

**How an Earnings Supplement Can Affect
the Marital Behaviour of Welfare Recipients:
Evidence From the Self-Sufficiency Project**

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The Authors

Abstract

Because welfare policies have long been accused of contributing to the breakdown of the nuclear family, policy-makers have had an interest in ensuring that welfare and employment policies, at a minimum, do not discourage marriage or encourage marital breakups. Using data from the experimental evaluation of the Self-Sufficiency Project (SSP), this paper examines the effect of an alternative to the mainstream cash welfare system, an alternative that is contingent on work and removes the usual welfare marriage disincentive on marital behaviour among single-parent welfare recipients. The effect of such a program on marital behaviour predicted by theory is ambiguous. Eliminating the welfare marriage disincentive should positively affect marriage, but increasing employment and income, as SSP did, may have either positive or negative effects on marriage. On average, SSP had no effect on marriage. Rather, SSP had opposing effects on marriage across two provinces — an increase in marriage in one province and a decrease in marriage in another province. The opposite direction of the effect in the two provinces cannot be explained by differences in the income or employment effects caused by SSP, by differences in sample members' observed characteristics, or by differences in characteristics of the marriage market between the two provinces. Our results suggest that unobserved differences in provincial characteristics, such as cultural or marital norms, mediated how SSP affected marriage. These results are consistent with the empirical literature that finds that local or state fixed effects play an important role in understanding the effects of welfare on the incidence and spells of single parenthood in Canada and the US.

Introduction

Welfare policies have long been accused of contributing to the breakdown of the nuclear family. Welfare is commonly blamed for discouraging marriage and encouraging divorce by providing an alternative means of financial support for poor mothers and their children.¹ Though prior research on the effects of different sets of welfare policies on family structure is inconclusive, the formation and stability of marriage, particularly among low-income families, has been a long-standing goal of public policy. Yet, marriage disincentives are inherent in the means-tested welfare programs of Canada and the US (Moffitt, 1992). Under means-tested programs, the added income contributed by a spouse will typically make a family ineligible for welfare or reduce its grant amount.

This study utilizes a random assignment design to examine the effect of a generous earnings supplement program with no marriage disincentive on the marital behaviour of welfare recipients.² The Self-Sufficiency Project (SSP) tests a unique approach that eliminates the “traditional” marriage disincentive for welfare recipients by disregarding the income of a spouse or partner when determining eligibility for SSP’s earnings supplement and its amount. Although this policy change should be expected to increase the probability of marriage among welfare recipients, its expected effect must be balanced with SSP’s effects on increasing income and full-time employment, both of which have a theoretically ambiguous effect on marital behaviour. Prior empirical work suggests a relation between local and geographic context, and the effect of income transfer programs on marital behaviour. This paper additionally exploits the provincial variation in the SSP data — often not found in experimental studies — to examine the extent to which local or geographic context versus SSP’s effects on income and employment mediates the effect of SSP on marriage.

There are a number of reasons why it is important to understand the impact of alternative welfare or antipoverty policies, such as those tested in SSP, on marriage. First, empirical evidence suggests that children in one-parent families are disadvantaged on a broad array of outcomes compared with those in two-parent families (McLanahan & Sandefur, 1994). Part of this difference results from greater poverty among one-parent families. Thus, children may benefit from policies that dually increase a family’s self-sufficiency by increasing employment and earnings, and the likelihood of marriage.³ Second, policies that facilitate a desired marriage or enhance marital stability may also facilitate long-term independence from public assistance. Remarriage is the most common route to recovery from the decline in standard of living that women and children face after divorce (Holden & Smock, 1991) and is also a common route off of welfare (Bane & Ellwood, 1994; Moffitt, 1992). Third, welfare systems in Canada and the US are currently undergoing major scrutiny and reform. Results from the SSP experiment — as an example of an effective antipoverty program —

¹Because the vast majority of the welfare population, including the sample analyzed in this paper, are female, the terms “mothers,” “women,” and the female pronoun are used throughout this paper.

²Here and throughout the text of this paper marriage is broadly construed as legal marriage or common-law marriage. As is explained in further detail later, common-law marriages in Canada entail similar rights and responsibilities to legal marriages, and are treated similarly by the income assistance system.

³Empirical evidence has suggested that marriage to someone unrelated to the child does not improve the outcomes of children formerly living with a single parent (McLanahan & Sandefur, 1994). However, it is possible that SSP could increase marriage between biological parents, which may be beneficial for children. See Morris and Michalopoulos (2000) for a discussion of the effects of SSP on child outcomes.

can help to inform the design of future policies that are targeted to low-income families and that may influence marital behaviour. Policy-makers have an interest in ensuring that their reforms, at a minimum, do not discourage marriage or encourage marital breakups.

This paper will address the following research questions: Can a financial incentive program such as SSP affect rates of marriage? To what extent is SSP's effect on marriage driven by increased employment and income caused by SSP? To what extent is SSP's effect on marriage driven by local or provincial differences in measured and unmeasured characteristics? These questions are examined using data over a 36-month follow-up period. These relatively short-term effects of SSP may somewhat foreshadow long-term differences in the incidence of these relationships.⁴

Over 36 months, SSP dramatically increased full-time employment and income among all single parents on welfare who received the supplement and among single parents on welfare within each province who received the supplement (Michalopoulos et al., 2000). This paper explores, in depth, preliminary findings presented in Michalopoulos et al. (2000) that showed that, although SSP had no effect on marriage on average, the effect on marriage was positive in one province (New Brunswick) and was negative in another province (British Columbia). We find that the opposite direction of the effect in the two provinces can not be explained by differences in the income or employment effects caused by SSP, by differences in sample members' observed characteristics, or by differences in characteristics of the marriage market between the two provinces. These results suggest that unobserved differences in provincial characteristics, such as culture or marital norms, mediated how SSP affected marriage. These results are consistent with the empirical literature that finds that local or state fixed effects play an important role in understanding the effects of welfare on the incidence and spells of single parenthood in Canada and the US (Moffitt, 1994; Lefebvre & Merrigan, 1998).

The first section of this paper reviews prior empirical studies that examine the relations between marriage and welfare, female employment, and income. The second section describes the SSP model and evaluation design, and how SSP offers an opportunity to examine the relations between welfare, employment, income, and marriage more rigorously than do prior studies. The third section presents a conceptual framework for examining the effect of SSP on marriage. This is followed by a description of the data, the empirical analysis, and the empirical results in the fourth, fifth, and sixth sections. The final section discusses the results.

⁴It is also possible that SSP may alter the timing of marriage but not the incidence of marriage over a long time frame. Because SSP is a long-term evaluation, the findings in this paper can be updated with data from the longer-term follow-up.

Prior Research

SSP was designed to increase employment and income, and to reduce receipt of income assistance (IA), the means-tested cash assistance program for poor families. This increased employment and income, and the accompanying reduction in IA receipt caused by SSP, may have had spillover effects on marriage. A vast empirical literature of non-experimental studies examines the relation between welfare and marriage, and between women's economic position or opportunities and marriage. In addition, a small set of studies has used experimental methods to test the effects of different welfare and employment policies on marriage. The non-experimental and experimental literature establishes that we can expect welfare, employment, income, and variations in welfare policies to have an effect on marital behaviour.

Transfer schemes for low-income families and marriage. Does the availability and generosity of welfare affect marriage? There is some evidence that rates of marriage respond to variations in the welfare benefits available to single-parent families. Moffitt (1992) reviews non-experimental studies that have tested the relation between welfare benefits and marriage in the US. There are two main methods employed in the studies he reviews. One exploits cross-state variations in benefit levels available to single parents in order to see if US states with more generous welfare provisions have lower rates of marriage and more out-of-wedlock births. These studies attempt to control for state characteristics that may be related to both benefit levels and family behaviour. A second method uses within-state changes in benefit levels over time. In this method differences across states are not a factor. These studies have to control for within-state changes that may have caused the change in benefit level and the change in family behaviour. Based on a multitude of studies of these two method types, Moffitt's review finds that in the 1970s there was no relation between welfare and family formation. However, in the 1980s the evidence suggests a positive correlation between welfare benefit levels and female headship in the US (Moffitt, 1998). Using a similar empirical approach with 1990 data from Statistics Canada's Family History Survey, a similar pattern of findings for the 1980s (i.e. a significant effect of province and provincial welfare benefits on union formation among single parents) emerges in Canada (Lefebvre & Merrigan, 1998).

Other studies have found little or no relation between other transfer schemes to low-income families and marriage or marital stability. Using cross-sectional variation in the implementation of the Aid to Families with Dependent Children–Unemployed Parent (AFDC–UP) program, Winkler (1995) finds that there is no relation between AFDC–UP and marital stability. Using data from the US's Current Population Survey, Eissa and Hoynes (1999) find that the Earned Income Credit (EIC) expansions between 1984 and 1996 increased married men's employment, but slightly reduced married women's employment. In addition, these authors found that the EIC expansions had very small effects on increasing marriage for low-income families and reducing marriage among middle-income families.

Women's Employment and Marriage. Does women's economic independence decrease marriage? The research that tests this hypothesis finds mixed results. The economic independence literature typically employs one of two methodologies. First, a large number of studies have operationalized women's economic independence using measures of individual women's earnings, employment, and education. These studies find evidence that women's economic independence is associated with higher rates of marriage, contrary to assumptions. In these studies, higher levels of

earnings, employment, and education for women are associated with more marriage, particularly marriages among spouses with similar characteristics (also known as “positive assortative mating”) (Lam, 1988; Oppenheimer & Lew, 1995).

A second approach incorporates both women’s and men’s economic position. Men’s deteriorating economic position may be one of the most important explanatory factors in the decline in marriage among women with low earnings, employment, and education (Wilson & Neckerman, 1987; Oppenheimer, 1988). Research incorporating both men and women in the model is typically based on aggregate data at the local level (Lichter et al., 1991; McLanahan & Casper, 1995). These studies find lower rates of marriage in areas with greater economic opportunities for women, supporting the hypothesis that women’s employment and earnings negatively affect marriage. However, the direction of the causality may be reversed: career-oriented single women may be drawn to local labour markets rich in economic opportunities for women. The aggregate-level studies also find evidence that men’s economic position is an important factor in determining rates of marriage. These studies find a positive correlation between men’s economic position and marriage.

Welfare reform experiments and marriage. In addition to the research literature concerning welfare, employment, and marriage, another set of studies uses an experimental design to compare the effects of different sets of welfare policies on marriage. Random assignment studies, where individuals are assigned in a lottery-like process to a program group and a control group, have the advantage of not confounding unmeasured characteristics of individuals or families with the effects of a policy on these individuals or families. In most cases, conclusions about the effects of policy on marital behaviour based on non-experimental work, as reviewed above, are tentative because of the likely presence of this kind of bias.

An experimental approach was first brought to bear on the question of the relation between antipoverty policies and marriage in the Negative Income Tax (NIT) experiments conducted in several sites in Canada and the US in the 1960s and 1970s. The experiments allowed researchers to examine how a guaranteed income program at various levels of generosity affected the marital behaviour of low-income, mostly two-parent families relative to families in a control group, some of whom were eligible for benefits under the AFDC system. The original marital analysis from the NIT experiments suggested that the program dramatically increased marital dissolution among white and black couples in two sites, Seattle and Denver, relative to a control group (Groeneveld et al., 1980), and decreased rates of marriage/remarriage among Hispanic single-parent families (SRI International, 1983). Surprisingly, the marital dissolution effects were concentrated in the subgroup that received the least generous NIT plan, offering benefits that were approximately equal to those available from AFDC.⁵ Researchers explained this paradox by pointing to the non-pecuniary aspects of the NIT such as lower transaction costs and fewer stigmas compared with the AFDC system. The marital destabilization that came to be associated with the NIT fuelled opposition to this program approach (Reinhold, 1979).

