectly through changes in physical health behaviors and outcomes, as well as directly through the psychological costs associated with adhering to the law's many requirements.

Welfare reform may also affect subjective well-being through changes in consumption. Specifically, policy-induced changes in income are predicted to alter the mix of health-related goods and services purchased. Such changes can have conflicting effects on health and well-being. For example, single mothers who experience income gains could be more likely to engage in unhealthy activities if these are normal goods. One might therefore expect to see declines in the home production of meals and a rise in sedentary activities, both of which may negatively affect health and well-being. Conversely, rising income might encourage investments in personal growth and well-being, and enable families to purchase household technologies that reduce stress and promote healthy lifestyles. It is important to note that the net effect on subjective well-being may depend on changes in the composition of consumption after welfare reform. For example, fixed work costs such as child care and transportation could increase substantially, leaving few resources available for personal well-being investments. If this is the case, policy-induced increases in income may leave subjective well-being unchanged.

Beyond these changes to leisure and consumption, the employment impact of welfare reform, by itself, can influence single mothers' well-being (e.g., Hallberg and Klevmarken 2003). For example, increases in paid employment may be associated with greater access to high-quality health insurance options, which in turn may affect a variety of health and well-being outcomes. Furthermore, work can have incapacitative effects, leaving less time for destructive behaviors like excessive alcohol and drug consumption. Most importantly, employment is predicted to have substantial psychological and social benefits, ranging from declines in depression and anxiety to increases in self-esteem and personal control (Blanchflower and Oswald 2004; Helliwell 2003). Moreover,

welfare reform may increase well-being by reducing the stigma costs associated with long-term unemployment and program participation (Murphy and Athanasou 1999).

3 Data and identification strategy

3.1 The DDB Worldwide Communications Life Style Survey

I examine the impact of welfare reform on single mothers' subjective well-being using the DDB Worldwide Communications Life Style survey. Each year since 1975, the advertising agency DDB Worldwide Communications commissions Market Facts, a commercial polling firm, to conduct the survey on a sample of approximately 3,500 Americans. The questionnaire covers a remarkably diverse set of topics, ranging from consumer behavior and product preferences to recreational activities and political attitudes. Importantly for the current study, the Life Style survey contains numerous items measuring multiple domains of subjective well-being. These data, along with detailed information on respondents' demographic characteristics, labor market status, and state of residence, provide researchers with a unique opportunity to study subjective well-being and conduct policy evaluations.[5]

These data provide some advantages over the GSS, the primary dataset used to evaluate subjective well-being in the USA. First, whereas the GSS relies on a single question to measure global happiness, the Life Style survey contains numerous items covering multiple dimensions of subjective well-being. In particular, the questionnaire contains items on life satisfaction, optimism about the future, financial security, stress and anxiety, and physical condition. Second, the Life Style survey has been conducted annually since 1975, with all well-being questions asked in precisely the same manner and the data collection procedures remaining stable over time. The consistency in the survey's implementation is advantageous because it renders sufficiently large samples of women at risk of receiving welfare. The GSS, in contrast, operated as an annual survey (except in 1979, 1981, and 1992) until 1994, when it became a biennial survey. This change coincides with the passage of welfare waivers and the PRWORA, making it difficult to exploit the differential timing in the implementation of these reforms to identify their impact on subjective

[5]To my knowledge, Robert Putnam was the first individual to use these data for the purpose of academic research. Specifically, the Life Style survey was a key dataset in his book *Bowling Alone*. Please refer to Putnam's (2000) data appendix for an extensive introduction to these data, as well as a detailed discussion of his reliability tests. See also Putnam and Yonish (1999) and Groeneman (1994) for further information about the survey. This is a proprietary data archive, although the 1975–1998 surveys are freely available on Putnam's (2000) *Bowling Alone* website.

well-being.[6] These data gaps also leave researchers with substantially smaller samples of low-skilled unmarried women on which to conduct social policy evaluations.[7] Third, the Life Style survey provides access to state identifiers, thereby allowing researchers to incorporate auxiliary geographic controls and state fixed effects into the analysis. Finally, given that the Life Style survey is administered through the mail, as opposed to face-to-face interviews (as with the GSS), it allows DDB Worldwide Communications to inquire about highly sensitive issues while ensuring anonymity and reducing social desirability biases (de Leeuw 2005; Dillman et al. 1996; Dillman et al. 2009).

Between 1975 and 1985, the Life Style survey included only married individuals, which is problematic for a study of single mothers. To maintain consistency in the sampling frame, I begin the observation period in 1986.[8] In addition, the survey is based on a form of quota sampling called the mail panel. Briefly, the process for creating the Life Style survey sample begins when Market Facts invites (by mail) large, representative samples to express a willingness to participate in future mail inquires on consumer habits. From this pool of several hundred-thousand individuals, Market Facts then selects a demographically representative sample for the DDB Worldwide Communications Life Style survey. Approximately 5,000 respondents are mailed a written questionnaire, for which the response rate is consistently between 70% and 80%. Mail panels in general and the Life Style survey specifically have been subjected to extensive validity tests (e.g., Groeneman 1994; Heberlein and Baumgartner 1978; Herbst 2011; Putnam and Yonish 1999; Visser et al. 1996). Results from these tests indicate a striking similarity in the distribution of demographic characteristics for respondents in the Life Style survey and GSS; a close agreement in the trends of attitudinal variables common to both surveys; and a strong correspondence in the demographic correlates of those attitudinal variables. As an additional check on the quality of the Life Style

[6]Ifcher (2011), who uses the GSS in his welfare reform study, defines the pre-reform period as 1990, 1991, 1993, 1994, and 1996. The post-reform period includes 1998, 2000, 2002, and 2004. As a result, he does not take advantage of the differential timing in states' implementation of welfare waivers or PRWORA. In addition, the definition of the pre-reform period includes several years in which states implemented welfare waiver reforms. In particular, 3 of the 5 years in the pre-reform period (1993, 1994, and 1996) are marked by state experimentation with federal AFDC statutes, leaving 1990 and 1991 as the only years without any welfare-related policy reforms.

[7]In an early version of the paper, Ifcher's (2009) analysis sample includes 158 low-skilled single mothers in the pre-reform period and 198 in the post-reform period. In addition, Ifcher (2009) is forced to define the treatment and comparison groups differently in order to maintain a sufficient sample size. The treatment group includes single mothers with less than a high school degree, while the comparison group members (single, childless women) are allowed to have such a degree. Ifcher's (2009) analysis sample has just 94 single, childless women without a high school degree, which increases to 359 women when using the higher education cut-off. An implication of the educational imbalance between these groups is that it reduces the comparability of treatment and comparison women, a potential problem in a difference-in-differences framework. In a more recent version of the paper, Ifcher (2011) reports the overall analysis sample size, which includes 2,699 when all unmarried women are retained and only 1,212 when low-skilled unmarried women are retained.

[8]The survey underwent a redesign in 2006. Therefore, I end the observation period in 2005.

survey, I compare in Appendix Table 1 the demographic characteristics of single mothers in the Life Style survey with those from the March Current Population Survey.[9] Both datasets render a very similar portrait of single mothers.

To create the analysis sample, I pool cross-sections of Life Style surveys between 1986 and 2005. The main analyses are conducted on two, increasingly disadvantaged groups of women. First, I retain unmarried women (never married, separated, divorced, and widowed) ages 18 to 60 with less than a college degree (less disadvantaged sample). I then constrain the sample to unmarried women ages 18 to 45 with no more than a high school degree (more disadvantaged sample). I do so to capture groups of single mothers increasingly at-risk of being affected by welfare reform. Indeed, if the estimates from the first sample definition are in fact due to welfare reform, the second set of results should be similar to or larger than (in absolute value) the first set.[10] In both cases, women are retained regardless of the presence of children. I distinguish between single mothers (the eventual treatment group) and single childless women (the eventual comparison group) if the former has at least one child ages 0 to 17. Sample sizes based on the first sample definition range between 6,297 and 6,316 depending on the availability of subjective well-being outcome data. Sample sizes based on the second sample definition range between 2,008 and 2,017. In robust checks, I use as alternative comparison groups low-skilled married mothers and high-skilled single mothers. Sample sizes vary between 11,141 and 11,169 using the former group and 3,094 and 3,104 using the latter group.

This paper exploits the richness of the Life Style survey by studying 10 subjective well-being outcomes that can be usefully divided into "life satisfaction" (five survey items) and "physical and mental health" (five survey items) categories. The primary well-being measure in the former category is a standard questionnaire item tapping explicit feelings about life satisfaction: "I am very satisfied with the way things are going in my life these days." As previously discussed, this item measures global subjective well-being, in that it reflects an averaging of quality-of-life evaluations over multiple domains (Fischer 2009; Kahneman and Deaton 2010; Kahneman et al. 1997).[11] A sample statement in the physical and mental health domain is the following: "I feel I am under a great deal of pressure most of the time." Survey participants

[9] All Appendix Tables in this paper are available online as Electronic Supplementary Material.