⁵The NIT sought to avoid marriage disincentives by extending eligibility to both one- and two-parent families. For two-parent families, the NIT offer was extended to both the husband and wife in the event of a marital dissolution and thus subsidized the break-up. Income often increased quickly and sharply when a spouse left the household (Cain, 1986; Cain & Wissoker, 1990).

A re-analysis of the data from the Seattle–Denver NIT experiment called the original findings into question (Cain & Wissoker, 1990). Cain’s reanalysis differed from the original marital analysis in a number of ways. For example, he excluded childless couples from the sample, separated the program treatment into financial incentive and training components, and allowed the effect of the NIT to vary over time (Cain, 1986). Even though Cain disputed the original conclusion that the NIT caused a dramatic increase in marital dissolution, the finding that the total effect of the NIT — the financial incentive and training components — increased marital dissolution still held (Cain & Wissoker, 1990). Nonetheless, the NIT results are of limited relevance. Overall, the generosity of the plans tested in the Seattle–Denver NIT far exceeded what could have been realistically implemented on a broad scale (Ellwood, 1986; Burtless, 1986). Secondly, the NIT design was complex. For example, the NIT experiments tested a number of different guaranteed income levels and different rates of reducing benefits in response to earnings. In addition, the NIT sometimes incorporated a services component, and the length of the guarantee varied. The complicated program design forced analysts either to pool results for people subject to different rules and incentives, or to deal with extremely small sample sizes.

Additional experimental analyses about the effects of welfare policies and employment programs on demographic outcomes, such as marriage, have recently emerged. A study in four California counties, including both urban and rural areas, finds evidence that higher welfare benefits increase marital dissolution. Specifically, Hu (1998) finds that a \$100 reduction in benefits in the California Work Pays demonstration increased marital stability at the two-year follow-up among two-parent families. The positive impacts on marital stability in the Work Pays data were concentrated among white, younger, and less-educated women. The same experiment found that the \$100 benefit reduction had no effect on marriage for single-parent families.

A second recent experimental study examines the effects of A Better Chance (ABC), the Delaware experiment on marriage and fertility. This study finds that, at the 18-month follow-up point, ABC significantly increased marriage among young and less-educated women, a group that also experienced decreases in welfare and increases in earnings (Fein, 1999). It is noteworthy that the subgroup most affected by these programs, young women who had dropped out of high school, is also a group with a high risk of long-term welfare dependency (Bane & Ellwood, 1994).⁶

How do past non-experimental and experimental research on welfare, women’s economic independence, and marriage inform the current analysis? In general, prior research suggests that welfare and other policies targeted at low-income families, particularly the generosity of these policies, may have small to modest effects on marriage. On the basis of this evidence, a change in welfare policies, such as that undertaken in SSP, may alter rates of marriage relative to the mainstream public assistance system. SSP may increase marriage by avoiding the marital disincentive in means-tested welfare programs, or it may decrease marriage by providing a more generous alternative to marriage than that provided by the IA system. This literature also suggests that increasing women’s employment and earnings may have positive or negative effects on marriage. In addition, the marriage market — including employment prospects for women and men’s economic position — may play a role in determining rates of marriage.

⁶Experiments testing the effect of time-limited welfare in Connecticut and Florida found that these welfare reform programs had no effect on being married and living with a spouse after one and a half or two years of follow-up — prior to the imposition of the time limit — respectively (See Bloom et al., 1998; Bloom et al., 2000).

Experiments with welfare reform have been comparatively less common than non-experimental studies, and there are less consistent lessons to be drawn from results of these studies at present. The experimental results suggest no clear pattern between income, employment, and marriage but rather, suggest that the relation between marriage and benefit levels, or welfare policies in general, may be mediated by other factors including unobserved characteristics associated with geographic or cultural context (Moffitt, 1994).

Although experimental studies have considerable strength in drawing causal conclusions (relative to non-experimental work), one drawback is that the interventions being tested include multiple components, which are difficult to replicate, and the experiment is often not conducted identically in different settings. SSP, as will be described in the next section, will generally contribute to our knowledge about the effects of welfare and employment programs on marriage. SSP was tested in two culturally and geographically diverse provinces offering a unique opportunity to examine the role of local or geographic context in mediating the effects of welfare policies on marriage.

The SSP Model and Evaluation

The Self-Sufficiency Project provides a financial incentive for single parents to leave income assistance (IA), the mainstream cash welfare program, and enter full-time work. To assess the effects of SSP on economic behaviour and a host of other outcomes, welfare recipients were randomly assigned to a program or a control group in Vancouver, British Columbia and neighbouring areas, and in the southern third of New Brunswick. The SSP evaluation consists of three studies: the main study focuses on long-term welfare recipients, another study analyzes welfare applicants, and a third study (known as SSP Plus) looks at the effects of adding voluntary employment and training services to the SSP earnings supplement. This paper focuses on the long-term recipient study sample and the SSP Plus sample (see Lin et al., 1998; Michalopoulos et al., 2000; Mijanovich & Long, 1995; and Quets et al., 1999, for more detail about these studies).

For the long-term recipients study, a total of almost 6,000 single parents who had received welfare for a year or more were randomly assigned to either a program group that was eligible for an earnings supplement or to a control group. Program group members were offered a supplement to their earnings only if they found full-time employment (30 hours or more per week) within the first year following random assignment. The supplement was calculated as half the difference between actual earnings and a target earnings level — \$30,000 in New Brunswick and \$37,000 in British Columbia.⁷ For those earning up to \$8 per hour, the supplement doubled their earned income before taxes and work-related expenses (Mijanovich & Long, 1995). Appendix A presents key features of the SSP and SSP Plus experiments.

Program group members had a one-year eligibility window in which to initiate the supplement. Only 35 per cent of the program group took up the supplement offer within that time frame (Lin et al., 1998). The remaining members of the program group lost their opportunity. Some of the most common reasons cited by sample members for not taking up the supplement offer were an inability to find a job, personal/family responsibilities, and health problems or disabilities. The 35 per cent of the sample who initiated the supplement could continue to receive it for three years as long as they maintained 30 hours of work per week. Since only a portion of those eligible received the supplement, the experimental impacts of SSP are driven by this 35 per cent of the sample. Any impacts of the program will be diluted by the 65 per cent of the program group who did not take up the supplement and whose behaviour was less likely to be altered by SSP. Nevertheless, SSP produced large increases in full-time employment and earnings during 36 months of follow-up (Michalopoulos et al., 2000).

Another component of the SSP program design, one that is crucial to this analysis, is that SSP removes the marriage disincentive inherent in the IA system. Income assistance takes into account the income from a husband or from a common-law spouse when determining eligibility and grant amounts. Therefore, marriage may cause a reduction or elimination of the grant. SSP eliminates this marriage penalty by disregarding any income contributed by a husband or common-law spouse. This rule was explained in an orientation session that 96 per cent of the program group

⁷The target earnings amounts were adjusted slightly over time to account for changes in cost of living and welfare benefit levels.

attended (Mijanovich & Long, 1995) and described in a brochure distributed to program group members.

In spite of the problems of generalizability of experimental results, SSP offers important advantages. First, the design of the main experiment for long-term recipients is simple — a pure financial incentive without services. This design is far easier to replicate than a bundle of services that depend more heavily on the characteristics of those administering the services. The uniformity of response in the two provinces suggests that the program may be replicated in different contexts. Approximately the same proportion of the sample took up the supplement in each province and the average impacts on full-time employment and earnings (shown in figures 1 and 2) were equal across the two provinces (Michalopoulos et al., 2000). Second, the evaluation results have shown SSP to be successful in increasing employment, income, and work effort. Therefore, the program design is a viable welfare alternative. Because many such welfare or antipoverty programs are not neutral to marital status, it is critically important to understand the program effects on family composition in order to fully take into account the potential results of implementing a similar program on a broader scale in Canada or the US.

Figure 1: Monthly Full-Time Employment Rate, by Research Group in Both Provinces Combined

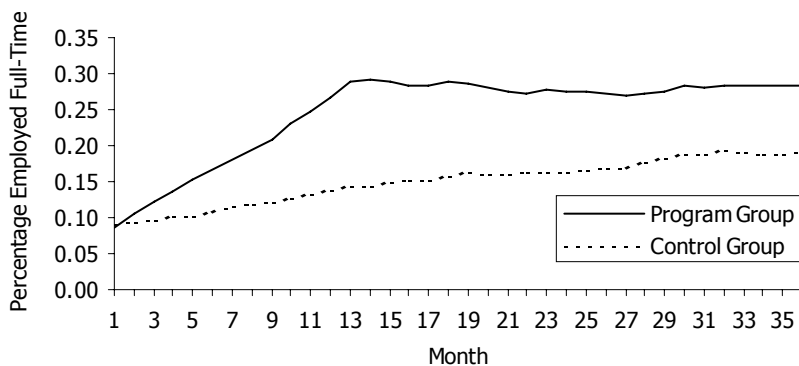
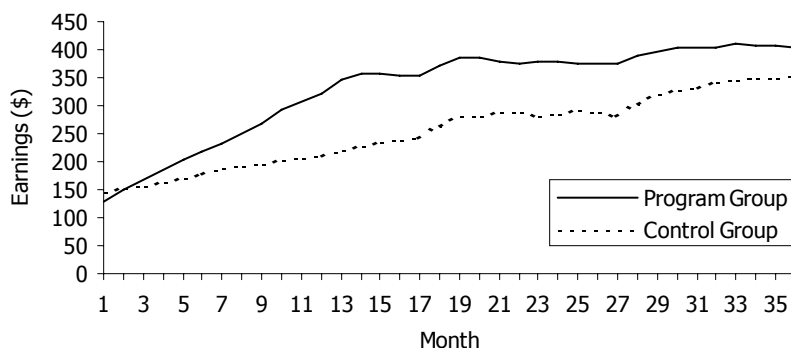


Figure 2: Average Monthly Earnings, by Research Group in Both Provinces Combined



Conceptual Framework

The analysis of SSP's effect on marriage fits into a general conceptual framework in which the decision to marry or stay single is based on utility maximization. The framework derives from standard preference theory, which provides a model for conceptualizing the determinants of marriage and equilibrium in the marriage market (Becker, 1973, 1974). In this model, individuals will marry if their expected utility from marriage exceeds their expected utility from remaining single. One of the central implications of the model is that marriage will be beneficial to the extent that spouses gain from a sexual division of labour — the husband specializing in market labour and the wife in domestic labour. This model predicts that welfare will reduce marriage by increasing women's economic independence, thus reducing the gains that women would achieve by marrying relative to remaining single (Moffitt, 1992).

Oppenheimer (1988) argues that the effect of women's economic independence is more ambiguous. She suggests that women may delay marriage as a result of increased economic opportunities without necessarily decreasing rates of ever marrying. Oppenheimer extends Becker's theory by including the possibility that women's employment may have a positive effect on marriage. For example, extra money may facilitate marriage by alleviating financial stress in a relationship (an "income effect"). Women's employment may also increase marriage by exposing women to new social networks through work, or by increasing appeal to prospective spouses. On the other hand, women's employment may result in delayed marriage and increased marital friction.

In general, marriage may be viewed as a partnership for joint consumption and joint production. There are a number of factors that may contribute to the assessment and realization of the potential gains to marriage (for a review see Weiss, 1997). These include complementarities of partners' time in household production generated by specialization; joint consumption of household goods such as food, housing, and child-rearing; risk-sharing and pooling; and non-pecuniary reasons, such as love. Realizing the gains to marriage will also depend on the allocation of resources within the marriage. Altruism, by generating implicit commitments and reducing the cost to bargaining, and the mode of decision making, by influencing how conflict will be resolved within marriage, will play key roles in these allocation decisions. The gains to marriage will depend not only on the gains to the actual partnership under consideration, but also on the range of potential matches or partners available (i.e. the marriage market). An efficient marriage market assigns individuals to a partner such that the outcome of that union is based not only on the gains from that union, but also maximizes the gains over all possible unions.

This paper examines the question of whether the marriage decision of single parents is affected by SSP. This decision may be depicted in a simple model in which the utility function takes the form

$$(1) \quad U = U(M, Z^m, B^m, S; X)$$

where M is marital status (equal to 1 if in a marital or common law union and equal to 0 otherwise); Z is a measure of household output that depends on marital status; B is public assistance that depends on marital status; S is the SSP supplement, which is not affected by marital status; and X is a row vector of individual characteristics.⁸

⁸Moffitt (1994) and Eissa and Hoynes (1999) similarly model the marriage decision in assessing the effects of welfare benefits on female-headship and the effects of tax-transfer schemes on marriage, respectively.

The decision to marry or cohabit in time, t , may be defined as the difference in the maximal utility between the two states, represented as

$$(2) \quad M^* = U(1; Z^1, B^1, S; X) - U(0; Z^0, B^0, S; X)$$

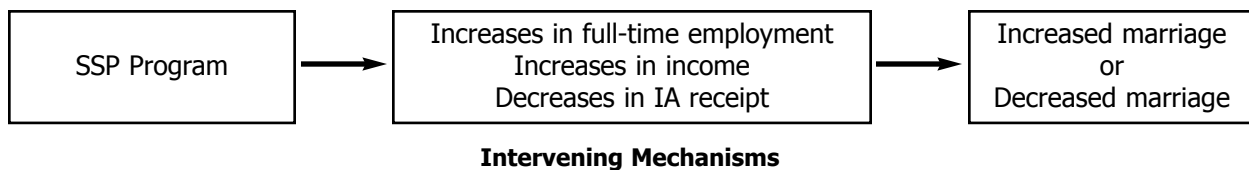
$$M = 1 \text{ if } M^* \geq 0$$

$$M = 0 \text{ if } M^* < 0$$

In this framework, household output, Z , is determined by both market and domestic labour and thus incorporates the gains to specialization within marriage, as well as the equilibrium of the marriage market. Public assistance, B , represents the amount of assistance available under married and single contingencies. Although income assistance (the main cash assistance program in Canada) is available to single- and two-parent families alike, public assistance depends on marriage because the income of a two-parent family is more likely to exceed the income eligibility criterion of means-tested programs.⁹ SSP, represented by S , is only a viable outcome for those program group members who take up the SSP supplement. Thus, for those who are randomly assigned to a control group, S automatically equals 0. Although this framework explicitly models the consequence of S (or SSP) as not being directly tied to marital status, the effect of SSP on employment, earnings, and income indirectly affects the marriage decision through Z . This will be addressed further in the section entitled “Empirical Results.” Finally, individual characteristics, X , may reflect measured characteristics such as age, as well as unmeasured characteristics such as tastes and preferences; for example, the taste for autonomy or privacy versus the taste for marriage.

This general framework incorporates several hypotheses, explained below, about how SSP may affect marriage. These hypotheses are also supported by anecdotes shared by SSP sample members in a focus group study (Bancroft & Currie Vernon, 1995). SSP’s main objectives were not to change marriage rates but rather to increase earnings and income and to decrease IA receipt. The relation between SSP’s economic effects and its potential effects on marriage is depicted in Figure 3.

Figure 3: Intervening Mechanisms



First, by removing the marriage disincentive, SSP may increase marriage. Over three years of follow-up, SSP significantly reduced IA receipt (Michalopoulos et al., 2000). Unlike sample members in the control group, who may lose all or most of their IA benefits upon marriage (conceptualized as B in

⁹The marriage disincentive inherent in means-tested welfare programs is in some ways analogous to the work disincentive associated with welfare. Procuring income through marriage or working will typically result in a reduction in means-tested welfare benefits. The work disincentive is combatted through work requirements and earnings disregards. Following this analogy, SSP’s policies represent a 100 per cent spousal earnings disregard, eliminating entirely the financial disincentive to marry.

Equation 2), program group members who take up the SSP supplement (S) can only stand to gain income by marrying. Single parents who would not have married because of the potential loss of IA benefits may now marry if given the SSP alternative. In focus group discussions, a number of the SSP evaluation sample members expressed frustration with the constraints of the IA rules imposed on their relationships when they would “have to hide and tell little lies” (Bancroft & Currie Vernon, 1995, p. 53).

Second, increased employment due to SSP may increase or decrease the propensity to marry. Increased employment may increase marriage by increasing self-esteem or the pool of potential partners via social networks introduced through the workplace (conceptualized as X for the former and as Z for the latter in Equation 2). Some focus group participants stated that they would not have met their future husband if SSP had not encouraged them to get a job. Being released from the welfare stigma also seemed to play a prominent role in focus group participants’ self-esteem. Increased employment may decrease marriage by increasing the cost of time available to search for a partner or to socialize with a prospective partner. Again, in focus group discussions, those who took up the supplement stated that making new friends at work did not necessarily translate into an active evening social life, partly because of lack of time and exhaustion.

Third, increased income due to SSP may increase or decrease the propensity to marry.¹⁰ If autonomy is valued (conceptualized as X in Equation 2), the increased income from the SSP supplement may make a single mother less likely to marry; SSP gives her the financial means to remain independent. A few focus group participants reported that financial independence allowed them to leave emotionally and physically abusive relationships. On the other hand, because the earnings supplement follows the single mother in either state, increased income through SSP may increase marriage. The increased income from SSP may facilitate marriage by decreasing financial strain (perhaps leading to an increase in household output, Z) or by increasing the attractiveness of the SSP recipient to a potential partner. The SSP supplement is also tied to the recipient; therefore, SSP may increase bargaining power within marriage (Edin, 1999).

The set of theoretical positive and negative effects suggests that it is not clear whether to expect the net effect of SSP on marriage to be positive or negative.¹¹ In addition, the way in which the effects of SSP on employment and income are translated into effects on marriage may be influenced by the marriage market and other unobserved cultural or social factors.

¹⁰Groeneveld et al. (1980) and Hannan et al. (1977) incorporated income and independence effects into a model that predicted how the NIT would affect marriage. On the one hand, increased income from the NIT program would have a stabilizing effect on marriage. On the other hand, the availability of a more generous safety net to single mothers would destabilize marriage by increasing the economic independence of wives relative to husbands. The researchers theorized that an alternative welfare program that is more generous than the current welfare system will have ambiguous effects on marriage because of the opposing income and independence effects. The indeterminacy of marriage outcomes implied by this theoretical framework also pertains to the SSP experiment.

¹¹In contrast, there are clear theoretical expectations for SSP’s effects on employment, earnings, and welfare receipt (e.g. Lin et al., 1998). For the economic outcomes, the question is if and how much the program will increase earnings and decrease welfare receipt. For example, there is no reason to expect the program will decrease earnings. In contrast, for marital outcomes the empirical question here is whether the set of positive influences or negative influences will dominate in a given setting.

Data and Variables

The SSP evaluation, managed by the Social Research and Demonstration Corporation (SRDC) and conducted by the Manpower Demonstration Research Corporation (MDRC), includes extensive data collection at the time of random assignment and during a number of follow-up periods. Administrative records provide data on public assistance receipt (including receipt of the SSP supplement), and surveys gather additional data on education, employment, family income, household composition, material hardship, and family functioning.

The dependent variables in this analysis — measures of marriage and common-law unions — are derived from survey data, which were collected for 87 per cent of the initial research sample. The surveys administered at random assignment, 18 months, and 36 months provide a record of every change in marital status along with the month and year of each change. In addition, a household roster filled in as part of the survey includes the marital status of the respondent at the time of the baseline, 18-month, and 36-month surveys. With these data, an indicator of marital status for each month of the 36-month follow-up period was constructed. In the event that the date of a marital status change was missing, the status change month/year was imputed. A month/year was randomly chosen during the period bounded by the last known change date (or random assignment if there were no prior status changes) and the subsequent change date (or 36-month interview date). An imputation such as this was performed for 2.5 per cent of the sample. Equal proportions of the program and control groups required date imputations.

In Canada, common-law couples are those that live together for at least one year as husband and wife or have a child together, but are not legally married.¹² Marriage and common-law unions are combined in most of the analyses that follow because they generally entail rights and responsibilities similar to marriage.¹³ For example, marital and common-law couples are treated in the same manner by the income assistance (IA) system. In addition, in the event of separation common-law partners have joint custody of biological children, and they may even be obligated to pay child support for stepchildren. Legal marriages and common-law marriages are collectively referred to as “marriages” in this paper.

The characteristics of sample members overall and in the two provinces are presented in Table 1. Overall, approximately 96 per cent of the sample is female, the majority is under the age of 40, and roughly half had never been married at random assignment. Just over half had less than a high school education and were neither employed nor looking for work at the time of random assignment. There are many statistically significant differences in these background characteristics between the British Columbia and New Brunswick samples. Members of the New Brunswick sample tend to be younger and, as is consistent with that fact, have fewer children and are less likely to have been previously married compared with the British Columbia sample. Nearly all of the British Columbia sample members live in an urban area, whereas approximately 72 per cent of the

¹²The period of time that defines a common-law union varies by province and is based on the specific right or responsibility at stake. For instance, in New Brunswick support obligations do not take effect until a couple has lived together for three years.

¹³An important exception is property rights. In British Columbia and New Brunswick, common-law spouses do not have claims to their spouses' house or property should the relationship dissolve. On the other hand, common-law spouses do have some inheritance rights.

New Brunswick sample lives in an urban area. Sample members in British Columbia are more likely to be immigrants and are more ethnically diverse compared with sample members in New Brunswick.