[10] A key motivation for conducting the analysis using multiple education criteria is that the broader welfare reform literature is unsettled as to what the most appropriate education cut-off should be. For example, some studies (e.g., Grogger 2003; Herbst 2008; Meyer and Rosenbaum 2001) do not use any education cut-off, while others examine women with a high school degree or less (e.g., Kaushal and Kaestner 2001). Still other studies experiment with multiple education cut-offs (e.g., Bitler et al. 2005; Bitler and Hoynes (2010)).

[11] It is important to reiterate that the measure of life satisfaction used here is fairly close to other standard measures used in the happiness literature. For example, the Eurobarometer survey asks respondents: "On the whole, are you very satisfied, fairly satisfied, not very satisfied, and not at all satisfied with the life you lead?"

are asked to indicate the direction and intensity of their agreement with each statement on a scale of one ("definitely disagree") to six ("definitely agree").[12] In the empirical analysis, I examine the impact of welfare reform on the full distribution of ordered responses as well as the marginal propensity to "definitely agree" or "definitely disagree" with a given response.

Table 1 and Appendix Table 2 provide summary statistics on the subjective well-being outcomes and background characteristics for unmarried women with and without children. For ease of interpretation, I present the fraction of women "generally" or "definitely" agreeing with each statement. Consistent with Herbst (2010) and Ifcher and Zarghamee (2010), the story emerging from these data is that single mothers experience large well-being gaps in comparison to their childless counterparts. For example, approximately 23% of less disadvantaged single mothers report that they are very satisfied with life, compared to 29% among less disadvantaged single women without children.[13] In addition, single mothers are substantially more likely to express regrets about the past, less likely to feel optimistic about the future, and less likely to express financial satisfaction. Looking at the health measures, I find that 47% of less disadvantaged single mothers "feel a great deal of pressure most of the time," whereas about 35% of their childless counterparts do so. Interestingly, the proportion of unmarried women with and without children indicating that they are in "very good physical condition" is about the same (24% versus 23% in the less disadvantaged sample). These well-being differences largely persist when the sample is constrained to the more disadvantaged group of unmarried women.

3.2 Identifying the impact of welfare reform on single mothers' subjective well-being

To examine the impact of welfare reform on single mothers' subjective well-being, I rely on a differences-in-differences estimator. The essence of the D-in-D approach is to compare the change in subjective well-being for a treatment group before and after the implementation of welfare reform to the change experienced by a comparison group. I define the treatment group to include low-skilled unmarried women with children ages 0 to 17. Such women comprise the at-risk population most likely to be influenced by recent reforms to the welfare system. The comparison group includes low-skilled unmarried women without children. These individuals are chosen to represent the counterfactual changes in subjective well-being because they are unlikely to be affected by welfare reform (given that they are ineligible to receive cash assistance) but participate in similar labor markets, have comparable

[12] The full set of responses is the following: 1 (definitely disagree), 2 (generally disagree), 3 (moderately disagree), 4 (moderately agree), 5 (generally agree), and 6 (definitely agree).

[13] The mean for the continuous life satisfaction index is 3.20 (SD = 1.57) for single mothers and 3.44 (SD = 1.56) for single childless women.

Table 1 Subjective well-being among unmarried women

Outcome: percent "generally" or "definitely" agree	Unmarried women ages 18–60 with less than a bachelor's degree		Unmarried women ages 18–45 with not more than a high school degree	
	(1) With children	(2) Without children	(3) With children	(4) Without children
Panel A: measures of life satisfaction				
"I am very satisfied with the way things are going in my life these days"	0.228	0.288***	0.232	0.286***
	(0.420)	(0.452)	(0.422)	(0.452)
"I wish I could leave my present life and do something entirely different"	0.358	0.329**	0.366	0.388
	(0.479)	(0.470)	(0.482)	(0.487)
"If I had my life to live over, I would sure do things differently"	0.647	0.549***	0.676	0.613***
	(0.477)	(0.497)	(0.468)	(0.487)
"I dread the future"	0.146	0.141	0.172	0.167
	(0.353)	(0.348)	(0.378)	(0.373)
"Our family income is high enough to satisfy nearly all our important desires"	0.126	0.202***	0.116	0.198***
	(0.332)	(0.402)	(0.320)	(0.399)
Panel B: measures of physical and mental health				
"I feel I am under a great deal of pressure most of the time"	0.474	0.348***	0.494	0.365***
	(0.499)	(0.476)	(0.500)	(0.481)
"I wish I knew how to relax"	0.382	0.310***	0.418	0.358***
	(0.486)	(0.462)	(0.493)	(0.479)
"I have trouble getting to sleep"	0.310	0.309	0.334	0.332
	(0.462)	(0.462)	(0.472)	(0.471)
"I get more headaches than most people"	0.251	0.193***	0.263	0.243
	(0.434)	(0.395)	(0.440)	(0.429)
"I am in very good physical condition"	0.239	0.227	0.243	0.229
	(0.427)	(0.419)	(0.429)	(0.420)

Calculations come from the DDB Worldwide Communications Life Style survey, 1986–2005. The sample includes in columns (1) and (2) unmarried women (with and without children, respectively) ages 18 to 60 who have less than a B.A. degree. The sample includes in columns (3) and (4) unmarried women (with and without children, respectively) ages 18 to 45 who have no more than a high school degree. All figures represent the percent of respondents "generally" or "definitely" agreeing with each statement. Standard deviations are shown in parentheses

*$p = 0.1$; **$p = 0.05$; ***$p = 0.01$ (indicate that a given mean is statistically significantly different from that for single mothers)

wages, and have been shown to respond identically to changes in labor market conditions as those in the treatment group (Meyer and Rosenbaum 2000, 2001). In robustness checks, I use two alternative comparison groups—low-skilled married mothers and high-skilled single mothers—to ensure that the main results are not spurious.

I structure the D-in-D framework to estimate separate treatment effects for the welfare waiver and *TANF* periods. Therefore, the *pre-reform* period consists of unmarried women in the years prior to the implementation of waivers throughout the early-1990s and the passage of PRWORA in 1996. To capture the welfare waiver period, I create a dummy variable indicating whether a given state implemented one or more waivers to its AFDC program. In particular, the dummy variable takes a value of one if a statewide waiver for work requirements, time limits, welfare benefit sanctions, or family caps was implemented. This policy dummy is coded to "turn on" in the year of the waiver's implementation, even if was not in effect for the entire year.[14] I capture the *TANF* period also through a simple dummy variable that equals unity when a given state implemented its *TANF* plan under the authorization of the PRWORA.[15] There are a number of cases in which a state's welfare waiver and *TANF* policies are both in effect during the same year. I handle these cases by "turning on" the policy that was implemented for the greatest fraction of the year.[16]

Expressed formally, the D-in-D estimates can be generated by the following model:

$$\begin{aligned} Y^{*}_{\text{ist}} = {} & \phi_t + \gamma_1\ Treated_i + \gamma_2\,(Treated_i \times Waiver_t) \\ & + \gamma_3\,(Treated_i \times TANF_t) + X'_{\text{ist}}\beta + \eta_s + \varepsilon_{\text{ist}}, \end{aligned} \tag{1}$$

[14] Crouse (1999) and Grogger and Karoly (2005) provide lists of implementation dates for various welfare waivers. It should be noted that not all states implemented a welfare waiver, and that the implementation dates vary dramatically across these states. Twenty-eight states in the Life Style survey analysis sample had a waiver "turned on" at some point between 1992 and 1997. The first states to implement welfare waivers—in 1992—were California, Michigan, and New Jersey. The welfare waiver period ended in 1997, when California implemented its *TANF* plan (the last state to do so) in January of 1998. The pre-reform period in states with a waiver extends to the year of the waiver's implementation. In the states that did not implement a welfare waiver, the pre-reform period extends until the on-set of *TANF*.

[15] *TANF* implementation dates are taken from Grogger and Karoly (2005). Unlike the waiver period, all states implemented *TANF* reforms, but like the waiver period, there is temporal variation in the timing of implementation. States implemented *TANF* over the period 1996 to 1998.