Table 1: Selected Baseline Characteristics of SSP 36-Month Survey Respondents, by Province

Characteristic at Baseline	British Columbia	New Brunswick	Both Provinces
Personal characteristics (%)			
Female	95.6	95.7	95.6
Urban residence	92.2	71.8 ***	82.1
Age (%)			
19-24	18.6	25.8 ***	22.1
25-29	20.9	20.9	20.9
30-39	41.6	36.6 ***	39.1
40-49	16.5	14.3 **	15.4
50 or older	2.5	2.5	2.5
Education (%)			
Less than high school	53.3	53.8	53.6
High school, no post-secondary	33.8	36.6 **	35.2
Some post-secondary	12.9	9.5 ***	11.2
Marital status (%)			
Married or living common-law	1.0	1.1	1.0
Never married	43.5	54.1 ***	48.8
Divorced, separated, or widowed	54.1	44.1 ***	49.1
Expect to be married within 1 year	7.0	6.8	6.9
Children (%)			
Has 1 child	45.5	53.6 ***	49.5
Has 2 children	35.0	33.4	34.2
Has 3 or more children	18.2	11.7 ***	15.0
Has child less than 6 years old	55.9	52.0 ***	53.9
Work history and labour force status			
Ever had a paid job (%)	95.3	94.1 **	94.7
Average years worked	8.1	6.6 ***	7.4
Labor force status at random assignment (%)			
Employed full-time	6.8	6.9	6.8
Employed part-time	12.2	13.5	12.9
Looking for work, not employed	22.2	22.6	22.4
Neither employed nor looking for work	58.8	57.0	57.9
Birthplace and ancestry (%)			
Not born in Canada	23.4	2.8 ***	13.2
Ancestry			
Canadian	41.6	59.8 ***	50.6
European	61.3	66.6 ***	63.9
Asian	8.7	0.3 ***	4.5
Latin	3.1	0.4 ***	1.8
First Nations	11.5	6.4 ***	9.0
Middle Eastern	1.3	0.4 ***	0.9
Indian	1.9	0.1 ***	1.0
Language (%)			
English	95.0	98.8 ***	96.9
French	4.7	23.1 ***	13.8
Spanish	3.0	0.1 ***	1.4
Vietnamese	7.3	0.0 ^a	2.9
Punjabi	0.8	0.0 ^a	0.4
Chinese	1.4	0.0 ^a	0.7
Sample size	2,503	2,458	4,961

Source: SSP baseline survey.

Notes: A two-tailed t-test was applied to differences between the British Columbia and New Brunswick samples.

Statistical significance levels are indicated as: ***=1 percent; **=5 percent; *=10 percent.

^a Statistical tests not performed.

Appendix B provides evidence on whether random assignment succeeded in generating program and control groups that are similar in their background characteristics. Appendix B compares 36-month survey respondents in the program and control groups on 38 baseline characteristics. At a 10 per cent level of statistical significance, we would expect about 4 of the 38 characteristics to be significantly different by chance. In British Columbia, 8 of 38 characteristics were significantly different in the program and control groups. In New Brunswick, none of the 38 characteristics was significantly different between groups. Because of the British Columbia baseline differences between research groups, in our analysis we test the sensitivity of our results to the inclusion of control variables that take into account these baseline differences.

Empirical Analysis

The goal of the empirical analysis is to estimate the effect of SSP on the propensity to be married. Because these data are generated from an experimental design, any difference in marriage rates between the control group and the program group — the impact — may be attributed to the program. Thus, with the experimental design observed and unobserved background characteristics and changes in the labour markets or other public policies over time should not bias the effect of the program on marriage. The marriage decision may be empirically represented as

$$(3) \quad M_i^* = \alpha + \beta P_i + \varepsilon_i$$

where i is the individuals in the study, P is assignment to the SSP program group (versus actually taking up the SSP supplement, which is depicted by S in Equation 2), β_1 represents the impact of SSP on marriage, α is the intercept, and ε_i is a normally distributed error term.¹⁴

The empirical analysis begins with the experimental impacts of SSP on marriage over 36 months of follow-up in the full sample, combining British Columbia and New Brunswick. The basic impact analysis was performed using OLS regression. The empirical results were robust to different event-history methodological approaches and logistic regression techniques. The OLS results are presented for ease of interpretation.¹⁵

The SSP evaluation was intentionally structured to test the effects of an identical earnings supplement on the behaviour of single parents in two very different provinces. Because random assignment for the SSP evaluation occurred *within* each province, observed and unobserved characteristics may vary *across* the provinces. Prior empirical work finds that unobserved geographic or area effects play some role in estimates of the effects of policies on marital status or fertility (e.g. Moffitt, 1994). In the SSP data, characteristics that can be observed reveal substantial differences between the two provinces. As is suggested by Table 1, British Columbia is mostly urban with a sizeable immigrant population compared with New Brunswick, which is more rural

¹⁴The impact of SSP was also estimated in a model that controlled for a number of baseline characteristics as follows:

$$M_i^* = \alpha + \beta_1 P_i + \sum_{k=2}^K \beta_k X_i + \varepsilon_i$$

The independent variables in this equation include a number of baseline or pre-random assignment characteristics. Note that with the experimental design of the study, the estimate of SSP in the unadjusted equation should not be affected by observed or unobserved characteristics of the program and control groups. Control variables adjust for chance differences in observed background characteristics between the program and control groups. As is discussed later, inclusion of control variables did not alter the results.

¹⁵Event-history methodology is ordinarily preferable to linear regression when the dependent variable is an event and some of the observations have not experienced the event at the time of observation or have left the sample (i.e. some events are right censored). Event-history models are able to incorporate the time that observations were at risk before being censored, or before experiencing the event, when estimating coefficients (Allison, 1995). In this analysis, the OLS estimates are comparable to the event-history results because almost all of the censored cases were at risk for approximately 36 months; therefore, censoring is not informative. The Kaplan-Meier, Cox, and logistic regression results are available from the authors upon request.

and has few immigrants. With these contextual differences in mind, the estimating equation would ideally be expanded as follows:

$$(4) \quad M_{is}^* = \alpha + \beta P_i + \gamma_s + \epsilon_{is}$$

where i represents individuals in the study, s represents provinces in the study, and γ_s is a province-fixed effect intended to capture unmeasured social, cultural, and other factors that vary across provinces.¹⁶ Because only two provinces were included in the SSP evaluation, we separately estimate the effect of SSP for each province:

$$(5) \quad M_{is}^* = \alpha_s + \beta_s P_{is} + \epsilon_{is}$$

where $s = \text{NB}$ for a separate equation with the New Brunswick sample and $s = \text{BC}$ for a separate equation with the British Columbia sample. Noting Equation 5 in the context of Equation 4 is useful in highlighting that differences in the effect of SSP may be accounted for by unobserved social, cultural, and other factors that vary by province.

The experimental design of the data also allows us to address adequately the endogenous relationship of labour supply to marriage decisions (see Eissa & Hoynes, 1999, for a treatment of these endogeneity issues with non-experimental data). One direct way to examine these endogeneity issues is to compare the impacts of SSP on marriage with the impacts of SSP on employment and/or income. The indirect way to examine these endogeneity issues is to use the experiment, whether or not a sample member is in the program group, as an instrument to predict the effects of employment and earnings on marriage in a two-stage instrumental variables model. In this paper, the endogeneity of employment and income are examined primarily through experimental techniques by comparing the impacts of SSP on employment and income with impacts on marriage.

¹⁶Note that unobserved individual differences within a province should not bias the results since random assignment took place within each province.

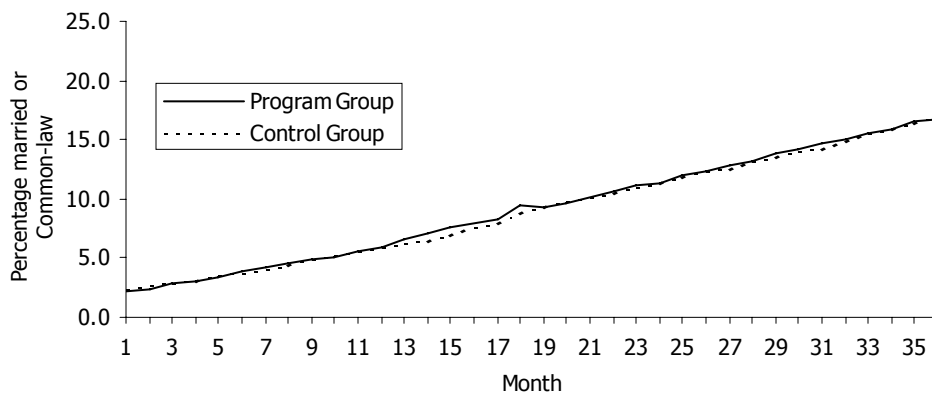
Empirical Results

SSP's effect on marriage

As has been explained, it is uncertain whether to expect SSP to have a positive, negative, or neutral effect on marriage. Therefore, the first hypothesis tested in this section is simply did SSP have an impact on marriage? Second, because SSP was implemented in two diverse locales, this section also examines whether or not SSP's effect on marriage varied by province. Table 2a shows the experimental difference in the incidence of marriage over 36 months of follow-up, the average number of months married, and the percentage married or common-law in the last month of follow-up. Figures 4 through 7 display the pattern of impacts on marriage by month.

When the two provinces are combined, SSP did not have an effect on marriage at any point over 36 months. Figure 4 shows that similar percentages of program and control group members were married in each of 36 months of follow-up. Table 2a further shows that SSP had no impact on marriage within the follow-up period, the number of months married, or being married or common-law in the last month of the 36-month follow-up.

Figure 4: Percentage Married or Common-Law, by Research Group in Both Provinces Combined



The combined results, however, mask opposing effects in the two provinces. Over 36 months of follow-up, SSP had a positive effect on marriage in New Brunswick but a negative effect in British Columbia. Table 2a shows that over the entire 36-month follow-up period, SSP decreased the probability of ever being married or common-law in British Columbia by about three percentage points, an 17.7 per cent decrease relative to the control group. In contrast, SSP increased the probability of ever being married or common-law in New Brunswick by about four percentage points, a 19.6 per cent increase relative to the control group. The New Brunswick SSP Plus study, which tests the added effect of employment-related services when combined with the SSP earnings supplement for an independent sample, found positive marital impacts of SSP Plus (by 11.1 percentage points) as well as SSP (by 5.9 percentage points) relative to the control group (shown in Table 2b). The differences between the impacts of SSP on marriage in British Columbia and in New Brunswick were statistically significant whereas the differences between the impacts in the SSP sample and the SSP Plus sample in New Brunswick were not.

Table 2a: SSP Impacts on Marriage and Common-Law Unions Over Three Years of Follow-Up

Outcome	Program Group	Control Group	Difference (Impact)	Standard Error	Change
Both provinces					
Ever married or common-law, month 1-36 (%)	19.5	19.2	0.3	(1.1)	1.5%
Number of months married or common-law, month 1-36	3.3	3.3	0.0	(0.2)	1.3%
Married or common-law at 36-month interview (%)	17.4	17.3	0.1	(1.1)	0.7%
Married at 36-month interview	8.8	9.5	-0.6	(0.8)	-6.8%
Common-law at 36-month interview	8.6	7.8	0.8	(0.8)	10.0%
Sample size (4,961)	2,503	2,458			
British Columbia					
Ever married or common-law, month 1-36 (%)	14.6	17.7	-3.1	** (1.5)	-17.8%
Number of months married or common-law, month 1-36	2.3	3.0	-0.7	** (0.3)	-22.4%
Married or common-law at 36-month interview (%)	13.5	15.5	-2.0	(1.4)	-12.7%
Married at 36-month interview	7.7	9.7	-2.0	* (1.1)	-20.1%
Common-law at 36-month interview	5.8	5.8	0.0	(0.9)	-0.3%
Sample size (2,537)	1,296	1,241			
New Brunswick					
Ever married or common-law, month 1-36 (%)	24.8	20.7	4.1	** (1.7)	19.6%
Number of months married or common-law, month 1-36	4.4	3.5	0.8	** (0.4)	23.5%
Married or common-law at 36-month interview (%)	21.6	19.1	2.5	(1.6)	13.0%
Married at 36-month interview	10.0	9.3	0.7	(1.2)	8.0%
Common law at 36-month interview	11.6	9.9	1.7	(1.3)	17.6%
Sample size (2,424)	1,207	1,217			

Source: Calculations from SSP surveys.