[16] I implement a robustness check that continues to "turn on" these policy dummies in the year of implementation, but allows the waiver and *TANF* dummies to be "turned on" at the same time (i.e., both dummies take a value of one) during the implementation overlap years. In addition, I implement a check in which the waiver and *TANF* coding is based on the fraction of the year in which each reform is in effect. Results from these additional analyses are quite similar to those discussed in the paper.

where Y^* is a continuous latent representation of a given observed subjective well-being outcome, Y, with thresholds defined by τ, such that

$$Y = \begin{cases} 1 \text{ (definitely disagree) if } \tau_0 = -\infty \leq Y^* < \tau_1 \\ 2 \text{ (generally disgree) if } \tau_1 \leq Y^* < \tau_2 \\ 3 \text{ (moderately disagree) if } \tau_2 \leq Y^* < \tau_3 \\ 4 \text{ (moderately agree) if } \tau_3 \leq Y^* < \tau_4 \\ 5 \text{ (generally agree) if } \tau_4 \leq Y^* < \tau_5 \\ 6 \text{ (definitely agree) if } \tau_5 \leq Y^* < \tau_6 = \infty. \end{cases} \tag{2}$$

Given the ordered nature of the response categories in Y, I estimate (1) using an ordered probit, which standardizes the subjective well-being index conditional on the right-hand-side variables.[17] The vector given by X' represents a number of observable demographic controls, including age; race/ethnicity; educational attainment; and whether the youngest child in the household is ages 3 to 5, ages 6 to 11, or ages 12 to 17 (omitted category is ages 0 to 2).[18] The variable *Treated* is a binary indicator that equals unity if a given individual is a single mother, and *Waiver* and *TANF* represent binary indicators that equal unity when an observation is drawn from the welfare waiver and *TANF* periods, respectively.[19] The ϕ_t represents a vector of period (year) effects, while η_s is a set of state fixed effects.[20] These controls mitigate the concern that social policy reforms reflect underlying state characteristics or are passed in response to evolving national attitudes. The parameters of interest are γ_2 and γ_3, which yield the D-in-D estimates of the impact of welfare reform on the subjective well-being of single mothers. In particular, they capture the change in subjective well-being among single mothers (treatment group) following the implementation of welfare waivers and *TANF*, compared to the change experienced by single childless women (comparison group).

[17] A recent paper by Athey and Imbens (2006), which discusses a "changes-in-changes" model for non-linear outcomes, may have implications for (1), given that it is estimated using an ordered probit model. Under some conditions (e.g., assuming strict monotonicity in the relationship between the unobservables and treatment statuses well as the common assumption of stability in the differences between treatment and comparison group characteristics), estimates from the changes-in-changes model will mirror those from the standard D-in-D model.

[18] With the exception of the presence and number of children in the home and educational attainment, all variables necessary to create the analysis sample (gender, age, and marital status) are measured in precisely the same manner throughout the study period. Between 1986 and 2000, eight age-specific categories capture the presence of children ages 0 to 17. Starting in 2001, the survey was changed to incorporate seven categories. The measure of educational attainment changed three times (1986–1998; 1999, 2000, and 2002–2005; and 2001) throughout the study period. I carefully standardize these measures.

[19] Note that (1) omits controls for employment status and family income, as these are likely to be endogenous. Inclusion of these variables also complicates the interpretation of the estimated effect of *Waiver* and *TANF*, given that welfare reform is expected to work through the employment and income channels.

[20] In robustness checks, I replace the vector of year-specific indicator variables with two dummy variables capturing the entire post-*Waiver* and post-*TANF* periods (in this case, the pre-reform period is the omitted category). The results are very similar to those reported here.

The estimated parameters γ_2 and γ_3 are equivalent to the following:

$$\gamma_{\text{D-in-D}} = \left[E\left(Y_i|G_i = 1,\ T_i = 1\right) - \left(Y_i|G_i = 1,\ T_i = 0\right)\right] - \left[E\left(Y_i|G_i = 0,\ T_i = 1\right) - \left(Y_i|G_i = 0,\ T_i = 0\right)\right], \quad (3)$$

in which the average difference in the comparison group outcome ($G_i = 0$) between the pre-reform ($T_i = 0$) and post-reform ($T_i = 1$) periods is removed from the average difference in the treatment group outcome ($G_i = 1$) over the same period. The second term in (3) is intended to remove biases stemming from common secular trends in subjective well-being and from economic or demographic shocks that similarly influence well-being across the treatment and comparison groups. In other words, the comparison group is used to difference out the change in subjective well-being among treatment individuals that would have occurred without welfare reform. Any differential change in well-being that emerges through the D-in-D parameters γ_2 and γ_3 is therefore attributed to welfare waivers or *TANF*. In this framework, the key identifying assumption is that the change in subjective well-being over time would have been the same for the treatment and comparison group individuals in the absence of welfare reform. I return to this issue in the next section, where I conduct a series of specifications tests to check the plausibility of this assumption.

Given that the *Waiver* and *TANF* variables take a value of one in the year of implementation, the empirical framework implicitly makes two assumptions about the nature of the estimated treatment effects. The first assumption is that of an immediate impact of welfare reform on single mothers' subjective well-being. It is conceivable, however, that the reforms were rolled out over the course of several months after the official implementation date. It is also possible that mothers' well-being was not changed instantaneously by the onset of welfare reform. For these reasons, I ease this assumption by estimating a version of (1) based on *Waiver* and *TANF* variables that take a value of one beginning in the first full year of implementation. Doing so allows several months to elapse before the policy dummies are "turned on" and the treatment effects are estimated. Results from this sensitivity check, which are available upon request, are very similar to those discussed here. The second assumption imposed by the empirical framework is that of homogenous policy treatments and treatment effects across space, time, and sub-groups of single mothers. This is clearly a tenuous assumption, as states made frequent changes to their waiver and *TANF* policies over time. For example, only three states in 1996 included a formal cash diversion program in their *TANF* plan, and only five states operated mandatory job search programs. By 2004, 30 and 20 states, respectively, operated these welfare deterrence polices. Furthermore, the work of Bitler et al. (2006) suggests there is little reason to believe that different groups of single mothers will respond in the same manner to identical policy reforms. It is therefore prudent to interpret the D-in-D estimates as averages of heterogeneous effects of welfare reform across all single mothers in the post-reform periods (Bitler et al. 2006).

It is also important to be clear that the D-in-D parameters in (1) represent intent-to-treat (ITT) effects. The ITT captures the overall reform impact by averaging the treatment effect over those in the treatment group who are affected by the treatment and those who are not affected by the treatment. In the context of this analysis, the ITT provides an average effect of welfare reform across the entire population of single mothers, some of whom are directly influenced by various elements of waiver and *TANF* policy (e.g., work requirements or time limits) and others who are not interacting with the welfare system. From a policy perspective, the ITT is an important parameter because it details the full impact on single mothers' subjective well-being of operating in a work-based social policy environment, irrespective of their welfare participation or employment status.

4 Results

4.1 Descriptive evidence

Before proceeding to the D-in-D estimates derived from (1), it is useful to examine some descriptive evidence on the relative changes in single mothers' subjective well-being between 1986 and 2005. Figures 1 and 2 present trends in two key well-being outcomes for single mothers and single childless women. For ease of interpretation, Fig. 1 displays the trend in the fraction of women who "generally agree" or "definitely agree" with the global life satisfaction

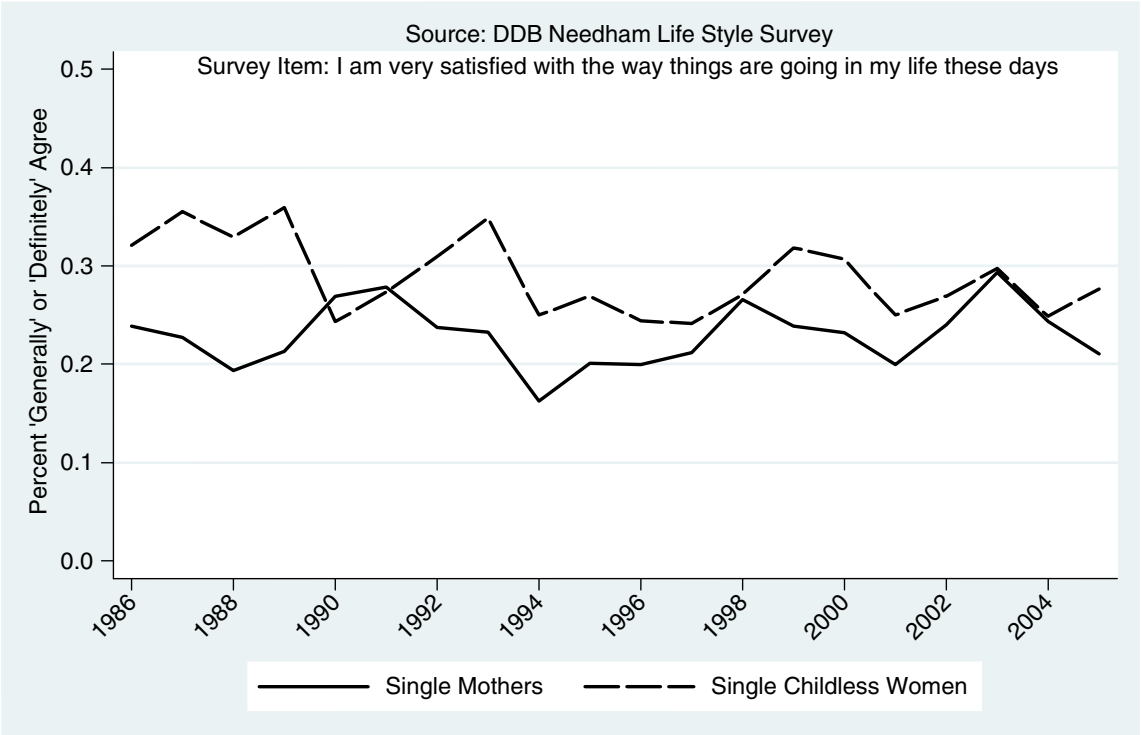

Fig. 1 Life satisfaction among low-skilled unmarried women, 1986–2005. Source: DDB Needham Life Style Survey

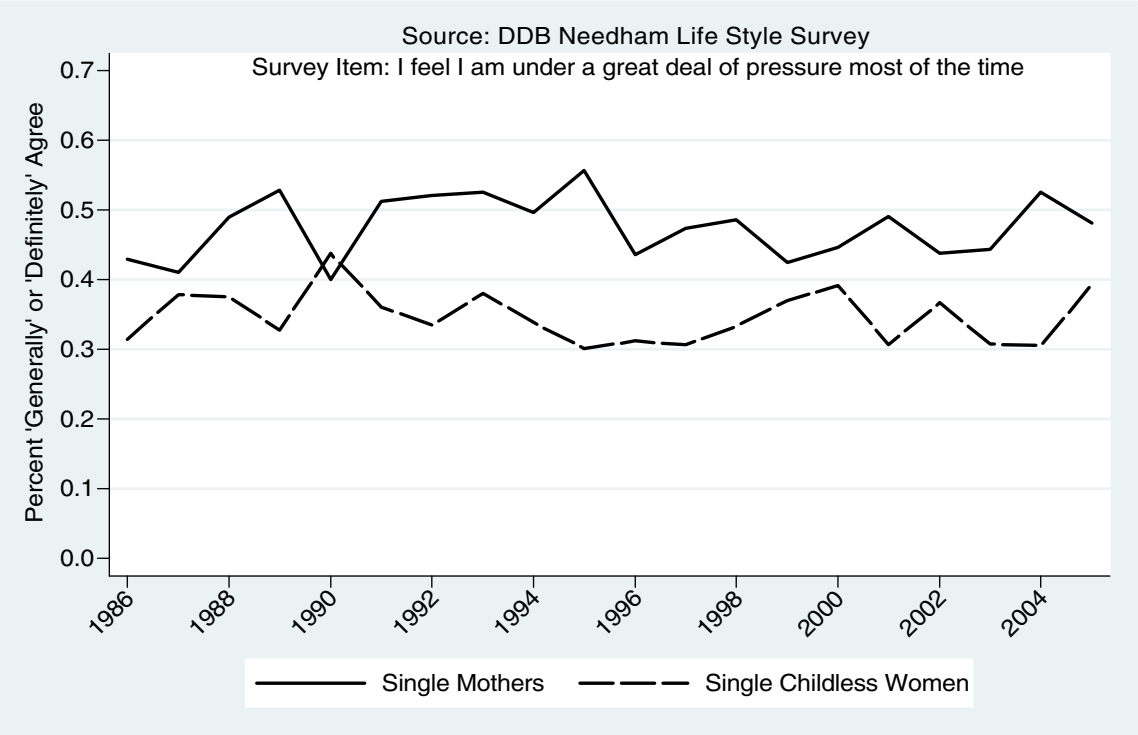

Fig. 2 Feelings of pressure among low-skilled unmarried women, 1986–2005. Source: DDB Needham Life Style Survey

statement ("I am very satisfied with the way things are going in my life these days"), while Fig. 2 presents the analogous trend in agreement with one of the key statements in the health domain ("I am under a great deal of pressure most of the time"). I focus on the sample of unmarried women ages 18 to 60 with less than a bachelor's degree (less disadvantaged sample).

Consistent with the simple means discussed earlier, Fig. 1 reveals that single mothers experienced sizeable life satisfaction gaps throughout most of the two decades spanning 1986 to 2005. Indeed, single mothers are consistently less likely than their childless counterparts to express strong agreement that they are satisfied with life. However, it appears that the well-being gap narrowed considerably starting in the mid-1990s and virtually disappeared by the early-2000s. It is noteworthy that the relative improvement in single mothers' life satisfaction has been driven in part by the absolute increase in well-being: in 1994, approximately 16% of single mothers were very satisfied with life, growing to 23% in 2000 and reaching a peak of 29% in 2003.[21]

[21] To explore life satisfaction trends in more detail, I estimate a regression of life satisfaction ("generally agree" or "definitely agree") on a dummy variable for single mothers and separate linear time trends for single mothers and single women without children (using the less disadvantaged sample). The time trend coefficients reveal an upward trend in single mothers' life satisfaction over the period 1986 to 2005 and a statistically significant downward trend for single women without children. In addition, I conduct an analogous analysis using the more disadvantaged sample of women. I find that single mothers' life satisfaction trended upward (more so than in the less disadvantaged sample), while single women without children continued to experience a statistically significant downward trend in well-being.

A somewhat different story emerges from the trends displayed in Fig. 2. A fairly large well-being gap is evident once again, with single mothers considerably more likely to strongly agree that they are "under a great deal of pressure most of the time." However, there appears to be little change in the gap over time. If anything, single mothers' relative condition worsened slightly throughout the early-1990s, before returning to the initial well-being gap starting in the mid-1990s and remaining steady thereafter. In contrast with single mothers' life satisfaction, there have also been very few absolute changes in this domain of subjective well-being. Throughout the mid-1990s, the fraction of mothers strongly agreeing that they are under pressure hovered around 50%. By the end of the study period, this figure was about 48%.[22]

Table 2 more formally examines the relative change in single mothers' subjective well-being by calculating the raw difference in each outcome for the pre-reform, welfare waiver, and *TANF* periods [columns (1) through (3)]. In column (4), I present the differential change in well-being experienced during the waiver and *TANF* periods, which can be interpreted as the unadjusted D-in-D estimate. To conserve space, I focus on the sample of unmarried women ages 18 to 60 with less than a bachelor's degree (less disadvantaged sample). As is evident from the table, divergent stories emerge once again in the life satisfaction (Panel A) and physical and mental health (Panel B) domains. Regarding the life satisfaction outcomes, there are fairly large differences between single mothers and single childless women during the pre-reform period. The waiver period reveals inconsistent shifts in well-being, while the *TANF* period shows clear improvements in many outcomes. For example, single mothers during the pre-reform period were 7.6 percentage points less likely to be very satisfied with life, a difference that was largely unchanged throughout the welfare waiver period before declining to a 3.9 percentage point gap throughout the *TANF* period. Such changes imply relative improvements in single mothers' life satisfaction of 0.5 and 3.7 percentage points across the waiver and *TANF* periods, respectively, as shown in column (4).

In contrast, measures of physical and mental health reveal very few changes in the relative condition of single mothers in the welfare waiver and *TANF* periods as compared to the pre-reform period. The main exception is the fraction of women claiming to be "under a great deal of pressure most of the time," in which single mothers during the pre-reform years were 11.5 percentage points more likely to agree with this statement, increasing to 21.4 percentage points throughout the waiver years before reverting to the pre-reform difference after the implementation of *TANF*. As shown in column (4), these changes suggest

[22] I conduct a similar time trend analysis for this variable as well. Although the trend coefficient for single mothers is positively signed and the trend coefficient for single women without children is negatively signed, both coefficients are small in magnitude and neither is statistically significant (using the less disadvantaged sample). Similar findings emerge when the analysis is conducted on the more disadvantaged sample.