Notes: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent.

Are the impacts on marriage in British Columbia and New Brunswick robust? Robustness was tested in several ways: by looking at trends in impacts over time, by using alternative statistical procedures to estimate impacts on marriage, by including control variables in estimating equations, and by examining impact results for a number of subgroups. These robustness checks revealed that the findings in general are robust, though the degree of robustness differs slightly for each province. Across these robustness checks, the positive marriage effect in New Brunswick holds up and, in many cases, achieves high levels of statistical significance (i.e. p-values of at least 0.0001). Though the negative marriage effect in British Columbia also holds up, it does not achieve the same high levels of statistical significance as in New Brunswick. For this reason and because, as will be discussed, the pathways by which SSP affected marriage are more tentative in British Columbia, we place slightly more confidence in the positive findings on marriage in New Brunswick than we do on the negative findings on marriage in British Columbia.

Table 2b: SSP Plus Impacts on Marriage and Common-Law Unions Over Three Years of Follow-Up

Outcome	SSP Plus Group	SSP Group	Control Group	Difference: SSP Plus vs. Control (Impact)	Standard Error	Difference: SSP vs. Control (Impact)	Standard Error	Difference: SSP Plus vs. SSP (Impact)	Standard Error
New Brunswick									
Ever married or common law month 1-36 (%)	28.5	23.3	17.4	11.1 ***	(3.6)	5.9 *	(3.6)	5.1	(3.6)
Number of months married or common law month 1-36	4.8	3.4	3.5	1.4 *	(0.8)	0.0	(0.8)	1.0	(0.8)
Sample size (820)	274	270	276						

Source: Calculations from SSP surveys.

Notes: A two-tailed t-test was applied to differences between the outcomes for the program and control groups.

Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent.

The negative effect in British Columbia and the positive effect in New Brunswick were consistent over time. Figure 5 shows that in British Columbia SSP had a consistently negative effect on marriage in each month over 36 months of follow-up. The negative program/control difference was statistically significant in every month but one starting in month nine. Figure 6 shows that in New Brunswick SSP increased marriage in every month of follow-up. The positive impact on marriage in New Brunswick was significant in months 11 through 35.¹⁷ In addition, SSP's effects in New Brunswick are confirmed with an independent sample, the SSP Plus sample, that experienced an intervention similar to that in the main SSP experiment and that has similar characteristics to New Brunswick sample members in the main SSP experiment. Compared with the control group, the SSP Plus experiment produced effects on employment and income (not shown) and on marriage (Figure 7) that were similar to effects produced in the main SSP experiment in New Brunswick.

Figure 5: Percentage Married or Common-Law, by Research Group in British Columbia

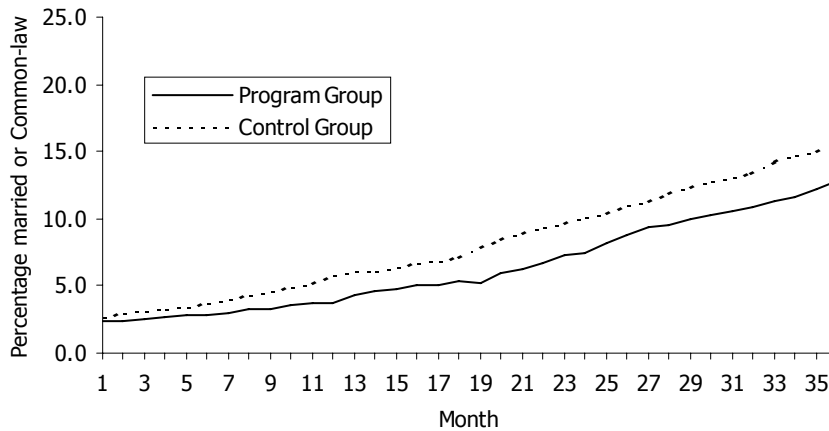
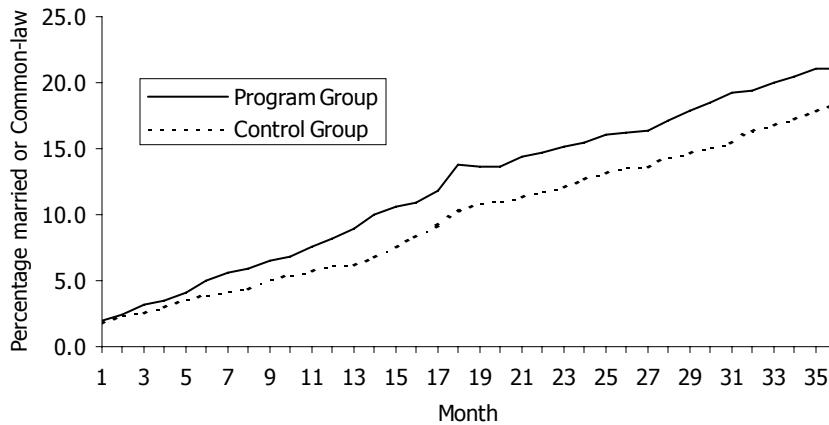
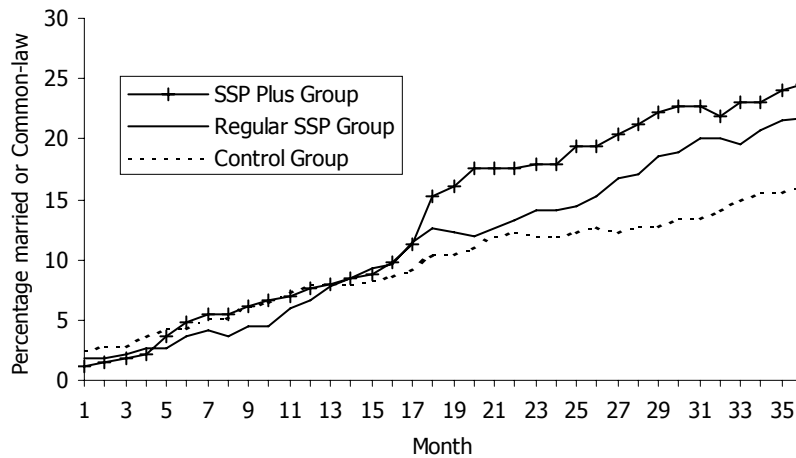


Figure 6: Percentage Married or Common-Law, by Research Group in New Brunswick



¹⁷Between months 35 and 36, the New Brunswick impact decreased only slightly, from 3.1 to 2.6 percentage points, but the month 36 impact was no longer statistically significant at the 10 per cent level.

Figure 7: Percentage Married or Common-Law, by Research Group in New Brunswick SSP Plus Study



The positive and negative effects of SSP in each province are robust to different statistical methods. When Wilcoxon and log-rank tests were applied to the Kaplan-Meier survival curves for the program and control groups within each province, the negative difference between the survival curves of the program and control groups in British Columbia and the positive difference in New Brunswick was statistically significant. The marital impact results by province and subgroup were reproduced using Cox proportional hazards models. The risk ratios from these models corresponded closely to the OLS regression results. The Cox risk ratios mirrored the percentage change, the impact divided by the control group mean, from OLS. The significance levels from the Cox models were similar to the significance levels from the OLS models. In addition, logistic regression yielded results consistent with the OLS estimates.

The robustness of the results is further suggested by the fact that the direction of the New Brunswick and British Columbia impacts is uniform across different subgroups of the sample. Table 3 presents results for subgroups defined by baseline characteristics such as age, gender, number of children, educational attainment, and employment and marital status at baseline within each province. SSP's effect on marriage for British Columbia was negative for almost every subgroup.¹⁸ The effect on marriage in New Brunswick was positive for all but one subgroup.

When control variables were included to adjust for differences in background characteristics between the research groups, the New Brunswick estimates were unaffected but the British Columbia results were slightly attenuated. Random assignment ensures that the program and control groups are similar in their background characteristics. However, Appendix B reveals a few differences between the background characteristics of program and control group members, especially in British Columbia, either due to chance or to differential patterns of survey nonresponse in the two research groups. When we control for the standard set of covariates used

¹⁸The large significant negative impact on marriage for males in British Columbia is striking. Because the sample of males is small, however, excluding males from the total sample does not affect the general impact findings (not shown).

in SSP's economic analyses, the New Brunswick results remain the same as the unadjusted estimates.¹⁹ In British Columbia, the impact on ever being married and months of marriage over the entire 36-month follow-up period are similarly unaffected when these control variables are included. However, the impacts of SSP on marriage in each individual month of follow-up in British Columbia become weaker and less significant when these control variables are added. To further test the sensitivity of the British Columbia results, we estimated a regression with a different set of covariates chosen because they are theoretically related to marriage.²⁰ Using this second set of control variables, the British Columbia results are similar to the unadjusted results.²¹ On the basis of this and other pieces of evidence, we conclude that the results in each province are robust, but the positive New Brunswick results are slightly stronger than the negative British Columbia results.

Mechanisms by which SSP affected marriage

The subgroup results in Table 3 allow us to somewhat untangle which theoretical effects seem to predominate in each province. The decrease in marriage in British Columbia may have been associated with an independence effect (increased income allowing women to postpone or forgo marriage), time constraints on dating imposed by full-time work, or increased stress caused by the demands of full-time work combined with parenting. If the negative effect of SSP on marriage is associated with the increased time constraints and stress from work, then we would expect a larger negative effect on marriage for the subgroup not working at baseline compared with the subgroup that was employed at baseline. On the other hand, if the negative effect on marriage is driven by an independence effect caused by increased income, then the negative impact on marriage would also appear for those employed full time at baseline.

For those employed at baseline in British Columbia, when part-time and full-time employments are taken together, SSP's effects on marriage are neutral, providing some evidence against the independence hypothesis. However, for those employed full time at baseline, for whom the time demands and stress of work were unlikely to increase as a result of SSP, there is a negative effect of SSP of a similar magnitude as for those not working at baseline. On the basis of this evidence, none of the theoretical effects can be ruled out.

The increase in marriage in New Brunswick may have been associated with exposure to social networks, increased self-esteem through work, the increased income provided by SSP, or the removal of the income assistance marriage disincentive. Table 3 shows that the largest positive impact on marriage, 14 percentage points, corresponds to recipients who were employed full time at baseline. Because this group was already immersed in the labour force at baseline and is most likely to benefit from the income windfall of SSP, the large impact for this group supports the hypothesis that income drove increases in marriage as opposed to exposure to new social networks or increased self-esteem from work.

¹⁹The standard set of covariates used in SSP's economic analyses includes the following variables: random assignment cohort, age of youngest child, marital status at baseline, educational attainment, can borrow money from family or friends, has had the blues, has physical problem, has emotional problem, age, prior welfare receipt, and prior earnings.

²⁰This set of covariates included those in the standard economic models plus urban residence, total number of children, working at baseline, speaks French, expects to be married within one year, and ancestry.

²¹Regression-adjusted impact estimates are available from the authors upon request.