Table 2 Unadjusted difference-in-differences intent-to-treat estimates

Outcome: percent "generally" or "definitely" agree	Raw difference (treated–comparison) (1) Pre-reform	(2) *Waiver* period	(3) *TANF* period	(4) Unadjusted D-in-D
Panel A: measures of life satisfaction				
"I am very satisfied with the way things are going in my life these days"	−0.076	−0.071	−0.039	*Waiver*: 0.005 (0.040)
	(0.016)	(0.035)	(0.016)	*TANF*: 0.037 (0.023)
"I wish I could leave my present life and do something entirely different"	0.043	0.087	0.003	*Waiver*: 0.044 (0.042)
	(0.018)	(0.038)	(0.018)	*TANF*: −0.040 (0.025)**
"If I had my life to live over, I would sure do things differently"	0.131	0.089	0.070	*Waiver*: −0.042 (0.044)
	(0.018)	(0.040)	(0.018)	*TANF*: −0.060 (0.026)
"I dread the future"	0.002	0.064	−0.007	*Waiver*: 0.061 (0.031)
	(0.013)	(0.030)	(0.012)	*TANF*: −0.009 (0.018)**
"Our family income is high enough to satisfy nearly all our important desires"	−0.091	−0.097	−0.056	*Waiver*: −0.006 (0.034)
	(0.014)	(0.030)	(0.014)	*TANF*: 0.034 (0.020)
Panel B: measures of physical and mental health				
"I feel I am under a great deal of pressure most of the time"	0.115	0.214	0.116	*Waiver*: 0.098 (0.044)
	(0.018)	(0.039)	(0.018)	*TANF*: 0.001 (0.026)**
"I wish I knew how to relax"	0.067	0.100	0.072	*Waiver*: 0.033 (0.042)
	(0.017)	(0.038)	(0.018)	*TANF*: 0.005 (0.025)
"I have trouble getting to sleep"	0.007	0.014	−0.001	*Waiver*: 0.006 (0.041)
	(0.017)	(0.035)	(0.018)	*TANF*: −0.008 (0.024)
"I get more headaches than most people"	0.050	−0.005	0.080	*Waiver*: −0.056 (0.037)
	(0.015)	(0.032)	(0.015)	*TANF*: 0.029 (0.022)**
"I am in very good physical condition"	−0.003	0.028	0.021	*Waiver*: 0.031 (0.038)
	(0.016)	(0.034)	(0.015)	*TANF*: 0.025 (0.022)

For the purposes of this analysis, the sample includes unmarried women (with and without children) ages 18 to 60 who have less than a B.A. degree. The figures in columns (1) through (3) represent the difference between single mothers (treated) and single childless women (comparison) in the percent agreeing ("generally" or "definitely") with each statement in the pre-reform, waiver, and *TANF* periods. Column (4) present the unadjusted difference-in-differences estimates. Standard errors are shown in parentheses

*$p = 0.1$; **$p = 0.05$; ***$p = 0.01$ (indicate that the waiver and *TANF* estimates are statistically significantly different)

that single mothers' relative well-being declined 9.8 percentage points after the passage of waivers and neither improved nor deteriorated after the passage of *TANF*. Aside from this outcome, however, the remaining unadjusted D-in-D waiver and *TANF* effects are small in magnitude and imprecisely estimated.

4.2 Regression-adjusted difference-in-differences estimates

The descriptive evidence suggests that *TANF* had a positive impact on single mothers' life satisfaction outcomes and a neutral impact on mothers' physical and mental health outcomes. Welfare waivers also appear to have neutral effects on subjective well-being. Because low-skilled single mothers and single childless women differ in their demographic characteristics, the raw D-in-D estimates could reflect underlying differences between the groups that are correlated with the subjective well-being outcomes. In addition, the observed differences in well-being could be driven by compositional changes in the treatment and comparison groups rather than the policy treatments themselves. It is therefore important to condition on women's observable characteristics, as well as account for geographic and temporal unobservables that might be correlated with the presence and timing of states' welfare reforms.

Tables 3 and 4 present the main regression-adjusted D-in-D results from (1). Table 3 examines well-being outcomes in the life satisfaction domain, and Table 4 displays the analogous results in the physical and mental health domain. Both tables follow the same format: columns (2) through (4) present the ITT estimates from the sample of unmarried women ages 18 to 60 with less than a bachelor's degree (less disadvantaged sample). Columns (5) through (7) present the analogous results from the sample of unmarried women ages 18 to 45 with no more than a high school degree (more disadvantaged sample). The *p* values (in italics) report the results of a specification test of the equality of ITT treatment effects across the waiver and *TANF* periods. Raw ordered probit coefficients are presented, which are interpreted as standard deviation changes in the subjective well-being index. I also report marginal effects (evaluated at the covariate means) associated with the likelihood of definitely agreeing and definitely disagreeing with each well-being statement. These effects capture changes in well-being at the top and bottom of the ends of the distribution. The standard errors are robust to within-year clustering (Bertrand et al. 2004).[23]

The full model D-in-D results presented in Table 3 continue to show that states' waiver and *TANF* policies had different impacts on single mothers'

[23]The Life Style survey includes weight, but there is insufficient documentation on how the weight is constructed. Therefore, I conduct the analyses using unweighted data. However, applying the weight does not change any of the results discussed in the text.

Table 3 Regression-adjusted difference-in-differences intent-to-treat estimates—life satisfaction domain

Outcome	(1) variable	Unmarried women ages 18–60 with less than a bachelor's degree			Unmarried women ages 18–45 with no more than a high school degree		
		(2) D-in-D: ordered probit	(3) ∂y/∂x: definitely agree	(4) ∂y/∂x: definitely disagree	(5) D-in-D: ordered probit	(6) ∂y/∂x: definitely agree	(7) ∂y/∂x: definitely disagree
"I am very satisfied with the way things are going in my life these days"	*Treated* × *Waiver*	−0.078	−0.011	0.020	−0.076	−0.010	0.021
		(0.069)	(0.009)	(0.018)	(0.133)	(0.017)	(0.038)
	Treated × *TANF*	0.079*	0.013*	−0.020*	0.180***	0.028***	−0.046***
		(0.043)	(0.007)	(0.010)	(0.063)	(0.010)	(0.015)
		p value: 0.005			*p* value: 0.057		
"I wish I could leave my present life and do something entirely different"		0.007	0.001	−0.001	−0.162	−0.044	0.036
		(0.088)	(0.023)	(0.020)	(0.107)	(0.027)	(0.026)
		−0.127**	−0.033**	0.030**	−0.177**	−0.049**	0.039*
		(0.058)	(0.014)	(0.014)	(0.089)	(0.023)	(0.020)
		p value: 0.060			*p* value: 0.896		
"If I had my life to live over, I would sure do things differently"		−0.047	−0.018	0.005	−0.104	−0.040	0.008
		(0.085)	(0.032)	(0.009)	(0.172)	(0.066)	(0.015)
		−0.183***	−0.069***	0.021***	−0.274***	−0.106***	0.024***
		(0.062)	(0.023)	(0.008)	(0.087)	(0.033)	(0.009)
		p value: 0.115			*p* value: 0.365		
"I dread the future"		0.137*	0.019	−0.047*	0.110	0.017	−0.035
		(0.082)	(0.012)	(0.027)	(0.120)	(0.020)	(0.037)
		−0.134**	−0.016**	0.049**	−0.152	−0.021*	0.051
		(0.063)	(0.006)	(0.023)	(0.095)	(0.012)	(0.032)
		p value: 0.000			*p* value: 0.081		

Table 3 (continued)

Outcome	(1) variable	Unmarried women ages 18–60 with less than a bachelor's degree			Unmarried women ages 18–45 with no more than a high school degree		
		(2) D-in-D: ordered probit	(3) ∂y/∂x: definitely agree	(4) ∂y/∂x: definitely disagree	(5) D-in-D: ordered probit	(6) ∂y/∂x: definitely agree	(7) ∂y/∂x: definitely disagree
"Our family income is high enough to satisfy nearly all our important desires"		0.024	0.002	−0.008	−0.131	−0.010	0.049
		(0.070)	(0.007)	(0.024)	(0.108)	(0.007)	(0.041)
		0.145*	0.015*	−0.050**	0.170*	0.015	−0.061*
		(0.076)	(0.008)	(0.025)	(0.099)	(0.010)	(0.035)
		p value: 0.062			*p* value: 0.008		

Estimates in columns (2) and (5) are derived from an ordered probit. Standard errors, shown in parentheses, are adjusted for clustering by year. The dependent variable ranges from 1 (definitely disagree) to 6 (definitely agree). Included in each model are controls for treatment group status (single mother), age, age-squared, race (two dummy variables), educational attainment (two dummy variables), age of the youngest child (three dummy variables), state fixed effects, year dummy variables, and dummy variables to account for missing data on the demographic controls. Marginal effects, presented in columns (3), (4), (6), and (7) relate to the probability of choosing "definitely agree" or "definitely disagree" with each statement, and are evaluated at the means of the control variables. The *p* values come from a test of the null hypothesis of the equality of welfare waiver and *TANF* D-in-D effects

*$p = 0.1$; **$p = 0.05$; ***$p = 0.01$ (indicates statistical significance)

Table 4 Regression-adjusted difference-in-differences intent-to-treat estimates—physical and mental health domain

Outcome	(1) variable	Unmarried women ages 18–60 with less than a bachelor's degree			Unmarried women ages 18–45 with no more than a high school degree		
		(2) D-in-D: ordered probit	(3) ∂y/∂x: definitely agree	(4) ∂y/∂x: definitely disagree	(5) D-in-D: ordered probit	(6) ∂y/∂x: definitely agree	(7) ∂y/∂x: definitely disagree
"I am under a great deal of pressure most of the time"	*Treated* × *Waiver*	0.165*	0.046*	−0.019*	0.300***	0.095***	−0.026***
		(0.093)	(0.028)	(0.010)	(0.107)	(0.036)	(0.007)
	Treated × *TANF*	−0.030	−0.008	0.004	−0.083	−0.023	0.009
		(0.065)	(0.016)	(0.009)	(0.119)	(0.033)	(0.014)
		p value: 0.016			*p* value: 0.004		
"I wish I know how to relax"		0.140	0.039	−0.026	0.149	0.045	−0.024
		(0.097)	(0.028)	(0.017)	(0.159)	(0.051)	(0.024)
		0.043	0.011	−0.008	0.031	0.009	−0.005
		(0.068)	(0.018)	(0.013)	(0.079)	(0.023)	(0.014)
		p value: 0.226			*p* value: 0.394		
"I have trouble getting to sleep"		−0.012	−0.003	0.003	−0.103	−0.024	0.030
		(0.108)	(0.026)	(0.033)	(0.087)	(0.019)	(0.026)
		−0.018	−0.004	0.005	−0.034	−0.008	0.009
		(0.047)	(0.011)	(0.014)	(0.095)	(0.023)	(0.027)
		p value: 0.950			*p* value: 0.437		
"I get more headaches than most people"		−0.175***	−0.029***	0.062***	0.048	0.010	−0.014
		(0.031)	(0.004)	(0.011)	(0.085)	(0.018)	(0.025)
		−0.027	−0.005	0.009	0.072	0.015	−0.022
		(0.054)	(0.010)	(0.019)	(0.090)	(0.020)	(0.027)
		p value: 0.002			*p* value: 0.778		

Table 4 (continued)

Outcome	(1) variable	Unmarried women ages 18–60 with less than a bachelor's degree			Unmarried women ages 18–45 with no more than a high school degree		
		(2) D-in-D: ordered probit	(3) ∂y/∂x: definitely agree	(4) ∂y/∂x: definitely disagree	(5) D-in-D: ordered probit	(6) ∂y/∂x: definitely agree	(7) ∂y/∂x: definitely disagree
"I am in very good physical condition"		0.132***	0.019***	−0.028***	0.109	0.016	−0.022
		(0.041)	(0.006)	(0.008)	(0.093)	(0.014)	(0.018)
		0.065	0.009	−0.014	0.084	0.012	−0.018
		(0.045)	(0.006)	(0.010)	(0.106)	(0.015)	(0.022)
		p value: 0.276			*p* value: 0.757		

Estimates in columns (2) and (5) are derived from an ordered probit. Standard errors, shown in parentheses, are adjusted for clustering by year. The dependent variable ranges from 1 (definitely disagree) to 6 (definitely agree). Included in each model are controls for treatment group status (single mother), age, age-squared, race (two dummy variables), educational attainment (two dummy variables), age of the youngest child (three dummy variables), state fixed effects, year dummy variables, and dummy variables to account for missing data on the demographic controls. Marginal effects, presented in columns (3), (4), (6), and (7) relate to the probability of choosing "definitely agree" or "definitely disagree" with each statement, and are evaluated at the means of the control variables. The *p* values come from a test of the null hypothesis of the equality of welfare waiver and *TANF* D-in-D effects

*$p = 0.1$; **$p = 0.05$; ***$p = 0.01$ (indicates statistical significance)

subjective well-being. The waiver coefficients are generally small in magnitude and imprecisely estimated, implying that states' welfare waivers had little effect on measures of life satisfaction. States' *TANF* reforms, in contrast, led to broad improvements in well-being. For example, the D-in-D estimate in the first row shows that less disadvantaged single mothers witnessed a 0.08 standard deviation increase in life satisfaction following the implementation of *TANF* [column (2)]. More disadvantaged single mothers, on the other hand, witnessed a substantially larger improvement in life satisfaction (0.18 standard deviations) [column (5)], suggesting that groups of women more at-risk of receiving welfare became better-off after welfare reform.[24]

One way to assess the magnitude of this treatment effect is to compare the raw ordered probit coefficient to the standard deviation of the life satisfaction index for single mothers in the pre-reform period. Doing so implies that the impact of *TANF* is equivalent to about 5% of a standard deviation in less disadvantaged single mothers' pre-reform life satisfaction (0.08/1.598), and 11% of a standard deviation in more disadvantaged single mothers' pre-reform life satisfaction (0.180/1.611). Another way to interpret the *TANF* impact is through marginal effects, which are shown in columns (3), (4), (6), and (7). These effects indicate that less disadvantaged single mothers became 1.3 percentage points more likely to be in the top life satisfaction category ("definitely agree") and 2.0 percentage points less likely to be in the bottom life satisfaction category ("definitely disagree") following the implementation of *TANF*. Given that 8.2% of pre-reform single mothers are in the top category and 22.3% are in the bottom category, these marginal effects translate to well-being improvements of 16% and 9%, respectively. The analogous life satisfaction gains among more disadvantaged mothers are 36% and 19%, respectively.

Single mothers also experienced sizeable reductions in regrets about the past ("I wish I could leave my present life and do something entirely different" and "If I had my life to live over, I would sure do things differently"), increased optimism about the future ("I dread the future"), and increased financial satisfaction ("Our family income is high enough to satisfy nearly all our important desires"). The improvement in self-reported financial satisfaction is interesting in light of the inconsistent evidence using measures of objective well-being. The D-in-D estimate shows that less disadvantaged single mothers experienced a 0.15 standard deviation increase in self-reported financial satisfaction after the implementation of *TANF*. Translated to marginal effects, the coefficient

[24] As an additional check, I estimate the model on women with less than a high school degree, which represents an even more disadvantaged sample. Although the estimates are imprecisely estimated (due to a very small sample size), the results suggest that both welfare waivers and *TANF* are associated with reductions in life satisfaction. For example, the D-in-D *TANF* estimate is −0.06 (standard error, 0.13).

implies a 1.5 percentage point increase in the likelihood of being in the top financial satisfaction category (from a base mean of 3.6%) and a 5.0 percentage point reduction in the likelihood of being the bottom category (from a base mean of 41.9%). Thus, less disadvantaged single mothers' financial satisfaction improved by 41.6% and 11.9%, respectively, following the passage of *TANF*. More disadvantaged mothers witnessed similar changes in this domain of subjective well-being.

Turning to the health outcomes in Table 4, I find that, consistent with the descriptive evidence discussed earlier, the implementation of welfare waivers and *TANF* had mostly neutral effects on single mothers' physical and mental health. Moreover, the health of more disadvantaged mothers [columns (5) through (7)] remained unchanged after welfare reform. For example, both sets of policy reforms had inconsistent impacts on measures of stress and anxiety ("I feel I am under a great deal of pressure most of time" and "I wish I knew how to relax") and self-reported sleep quality ("I have trouble getting to sleep"). Interestingly, waiver-based reforms appear to have decreased the propensity of less disadvantaged single mothers to experience headaches and increased the propensity to report being in very good physical condition. Although the *TANF* D-in-D estimates also point to improvements in these well-being domains, the effect sizes are smaller than is the case for welfare waivers, and the coefficients are imprecisely estimated.

As noted in the previous section, the empirical model was structured to allow for heterogeneous well-being effects across the welfare waiver and *TANF* periods. The results discussed so far provide some indication that single mothers responded differently to these policy reforms. Tables 3 and 4 formalize this by testing the null hypothesis of equal D-in-D effects across the waiver and *TANF* periods. As indicated by the p value under each set of ordered probit results, there is fairly strong evidence that both policy reforms shaped mothers' subjective well-being in different ways. The null hypothesis of equal treatment effects is rejected in seven of 10 models in the life satisfaction domain, and is rejected in three of 10 models in the health domain. A fairly clear pattern emerges in which the (mostly positive) changes in well-being experienced by single mothers after *TANF* is larger than that experienced after welfare waivers. Such a pattern of differential effects is largely consistent with that found in studies of objective well-being measures. Generally speaking, *TANF* is associated with larger reductions in welfare utilization (Schoeni and Blank 2000), larger increases in employment (e.g., Herbst 2008), and greater increases in earnings (e.g., Bollinger et al. 2009) than welfare waivers.