Table 3: SSP Impacts on Marriage Rates, by Subgroup and Province: Percentage Ever Married or Common-Law, Months 1–36

Subgroup Based on Baseline Characteristic	British Columbia				New Brunswick				
	Sample Size	Program Group (%)	Control Group (%)	Difference (Impact)	Sample Size	Program Group (%)	Control Group (%)	Difference (Impact)	
Age group									
Less than 23 years	257	18.5	22.6	-4.0	398	31.8	28.2	3.6	
23-26 years	408	23.2	21.9	1.3	428	32.0	25.5	6.4	
27-34 years	916	17.2	20.0	-2.8	818	27.5	24.3	3.2	
35-39 years	397	10.4	16.1	-5.7	320	14.9	15.7	-0.8	*
40 or older	480	5.6	9.6	-4.0	405	11.3	7.6	3.8	*
Sex									
Male	113	11.9	21.7	-9.8	104	27.1	25.0	2.1	
Female	2,424	14.7	17.6	-2.8	2,320	24.7	20.5	4.2	**
Marital status									
Never married	1,104	13.6	15.0	-1.5	1,311	24.4	19.4	5.0	**
Previously married	1,309	12.6	16.3	-3.7	1,029	23.1	19.5	3.6	*
Expect to be married within 1 year	166	41.2	39.5	1.7	158	55.6	50.0	5.6	
Do not expect to be married within 1 year	2,191	12.3	15.7	-3.4	2,169	22.0	17.8	4.1	**
Work status									
Working at baseline	480	18.5	20.2	-1.8	490	26.4	19.9	6.4	*
Full time	171	21.7	23.9	-2.2	165	30.7	16.7	14.0	**
Part time	309	16.8	18.2	-1.4	325	24.4	21.7	2.7	
Not working at baseline	2,057	13.7	17.1	-3.4	1,934	24.4	20.9	3.5	*
Looking for work	561	14.7	17.8	-3.1	545	30.0	24.3	5.7	
Not looking for work	1,488	13.4	16.9	-3.5	1,373	22.6	19.3	3.6	
Number of children									
Has 2 children or less	2,076	15.2	17.9	-2.7	2,140	25.3	20.4	4.9	***
Has 3 or more children	461	12.0	16.9	-4.9	284	20.5	23.0	-2.6	
Has child less than 6 years old	1,417	17.1	20.9	-3.8	1,260	30.6	25.0	5.5	**
No children less than 6 years old	1,120	11.6	13.5	-1.9	1,164	18.6	16.0	2.6	
Educational attainment									
No high school degree	1,350	13.5	16.8	-3.3	1,305	23.6	18.4	5.2	**
High school degree only	857	17.2	19.1	-1.8	888	27.6	24.4	3.1	
Post-secondary degree	327	11.7	18.2	-6.5	231	20.4	19.5	0.9	

Source: Calculations from SSP surveys.

Notes: A two-tailed t-test was applied to differences between the outcomes for the program and control groups.

Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent.

Removing the marriage disincentive may also have contributed to the positive marital impact in New Brunswick. Starting in 1996, in an effort to reform its IA system, New Brunswick began to strictly enforce the “domestic unit” policy whereby other household members’ income is included in determining eligibility. The strengthening of this rule may have forced some New Brunswick couples to live apart in order to remain eligible for income assistance. SSP would allow couples in this situation to unite because it disregards the income contributed by a spouse in determining eligibility for the supplement. Since SSP intake took place in two waves, the first from November 1992 to June 1993 and the second from January 1994 to March 1995, we can garner some evidence on the effect of this policy enforcement by comparing marriage rates and impacts of the early and later waves. For the first wave, the strengthening of the domestic unit policy did not occur until midway through the 36-month follow-up period. For the second wave, the domestic unit policy began to be enforced strictly early on in the 36-month follow-up. If the disincentive to marry caused by the domestic unit policy and the alleviation of this disincentive through SSP contributed to the marital impact, we would expect larger marital impacts for the second wave of sample members. In actuality, the impacts were larger for the later cohort (4.3 percentage points compared with 2.8 percentage points for the earlier cohort), but the difference between the cohorts was not significant. This result lends weak support to the hypothesis that the enforcement of the domestic unit policy contributed to the marital impact in New Brunswick.

We further explored the connection between economic impacts of SSP and SSP’s effects on marriage using survival analysis. We modelled the hazard of marriage as a function of random assignment to the SSP program group with and without the addition of time-varying independent variables measuring income, full-time employment, and IA receipt. First, the hazard rate of marriage is modelled as a function of a time-invariant variable representing assignment to the program group:

$$(6) \quad h_i(t) = \lambda_0(t) \exp(\beta_1 P_i)$$

where $h(t)$ is the hazard rate of marriage, λ_0 is the baseline hazard, and P is assignment to the SSP program group. The risk ratios estimated from Equation 6 were consistent with OLS results in the two provinces; marriage increased by 22 per cent in New Brunswick and decreased by 17 per cent in British Columbia as a result of SSP (results are shown in Appendix C).

Next, we tested the model proposed in Figure 3 in which the economic impacts of SSP were the intervening mechanisms through which SSP affected marriage. If, as expected, SSP affected marriage through its effects on employment, income, and income assistance, then the effect of assignment to SSP estimated in Equation 6 should be reduced when the intervening mechanisms are controlled for. In Equation 7, we introduce controls for these intervening economic mechanisms:

$$(7) \quad h_i(t) = \lambda_0(t) \exp(\beta_1 P_i + \beta_2 E_i(t-1) + \beta_3 I_i(t-1) + \beta_4 LA_i(t-1))$$

where $E(t-1)$, $I(t-1)$, and $LA(t-1)$ are measures of full-time employment, income, and IA receipt, respectively, each of which is time dependent and lagged by one month. When we control for income, IA receipt, and full-time employment lagged by one month, as expected the New Brunswick program effect becomes markedly smaller and statistically insignificant. Surprisingly, the

opposite is true for the British Columbia sample. Here, when we control for income, employment, and IA receipt, the negative program effect becomes larger and more statistically significant. These results find support for the expected relation between SSP's economic and marital impacts in New Brunswick. In British Columbia the mechanism by which SSP affected marriage is less clear.²²

Why did SSP's effect on marriage differ by province?

The effects of income and employment did not vary by province.²³ As shown in the conceptual model above, one way that SSP was predicted to affect marriage is through its effects on income and employment. Can differences in SSP's impacts on income and employment by province help to explain its different effects on marriage? Tables 4 and 5 provide evidence to test how SSP may have affected marriage by presenting impacts on average monthly full-time employment and on income (from SSP, welfare benefits, and earnings) by subgroup. The first thing to note is that the SSP program increased income and full-time employment for nearly every subgroup in both provinces. The second noteworthy observation is that there is not a simple relation between impacts on income and full-time employment and impacts on marriage; larger impacts on income and full-time employment were not consistently associated with larger or smaller impacts on marriage.²⁴ However, a general trend emerges in each province. In British Columbia SSP increased income and full-time employment and decreased marriage in nearly every subgroup. In New Brunswick SSP also increased income and full-time employment, but increased marriage in nearly every subgroup.

The characteristics of the sample did not vary by province. Could the differences in sample characteristics between the two provinces shown in Table 1 help to explain differences in impacts on marriage? Table 1 showed that the British Columbia and New Brunswick sample members were significantly different in many of their background characteristics. Therefore, one possible explanation for the difference in the SSP program impact on marriage is that sample characteristics associated with positive impacts were more common in New Brunswick while characteristics associated with negative impacts were more common in British Columbia. For example, if SSP had a positive effect on marriage for all young sample members then, because the New Brunswick sample was younger than the British Columbia sample, the New Brunswick sample would exhibit more of this positive marital impact.

²²Note that because SSP is a voluntary program it is expected that the effects of SSP on full-time employment, income, and IA receipt occur primarily for those welfare recipients who take up the supplement offer. A simple comparison of marriage rates between SSP "takers" with members of the control group does not preserve the experimental design of the experiment. Other non-experimental techniques may be utilized to examine the relation between "take-up" of the SSP supplement and marriage. This kind of analysis is beyond the scope of the current paper.

²³SSP had no significant impact on fertility for the full sample or separately for each province.

²⁴In fact, very preliminary non-experimental estimates from instrumental variables analysis find that overall, for the combined SSP and SSP Plus sample, income has a negative effect on marriage and employment has a positive effect on marriage. This analysis used an indicator for being in the SSP experimental group, an indicator for being in the SSP Plus experimental group, and the interaction of being in the SSP group and in New Brunswick as instruments to predict employment and income. The predicted effects of income and employment were then used as covariates in an equation with marriage as the dependent variable (with the appropriate standard error adjustments).

Table 4: SSP Impacts on Employment Over 36 Months, by Subgroup and Province: Average Monthly Percentage Employed Full Time

Subgroup Based on Baseline Characteristic	British Columbia					New Brunswick				
	Sample Size	Program Group (%)	Control Group (%)	Difference (Impact)		Sample Size	Program Group (%)	Control Group (%)	Difference (Impact)	
Age group										
Less than 23 years	257	24.6	15.2	9.4	***	398	26.6	14.0	12.6	***
23-26 years	408	24.0	15.0	9.0	***	428	26.6	15.9	10.8	***
27-34 years	916	21.8	12.8	9.0	***	818	29.7	16.6	13.1	***
35-39 years	397	25.2	17.3	7.9	**	320	22.5	16.6	6.0	*
40 or older	480	21.7	12.3	9.4	***	405	22.5	14.6	8.0	***
Sex										
Male	113	26.3	16.9	9.4	**	104	22.4	14.0	8.5	
Female	2,424	22.6	13.9	8.8	***	2,320	26.6	16.0	10.6	***
Marital status										
Never married	1,104	22.4	14.7	7.7	***	1,311	26.0	14.6	11.4	***
Previously married	1,309	23.2	13.9	9.3	***	1,029	26.9	17.2	9.7	***
Expect to be married within 1 year	166	23.0	13.4	9.6	**	158	20.8	13.4	7.4	*
Do not expect to be married within 1 year	2,191	22.9	14.3	8.6	***	2,169	26.7	15.9	10.8	***
Work status										
Working at baseline	480	42.6	35.6	7.0	**	490	50.0	35.6	14.4	***
Full time	171	63.1	59.3	3.8		165	70.6	58.1	12.6	**
Part time	309	31.6	22.1	9.5	***	325	40.6	23.0	17.6	***
Not working at baseline	2,057	18.4	8.7	9.6	***	1,934	20.6	10.8	9.8	***
Looking for work	561	26.6	12.1	14.5	***	545	27.6	17.7	9.9	***
Not looking for work	1,488	15.4	7.5	7.9	***	1,373	17.7	7.8	10.0	***
Number of children										
Has 2 children or less	2,076	23.6	14.8	8.8	***	2,140	27.4	16.5	10.6	***
Has 3 or more children	461	19.4	10.1	9.3	***	284	20.9	11.8	9.1	***
Has child less than 6 years old	1,417	21.8	12.8	9.0	***	1,260	27.9	14.7	13.1	***
No children less than 6 years old	1,120	24.1	15.5	8.6	***	1,164	25.0	17.2	7.7	***
Educational attainment										
No high school degree	1,350	19.5	9.6	9.9	***	1,305	19.8	10.0	9.7	***
High school degree only	857	24.8	18.6	6.3	***	888	33.4	21.4	12.0	***
Post-secondary degree	327	31.0	21.5	9.6	***	231	38.2	27.4	10.8	**

Source: Calculations from SSP surveys.