4.3 Specification tests

In this section, I discuss results from a battery of specification tests intended to check the robustness of the main results. Although all of these robustness checks are not presented in tabular form here, those that are can be found in

Table 5 Robustness checks

Outcome	(1) Comparison group: married mothers	(2) Comparison group: high-ed single mothers	(3) Control for state economic conditions	(4) Add state time trends
Panel A: life satisfaction				
"I am very satisfied with the way things are going in my life these days"	−0.028 (0.061) 0.077* (0.046)	−0.036 (0.064) 0.105 (0.077)	−0.080 (0.068) 0.081** (0.041)	−0.083 (0.068) 0.074* (0.043)
"I wish I could leave my present life and do something entirely different"	0.018 (0.095) −0.009 (0.049)	−0.071 (0.101) −0.217*** (0.081)	0.003 (0.088) −0.115** (0.058)	0.009 (0.090) −0.127** (0.059)
"If I had my life to live over, I would sure do things differently"	−0.048 (0.068) −0.137** (0.055)	−0.067 (0.072) −0.299*** (0.070)	−0.054 (0.081) −0.134** (0.068)	−0.046 (0.085) −0.177*** (0.061)
"I dread the future"	0.217*** (0.069) −0.039 (0.045)	0.076 (0.070) −0.135** (0.059)	0.135 (0.084) −0.127** (0.058)	0.149* (0.080) −0.120* (0.065)
"Our family income is high enough to satisfy nearly all our important desires"	0.001 (0.056) 0.190*** (0.061)	−0.082 (0.058) 0.069 (0.084)	0.027 (0.070) 0.166* (0.088)	0.023 (0.070) 0.144* (0.075)
Panel B: physical and mental health				
"I feel I am under a great deal of pressure most of the time"	0.083 (0.083) −0.062 (0.052)	0.088 (0.091) −0.132 (0.086)	0.167* (0.088) 0.004 (0.070)	0.171* (0.095) −0.024 (0.065)
"I wish I knew how to relax"	0.082 (0.091) −0.005 (0.045)	0.013 (0.116) −0.126 (0.095)	0.142 (0.095) 0.106 (0.071)	0.144 (0.097) 0.043 (0.068)
"I have trouble getting to sleep"	−0.056 (0.095) −0.007 (0.044)	−0.078 (0.147) −0.023 (0.090)	−0.006 (0.106) −0.013 (0.056)	−0.017 (0.108) −0.017 (0.047)
"I get more headaches than most people"	−0.143*** (0.036) 0.030 (0.054)	−0.177*** (0.051) 0.040 (0.071)	−0.172*** (0.032) −0.031 (0.064)	−0.179*** (0.030) −0.018 (0.053)
"I am in very good physical condition"	0.152** (0.060) 0.056 (0.047)	0.179*** (0.059) −0.006 (0.088)	0.125*** (0.042) 0.083 (0.054)	0.139*** (0.043) 0.059 (0.046)

All models are estimated using an ordered probit. The first coefficient in each cell is the D-in-D estimate for welfare waivers, and the second coefficient is that for *TANF*. Column (1) uses low-skilled married women (i.e., those with less than a bachelor's degree) as the comparison group. Column (2) uses high-skilled single mothers (i.e., those with a bachelor's degree and above) as the comparison group. Column (3) adds the state unemployment rate and an interaction between the unemployment rate and the single mother dummy. Column (4) adds state-specific linear time trends. Standard errors, which shown in parentheses, are adjusted for clustering by year. See the notes in Tables 3 and 4 for a list of the controls included in the model. All models include state and year fixed effects
*$p = 0.1$; **$p = 0.05$; ***$p = 0.01$ (indicates statistical significance)

Table 5 and Appendix Tables 3, 4, and 5. Results from the remaining analyses are available from the author upon request.[25]

I first experiment with alternative comparison groups to identify the impact of welfare reform on single mothers' subjective well-being. In particular, I use married mothers with less than a bachelor's degree and single mothers with a bachelor's degree and above as additional comparison groups. Although no group will perfectly represent the counterfactual change in single mothers' well-being, a finding of consistent treatment effects across different comparison groups should bolster confidence in the main results. Furthermore, the alternatives identified above are consistently used in previous welfare reform studies (e.g., Ifcher 2011; Meyer and Sullivan 2004). Columns (1) and (2) in Table 5 present D-in-D estimates based on these additional comparison groups. The results are consistently qualitatively similar to those using single childless women as the comparison group, and in most cases the coefficients imply treatment effects of a similar magnitude.

One possible explanation for the D-in-D results is that local labor market conditions affect the subjective well-being of single mothers differently than single childless women. As is well-known in the welfare reform literature, the US economy grew at a fast pace during the period in which welfare waivers and *TANF* reforms were implemented, making it difficult to disentangle the impact of welfare reform from the influence of the economic environment. Therefore, to purge the estimated treatment effects of confounding economic conditions, I add to the model the annual state-level unemployment rate and an interaction between *Treated* and the unemployment rate. As shown in column (3) in Table 5, the D-in-D estimates are virtually unchanged. The coefficient on the interaction between *Treated* and the unemployment rate is close to zero and statistically insignificant, suggesting that single mothers and their childless counterparts are not differentially affected by local labor market conditions. Such a result bolsters confidence in the appropriateness of single women without children as a comparison group.

Another explanation for the D-in-D results is the presence of other social policies that were implemented or reformed contemporaneously with the onset of welfare reform. For example, the federal EITC underwent three expansions and states made substantial changes to the generosity of AFDC/*TANF* benefits during the period covered in this analysis. More broadly, the estimated treatment effects could instead be due to unobserved state-level stocks of human capital and wealth as well as political and social norms related to social policy preferences and subjective well-being. To purge the estimates of these confounding policy, economic, and cultural factors, I add to the model a set of auxiliary state-level controls: combined federal/state EITC maximum credit, maximum AFDC/*TANF* benefit, log of per capita income, log of population

[25]To conserve space, all robustness checks presented and discussed here come from the less disadvantaged sample of unmarried women (i.e., those ages 18 to 60 with less than a bachelor's degree). However, all of these analyses are estimated on the more disadvantaged sample (i.e., those ages 18 to 45 with no more than a high school degree) as well, and the results are comparable.

density, a dummy variable to indicate Republican governors, and the fraction of individuals voting Republican in the previous presidential election.[26] In results not presented here, I find that the estimated effect of welfare waivers and *TANF* is robust to the inclusion of these additional controls.

As previously mentioned, the key identifying assumption for the D-in-D estimates to hold is that of a common trend in the well-being outcomes across women in the treatment and comparison groups in the absence of welfare reform. If treated and untreated women follow different time paths in subjective well-being, the estimated effects of welfare reform could reflect these differences. Given the importance of this assumption, I conduct a number of tests to examine whether it is likely to hold. First, I systematically assess the degree of similarity in pre-reform subjective well-being trends across single mothers and single childless women. Although it is not possible to examine post-reform trends in the absence of reform, a finding of common pre-reform trends may bolster confidence in the ability to extrapolate these into the post-reform period. Appendix Table 3 presents results from an ordered probit regression of each well-being outcome on separate linear time trends for single mothers and single childless women as well as a full set of demographic controls. This model is estimated on the period 1986 to 1996. Columns (1) and (2) present the time trend coefficients, and column (3) tests for the difference in these trends. There is consistent evidence that the pre-reform trends in subjective well-being are not significantly different for single mothers and their childless counterparts. Indeed, self-reported financial satisfaction is the only well-being outcome for which the trends appear to be moving in the opposite direction.[27]

Another strategy is to introduce placebo waiver and *TANF* reforms, which turn on in periods prior to their actual implementation. If different secular trends exist across women in treatment and comparison groups, then the estimated impact of the placebo reforms will be statistically significant. To create the placebos, I maintain the differential timing in the implementation of the waiver and *TANF* reforms, but turn on these reforms 4 years before their actual implementation date. I then run regressions of each subjective well-being outcome on the two *Treated*-by-placebo-reform interactions (placebo waiver and *TANF* D-in-Ds), the actual welfare reform D-in-Ds, and all other

[26]The controls for per capita income and population density further guard against differences across states and over time in the underlying stocks of wealth and human capital that may drive both welfare reform and subjective well-being. The dummy variable for Republican governor accounts for politically induced differences in social policy reforms that affect subjective well-being, while the percentage voting Republican controls for unobserved attitudes, norms, and preferences within the electorate regarding certain types of social policies.

[27]In addition, I estimate the trends model on the pre-waiver and pre-*TANF* period, 1986 to 1991, conditional on the covariates. The results continue to provide strong evidence of common time trends in the well-being outcomes for single mothers and single childless women. Interestingly, results from an unconditional trends model suggests that single mothers' life satisfaction remained flat, while single childless women experienced a downward shift in well-being. Such results highlight the importance of conditioning on the observable characteristics.

variables specified in (1). As shown in Appendix Table 4, coefficients on only five of the 20 placebo reforms are statistically significant. Furthermore, in most cases (especially for *TANF*), the signs on the placebo reforms are opposite those on the actual reforms, suggesting that, if anything, there is a downward bias in the estimated effects of welfare reform.[28]

A final strategy is to incorporate state-specific linear time trends into the D-in-D model. These permit any state-level unobservables to trend differently across states. Given that not all states implemented a waiver reform, introducing state-specific trends during this period means that, in essence, I allow women in waiver and non-waiver states to follow different time paths on the well-being outcomes. Furthermore, although all states introduced *TANF* reforms, the composition of reforms is dramatically different across the states. During this period, therefore, the time trends account for trending unobservables that are correlated with the decision to implement certain reforms. Results from the introduction of state-specific time trends are shown in column (4) of Table 5. The main D-in-D estimates for both welfare waivers and *TANF* are robust to the inclusion of these controls.

Recall that the D-in-D strategy identifies the impact of welfare reform by comparing the change in subjective well-being among single mothers before and after reform to the change experienced by single childless women. If there are changes over time in the differences in the observable characteristics of treatment and comparison women, it could indicate more pervasive problems related to compositional changes in the unobservables. Appendix Table 5 investigates this possibility by showing the raw differences in a variety of demographic characteristics across three time periods that correspond to the pre-reform era (1986–1990), the welfare waiver era (1991–1995), and the *TANF* era (1996–2005). The differences between single mothers and single childless women are shown in column (1) through (3). Column (4) presents an F-statistic (and *p* value) from a test of the null hypothesis of equal differences in demographic characteristics across the three time periods.[29] Not surprisingly, there are some noticeable differences between women in the treatment and comparison groups (e.g., race and household size). However, the relative differences remain mostly fixed over time. Indeed, I am not able to reject the null hypothesis of equal differences in all but one case. These findings suggest that large compositional shifts in the treatment and comparison groups do not occur throughout the study period.

In the final set of robustness checks, I make changes to the time period over which the analysis is conducted. Recall that the observation period extends to

[28] In a further check, I include the placebo waiver and *TANF* D-in-Ds as well as a comparable set of unrestricted placebo waiver and *TANF* dummy variables in the model. In this case, coefficients on eight of the 20 placebo dummy variables are statistically significant.

[29] To perform the *F* test, I first run a regression of each characteristic on a set of interactions between a single mother dummy variable and the three period dummy variables, the remaining demographic controls, state fixed effects, and year dummy variables. I then test the equality of the single-mother-by-period interactions. Results from the test are shown in column (4).

2005—6 years after the last state implemented its *TANF* plan—thus making the identification of *TANF* impacts potentially more difficult. Therefore, I experiment with models that end the analysis period in various years prior to 2005. The D-in-D results are robust to these changes. I also experiment with models that alter the first year included in the analysis (1986). The idea here is that differences in background characteristics and subjective well-being trends across the treatment and comparison groups are likely to be minimized as the analysis start date converges to the policy implementation dates. Pushing forward the analysis start date in various ways does not substantially change the results.[30]

5 Conclusion and policy implications

The passage of welfare reform through waivers and, ultimately, the *TANF* programs embedded in the 1996 PRWORA marked the full transition of the US social safety net to a work-based system. Welfare payments are now authorized for limited time periods and conditioned on participating in a state-defined work activity. A considerable body of research finds that these policy reforms, along with an array of other social policy interventions, led to an explosion in single mothers' employment rates and substantially reduced welfare caseloads. As implied by the more limited body of work on material well-being, there remains considerable uncertainty as to whether these policy reforms positively affected the lives of vulnerable mothers and their children. This study, along with that of Ifcher (2011), begins to deepen our understanding about one such dimension of single mothers' well-being—that of subjective reports on quality-of-life.

Results in this study suggest that the implementation of *TANF* had mostly positive effects on single mothers' subjective well-being. Indeed, these women experienced a relative increase in life satisfaction, reductions in regrets about the past, and expressed more optimism about the future. Single mothers also became increasingly satisfied with their financial situation. These well-being improvements, moreover, are evident throughout the well-being distribution. It also appears that the rise in life satisfaction did not come at a cost of increased stress and anxiety or deteriorating physical health. Indeed, single mothers were no more likely after *TANF* to report feelings of pressure, experience sleep problems and headaches, and experience reductions in physical condition. The passage of welfare waivers, on the other hand, did not lend itself to a clear pattern with respect to subjective well-being. For some outcomes, waivers appears to have reduced well-being (by increasing stress and anxiety), but at the same time these reforms led to improvements in other

[30] In a related specification check, I examine only the impact of *TANF* (i.e., I omit the D-in-D estimator of welfare waivers) and begin the analysis period in 1992. Results are once again robust to this sample definition.

areas (by reducing the prevalence of headaches). The results are robust to numerous specification checks.

This paper fills an important gap in the existing welfare reform literature, which focuses largely on objective measures of well-being including employment, earnings, and consumption. The basic message from these studies is that single mothers experienced little or no change in material well-being following the implementation of welfare reform, a finding seemingly at odds with the gains in subjective well-being reported here and by Ifcher (2011). One explanation is that the large reform-induced increase in employment, by itself, is responsible for the rise in happiness and life satisfaction among single mothers. In other words, welfare reform may have generated large non-monetary—or psychic—benefits through its impact on employment.

This proposition finds strong support in the empirical literature, despite the prediction from economic theory that utility is decreasing in hours-of-work, conditional on working. For example, a number of studies find that happiness is lower among the unemployed, with longer periods of unemployment leading to steeper declines in well-being (Blanchflower and Oswald 2004; Clark and Oswald 1994; Di Tella et al. 2001; Helliwell 2003). Furthermore, the unemployed are more likely to experience a variety of mental health problems, including increased anxiety and depression (Ruhm 2003; Viinamaeki et al. 1996). This reduction in well-being cannot be fully explained by the loss of income, once again suggesting a strong role for psychological and social factors. In particular, previous work identifies the psychic or stigma costs associated with unemployment that lead to lower self-esteem and less personal control (e.g., Murphy and Athanasou 1999).

Are these well-being improvements likely to apply to the types of jobs taken by low-skilled single mothers? Scattered evidence suggests that it is possible. For example, it has been documented that women report considerably higher levels of job satisfaction than men (Sousa-Poza and Sousa-Poza 2003), and that workers derive substantial pleasure from participating in even routine jobs (Diener and Seligman 2004). Such findings underscore a phenomenon called the "paradox of the contented female worker," in which women appear to self-report more favorable attitudes toward market work, despite taking a disproportionate number of low-wage jobs with fewer benefits and less flexibility (Crosby 1982). These disparate findings are brought together in Edin and Lein's (1997) seminal ethnographic study of single mothers on the eve of welfare reform. Although the working women in their interviews expressed concerns over low wages and poor job conditions, there is some evidence of the positive impact of employment on subjective well-being. According to one mother:

> I'm...happier now [that I'm working]. You know, [when I was on welfare] I was kind of upset because I had nothing to do; I had a lot of time of my hands, just thinking about the bad times, you know, of all the problems I was having. And now that I'm working, I go to bed early; I wake up, you

know; I feel good because I have something to do. I have a job and then when I come home it's easier to be with my child, instead of sitting there at home all day so uptight" (Edin and Lein 1997; p. 140).

Several interesting questions remain. First, although the story above is reasonable, it would be helpful to disentangle the relative contributions of employment, income, and other familial changes in explaining the rise in happiness and life satisfaction after welfare reform.[31] Another issue to explore is whether continued increases in the stringency of work requirements and other reforms will lead to further increases in subjective well-being. The PRWORA, as well as the reauthorized Act in 2005, include escalating work participation targets for states and welfare recipients, in addition to financial penalties for failing to meet those targets. It is therefore important to determine whether there are well-being "ceiling effects" associated with work-based welfare reforms. Another fruitful avenue for future work consists of testing for the presence of heterogeneous welfare reform effects across racial/ethnic groups and skills levels, as well as over the distribution of subjective well-being. Previous work by Bitler et al. (2006) finds substantial heterogeneity in reform impacts across the earnings distribution. It would be interesting to extend their framework to an analysis of subjective well-being.

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[31] See, for example, Fletcher (2011) and Brewer et al. (2011).

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