Notes: A two-tailed t-test was applied to differences between the outcomes for the program and control groups.

Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent.

Table 5: SSP Impacts on Income, by Subgroup and Province: Average Total Income, Months 1–36, in Dollars

Subgroup Based on Baseline Characteristic	British Columbia					New Brunswick				
	Sample Size	Program Group (\$)	Control Group (\$)	Difference (Impact)		Sample Size	Program Group (\$)	Control Group (\$)	Difference (Impact)	
Age group										
Less than 23 years	257	42,234	37,271	4,963	***	398	30,791	24,371	6,420	***
23-26 years	408	43,199	36,921	6,277	***	428	31,739	26,234	5,504	***
27-34 years	916	44,345	37,932	6,413	***	818	32,805	27,722	5,083	***
35-39 years	397	42,946	41,044	1,901		320	30,094	28,750	1,344	
40 or older	480	40,784	34,485	6,299	***	405	29,670	24,460	5,210	***
Sex										
Male	113	43,459	37,470	5,989		104	30,332	26,707	3,624	
Female	2,424	42,908	37,556	5,351	***	2,320	31,441	26,504	4,938	***
Marital status										
Never married	1,104	43,359	38,272	5,086	***	1,311	31,480	26,819	4,661	***
Previously married	1,309	43,080	37,425	5,655	***	1,029	31,727	26,542	5,185	***
Expect to be married within 1 year	166	40,497	33,839	6,657	**	158	26,412	22,663	3,750	*
Do not expect to be married within 1 year	2,191	43,208	37,921	5,287	***	2,169	31,695	26,803	4,892	***
Work status										
Working at baseline	480	53,259	45,001	8,258	***	490	41,574	33,136	8,438	***
Full time	171	57,331	49,706	7,626	**	165	45,056	35,591	9,465	**
Part time	309	50,917	42,447	8,470	***	325	39,933	31,648	8,285	***
Not working at baseline	2,057	41,033	36,093	4,940	***	1,934	29,127	25,025	4,102	***
Looking for work	561	43,774	36,848	6,926	***	545	31,149	26,139	5,011	***
Not looking for work	1,488	40,090	35,836	4,254	***	1,373	28,285	24,584	3,702	***
Number of children										
Has 2 children or less	2,076	45,711	41,129	4,582	***	2,140	30,301	27,591	2,710	*
Has 3 or more children	461	42,298	36,747	5,551	***	284	31,532	26,353	5,180	***
Has child less than 6 years old	1,417	43,050	38,035	5,015	***	1,260	31,709	26,111	5,598	***
No children less than 6 years old	1,120	42,800	36,914	5,886	***	1,164	31,053	26,973	4,079	***
Educational attainment										
No high school degree	1,350	22,751	20,369	2,382	***	1305	28,890	25,197	3,693	***
High school degree only	857	23,506	20,714	2,791	***	888	34,114	27,114	6,999	***
Post-secondary degree	327	24,736	21,601	3,135	***	231	35,787	32,399	3,388	

Sources: Calculations from IA records, SSP Payment Information Systems, and SSP surveys.

Notes: A two-tailed t-test was applied to differences between the outcomes for the program and control groups.

Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent.

The evidence suggests that sample characteristics do not help to explain the differences in marital impacts between the two provinces. First, the subgroup results in Table 3 show that impacts on marriage are negative for almost every subgroup in British Columbia and positive for almost every subgroup in New Brunswick. Estimates of conditional impacts provide further evidence against the hypothesis that sample characteristics explain the opposite marital impacts in the two provinces. The conditional impact estimates allow the program effect on marriage to vary by province and by a number of background characteristics. After taking into account the variation in program impacts associated with baseline characteristics, program effects in the two provinces remain significantly different. Conditional impact estimates were derived from the following equation:

$$(8) \quad M_i^* = \alpha + \beta_1 P_i + \beta_2 N_i + \beta_3 N_i P_i + \sum_{k=4}^K \beta_k X_i + \sum_{m=K}^M \beta_m X_i P_i + \epsilon_i$$

where M is ever married during the 36 month follow-up period, P represents assignment to the SSP program group, N indicates being in the New Brunswick sample, NP is the New Brunswick/SSP program group interaction term, X is a vector of individual characteristics, and XP is a vector of individual characteristics interacted with SSP program group membership.

The vector of covariates (X) includes all of the baseline characteristics presented in Table 1. The variable of interest in this equation is the New Brunswick/program group interaction term (NP). The coefficient on this variable (β_3) indicates the net difference in the marital impacts in New Brunswick versus British Columbia after accounting for the variation in program impacts associated with baseline characteristics. The coefficient on the New Brunswick/program group interaction term was 0.081, indicating that the net difference between the New Brunswick and British Columbia program impacts on marriage was 8.1 percentage points. This difference is significant at the one per cent level. This evidence suggests that observed baseline differences between the New Brunswick and British Columbia samples do not account for differences in New Brunswick and British Columbia program impacts on marital status.

Marriage markets may vary by province. Differences in the supply of and quality of eligible spouses in a given geographic area, the “marriage market,” may explain the differences in impacts between the provinces. Table 6 presents some characteristics of the provinces that proxy the marriage market. The ratio of unmarried men to women in each province gives a sense of the number of potential spouses. As is shown in Table 6, this ratio is similar in New Brunswick and British Columbia. Prior research has suggested that the employment status of potential male spouses is also important (Wilson & Neckerman, 1987). The unemployment rate for men in New Brunswick (16.7 per cent) was considerably higher than for men in British Columbia (9.8 per cent). On the basis of this difference, we would expect higher marriage rates in British Columbia compared with New Brunswick. However, marriage rates are actually higher in New Brunswick than in British Columbia in both the program and control group. The proxies for marriage market characteristics — sex ratios and male unemployment rates — do not help to explain the differences in marriage impacts in the two provinces.

Unobserved or cultural characteristics may vary by province. Another possible explanation for the differences in impacts between provinces is differences in unobserved cultural characteristics in the two provinces. For example, Table 6 shows dramatic differences between the religious composition and the urbanization of the two provinces. New Brunswick has a much larger proportion of Catholics and people living in rural areas. British Columbia, on the other hand, is more Protestant and more urban. A large portion of the population in British Columbia lives in Vancouver and its suburbs. The larger concentration of Catholics and people living in rural areas in New Brunswick may be associated with more traditional marital values. Although overall rates of marriage in the two provinces are similar, Table 6 shows that the mean age at marriage is one year older in British Columbia than in New Brunswick. Furthermore, comparing rates of marriage in the control groups in the two provinces shows that marriage is much more common in the New Brunswick sample than in British Columbia in spite of the fact that the British Columbia economy is stronger and the pool of employed males is probably larger than in New Brunswick.

Table 6: Selected Characteristics of the Population Residing in the Areas Served by SSP

Characteristic	British Columbia	New Brunswick
Marriage market		
Ratio of males/females aged 15-64 (1996)	1.02	1.02
Ratio of unmarried males/females aged 15-64 (1997)	1.16	1.14
Male unemployment rate (1996) (%)	9.8	16.7
Average age at marriage for females (1995)	26.3	25.2
Demographics		
Number of residents 15 years old or older (1994) (thousands)	2,869	594
Families below the low income cut-off (1993) (%)	13.9	14.5
Rural residence (%)	19.6	52.3
Immigrant population (%)	22.3	3.3
Religion (%)		
Catholic	18.6	54.0
Protestant	44.5	40.1
Other	6.0	0.1
No affiliation	30.4	5.4
Employment		
Residents 15 years old or older among employed (%)		
1992	60	51.8
1993	59.9	51.9
1994	60.4	51.8
Unemployed (%)		
1992	10.5	12.8
1993	9.7	12.6
1994	9.4	12.4
Employment by type of occupation (1993) (%)		
Managerial or professional	31.5	29.5
Clerical	15.2	15.7
Sales	11.2	9.2
Services	14.2	15.7
Agriculture and other primary industries	4.1	4.9
Processing, machining, and fabrication	9.7	11.1
Average wage for all employees paid by the hour (1993) (\$/hour)	15.24	12.08

cont'd

Table 6: Selected Characteristics of the Population Residing in the Areas Served by SSP (cont'd)

Characteristic	British Columbia	New Brunswick
Welfare		
IA cases (1993)	193,825	42,123
Percentage of IA cases that are single-parent families (1993)	24.8	30.8
Basic monthly IA grant to single parent with 2 children (1995) (\$)	1,152	747
SSP earnings supplement program		
SSP income: Monthly earnings and SSP supplement assuming minimum wage and 30 hours/week (\$)	1,932	1,575
Ratio of SSP income to basic monthly IA grant to single mother and 2 children	1.8	2.2

Sources: Statistics Canada, Mijanovich & Long (1995), Card & Robins (1996).

Focus group transcripts provide further support for the role of unobserved cultural differences between the provinces in explaining the pattern of marital impacts. While many focus group participants in general discussed a desire to get married, only focus group participants in British Columbia placed a higher premium on being financially independent, at least in the short term and particularly from abusive relationships.

Discussion and Conclusion

Past research has shown that changes in welfare policies can affect family formation. However, the magnitude and direction of these effects are uncertain, partly because of methodological weaknesses in prior studies, but also because the sets of policies and the contexts they have operated in have been diverse. SSP provides a unique opportunity to study the effect on marriage of a simple and easily replicated earnings supplement program tested in two geographically diverse regions. The potential ease of replication of the SSP program design and the availability of experimental results in two different provinces represent advantages over prior research in this area.

The set of theoretical positive and negative effects outlined in this paper suggests that it is not clear whether to expect the net effect of the SSP program on marriage to be positive or negative. By removing the marriage disincentive, SSP may increase marriage. However, increased employment and increased income due to SSP may affect the propensity to marry either positively or negatively.

Our empirical findings show that although on average SSP had no effect on marriage, it had a consistent effect on marriage over 36 months of follow-up and across subgroups by province: consistently positive in New Brunswick and consistently negative in British Columbia. Findings in the two provinces are generally robust, although findings in New Brunswick are more robust than findings in British Columbia. In New Brunswick, the positive effect is a likely outcome of the increased income from SSP. There is evidence against the competing hypothesis that marriage increased by virtue of increased exposure to social networks or self-esteem through working. In British Columbia, the negative effect may be related to an independence effect, or to increased time demands and stress from working. The opposite direction of impact by province does not appear to be related to differences between the provinces in SSP impacts on employment and income, or in observed sample or marriage market characteristics. Other unobserved characteristics, such as the local marriage markets and culture may play a role in explaining this difference in marital impact. This is consistent with prior research in Canada and the US that emphasizes the importance of local context in mediating the relation between welfare benefit levels and female headship (Lefebvre & Merrigan, 1998; Moffitt, 1994).

What are the policy implications of these results? Since the SSP program did not penalize marriage, the earnings supplement can be viewed as allowing women to exercise their preferences. The earnings supplement is similar to receiving a large raise in salary in that both types of earnings increases are completely portable — they can be enjoyed regardless of changes in household composition. Our findings suggest that effects on marriage are not clearly predictable. In New Brunswick, where the demand or “taste” for marriage may be greater, the program enabled more women to marry. In British Columbia, where perhaps the taste for autonomy, at least in the short term, is greater, the program enabled more women to remain single. The most dramatic example is found in the SSP focus group report, which shows that SSP allowed women in British Columbia to leave abusive relationships.

It is still possible that longer-term rates of marriage will not show significant differences between respondents in the program and control groups, especially after the three-year SSP supplement

period has ended. British Columbia program group members may be choosing to postpone rather than forgo marriage in order to wait for a better opportunity. Conversely, in New Brunswick SSP may have caused people to marry sooner than they otherwise would have. Additional follow-up data that will be available in the near future will be used to further examine these hypotheses.

Appendix A

Key Features of the SSP Earnings Supplement and the SSP Plus Intervention

Key Features of the SSP Earnings Supplement

Full-time work requirement. Supplement payments were made only to eligible single parents who worked full time (an average of at least 30 hours per week over a four-week or monthly accounting period, whether in one or more jobs) and who left income assistance (IA).

Substantial financial incentive. The supplement was calculated as half the difference between a participant's earnings from employment and an "earnings benchmark" set by SSP for each province. The benchmark for each province was set at a level that would make full-time work pay better than income assistance for most recipients. During the first year of operations, the benchmark was \$30,000 in New Brunswick and \$37,000 in British Columbia. The benchmark was adjusted over time to reflect changes in the cost of living and generosity of income assistance. The supplement was reduced by 50 cents for every dollar of increased earnings. Unearned income (such as child support), earnings of other family members, and number of children did not affect the amount of the supplement. The supplement roughly doubled the earnings of many low-wage workers (before taxes and work-related expenses).

Targeted at long-term recipients. Eligibility for the supplement was limited to long-term welfare recipients (with at least one year of IA receipt). Since individuals were chosen for the recipient study only if they met this criterion, all were eligible for the supplement when they entered the study.

One year to take advantage of the offer. A person could sign up for the supplement if she found full-time work within the year after random assignment. If she did not sign up during that year, she could never receive the supplement.

Three-year time limit on supplement receipt. A person could have collected the supplement for up to three calendar years from the time she began receiving it, as long as she was working full time and not receiving income assistance.

Voluntary alternative to welfare. People could not receive IA payments while receiving the supplement. However, no one was required to participate in the supplement program. After beginning supplement receipt, people could decide at any time to return to income assistance, as long as they gave up supplement receipt and met the eligibility requirements for income assistance. They could also renew their supplement receipt by going back to work full time at any point during the three-year period in which they were eligible to receive the supplement.

Key Features of the SSP Plus Intervention

Employment plan. A blueprint for self-sufficiency was drawn up for each group member. It included information on employment barriers, goals, and anticipated use of SSP Plus services.

Resumé service. SSP Plus program staff was available to draft, type, format, proofread, and print resumé.

Job club. Enrolment in job clubs, led by SSP Plus job coaches, was encouraged. Emphasis was on early contact with employers, consistent follow-up, and the importance of maintaining a positive attitude.

Job coaching. Program group members formed one-on-one relationships with SSP Plus program staff, who offered practical advice and emotional support.

Job leads. SSP Plus program staff collected and distributed news of job openings.

Self-esteem workshop. Program group members participated in exercises designed to build self-esteem.

Other workshops. Workshops targeted program group members confronting job loss or looking for higher-paying positions.

Appendix B

Selected Baseline Characteristics of SSP 36-Month Survey Respondents, by Research Group and Province

Table B: Selected Baseline Characteristics of SSP 36-Month Survey Respondents, by Research Group and Province

Characteristic at Baseline	British Columbia			New Brunswick	
	Program Group	Control Group		Program Group	Control Group
Personal characteristics (%)					
Female	94.8	96.3	*	96.0	95.4
Urban residence	92.1	92.2		71.8	71.9
Age (%)					
19-24	17.0	20.2	**	26.6	24.9
25-29	22.2	19.6	*	19.8	22.0
30-39	41.5	41.6		37.4	35.7
40-49	16.8	16.2		13.7	14.8
50 or older	2.6	2.4		2.4	2.6
Education (%)					
Less than high school	51.6	55.0	*	54.1	53.6
High school, no post-secondary	35.9	31.7	**	37.0	36.3
Some post-secondary	12.5	13.3		9.0	10.1
Marital status (%)					
Married or living common-law	0.9	1.1		1.2	0.9
Never married	43.1	43.9		54.7	53.5
Divorced, separated, or widowed	54.7	53.4		43.6	44.6
Expect to be married within 1 year	7.1	7.0		6.2	7.4
Children (%)					
1	44.8	46.3		52.9	54.3
2	35.4	34.5		34.9	31.9
3 or more	18.7	17.7		10.9	12.5
Has child less than 6 years old	54.7	57.1		51.8	52.2
Work history and labour force status					
Ever had a paid job (%)	95.8	94.8		94.6	93.5
Average years worked	8.2	8.1		6.4	6.8
Labor force status at random assignment (%)					
Employed full time	6.4	7.1		6.3	7.4
Employed part time	12.0	12.4		13.7	13.3
Looking for work, not employed	22.2	22.2		21.4	23.8
Neither employed nor looking for work	59.4	58.2		58.6	55.4
Birthplace and ancestry (%)					
Not born in Canada	23.6	23.1		2.3	3.2
Ancestry					
Canadian	41.7	41.4		60.1	59.5
European	60.3	62.2		65.4	67.8
Asian	8.9	8.5		0.3	0.3
Latin	3.3	2.9		0.4	0.4
First Nations	11.9	11.1		6.1	6.8
Middle Eastern	1.3	1.3		0.3	0.6
Indian	2.4	1.3	*	0.1	0.2

cont'd

Table B: Selected Baseline Characteristics of SSP 36-Month Survey Respondents, by Research Group and Province (cont'd)

Characteristic at Baseline	British Columbia			New Brunswick	
	Program Group	Control Group		Program Group	Control Group
Language (%)					
English	94.9	95.0		98.9	98.8
French	4.0	5.4	*	23.0	23.3
Spanish	3.2	2.7		0.1	0.0
Vietnamese	8.0	6.7		n/a	n/a
Punjabi	1.3	0.3	*	n/a	n/a
Chinese	1.7	1.0		n/a	n/a
Sample size	1,296	1,241		1,207	1,217

Source: SSP baseline survey.

Notes: A two-tailed t-test was applied to differences between the program and control group in each province.

Statistically significance levels are indicated as: ***=1 percent; **=5 percent; *=10 percent.

Appendix C

SSP Effects on the Risk of Marriage

Table C: SSP Effects on the Risk of Marriage

	Risk Ratio		p-value
British Columbia			
No covariates	0.83	*	0.059
Controlling for income lagged 1 month	0.79	**	0.018
Controlling for on IA lagged 1 month	0.73	***	0.001
Controlling for full-time employment lagged 1 month	0.79	**	0.019
Controlling for all 3 lagged 1 month	0.75	***	0.004
New Brunswick			
No covariates	1.22	**	0.020
Controlling for income lagged 1 month	1.14		0.134
Controlling for on IA lagged 1 month	1.07		0.407
Controlling for full-time employment lagged 1 month	1.16	*	0.085
Controlling for all 3 lagged 1 month	1.10		0.256

Sources: Calculations from IA records, SSP Payment Information Systems, and SSP surveys.

Notes: Risk ratios were derived from Cox proportional hazard models.

Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent.

References

- Allison, P. (1995). *Survival analysis using the SAS system: A practical guide*. Cary, NC: SAS Institute.
- Bancroft, W., & Currie Vernon, S. (1995). *The struggle for self-sufficiency: Participants in the Self-Sufficiency Project talk about work, welfare, and their futures*. Vancouver, BC: Social Research and Demonstration Corporation.
- Bane, M. J., & Ellwood, D. T. (Eds.). (1994). *Welfare realities: From rhetoric to reform*. Cambridge, MA: Harvard University Press.
- Becker, G. (1973). A theory of marriage: Part I. *Journal of Political Economy*, 81, 813–46.
- Becker, G. (1974). A theory of marriage: Part II. *Journal of Political Economy*, 82, 511–26.
- Bloom, D., Farrell, M., Kemple, J. J., & Verma N. (1998). *The Family Transition Program: Implementation and early impacts of Florida's time-limited welfare program*. New York: Manpower Demonstration Research Corporation.
- Bloom, D., Melton, L., Michalopoulos, C., Scrivener, S., & Walter, J. (2000). *Jobs First: Implementation and early impacts of Connecticut's welfare reform initiative*. New York: Manpower Demonstration Research Corporation.
- Burtless, G. (1986). The work response to a guaranteed income: A survey of the experimental evidence. And Discussion by O. Ashenfelter & R. Hall. In A. Munnell (Ed.), *Lessons from income maintenance experiments* (pp. 22–59). Boston: Federal Reserve Bank of Boston & The Brookings Institute.
- Cain, G. (1986). The issues of marital stability and family composition and the income maintenance experiments. In A. Munnell (Ed.), *Lessons from income maintenance experiments* (pp. 60–93). Boston: Federal Reserve Bank of Boston & The Brookings Institute.
- Cain, G., & Wissoker, D. (1990). A reanalysis of marital stability in the Seattle-Denver Income-Maintenance Experiment. *American Journal of Sociology*, 95(5): 1235–1269.
- Card, D., & Robins, P. K. (1996) *Do financial incentives encourage welfare recipients to work?* Ottawa: Social Research and Demonstration Corporation.
- Edin, K. (1999). *What do low-income single mothers say about marriage?* [Mimeo]. Philadelphia: Department of Sociology, University of Pennsylvania.
- Eissa, N., & Hoynes, H. W. (1999). *Good news for low-income families? Tax-transfer schemes, and marriage*. [Mimeo]. CA: Department of Economics, University of California.
- Ellwood, D. (1986). Discussion. (Response to G. Cain's "The Income Maintenance Experiments and the issues of marital stability and family composition.") In A. Munnell (Ed.), *Lessons from income maintenance experiments* (pp. 94–105). Boston: Federal Reserve Bank of Boston & The Brookings Institute.
- Fein, D. (1999). *Will welfare reform influence marriage and fertility? Early evidence from the ABC demonstration*. Bethesda, MD: Abt Associates, Inc.

- Groeneveld, L. P., Tuma, N. B., & Hannan, M. T. (1980). The effects of negative income tax programs on marital dissolution. *The Journal of Human Resources*, 15(4), fall 1980: 654–674.
- Hannan, M. T., Tuma, N. B., & Groeneveld, L. P. (1977). Income and marital events: Evidence from an income maintenance experiment. *American Journal of Sociology*, 82(6): 1186–1211.
- Holden, K., & Smock, P. (1991). The economic costs of marital dissolution. *Annual Review of Sociology*, 17: 51–78.
- Hu, W. (1998). *Marriage and economic incentives: Evidence from a welfare experiment*. [Mimeo]. Los Angeles: Department of Economics, University of California at Los Angeles.
- Lam, D. (1988). Marriage markets and assortative mating with household public goods: Theoretical results and empirical implications. *The Journal of Human Resources*, 23(4): 462–87.
- Lefebvre, P., & Merrigan, P. (1998). The impact of welfare benefits on the conjugal status of single mothers in Canada: Evidence from a hazard model. *The Journal of Human Resources*, 33(3): 742–757.
- Lichter, D., Le Clere, R., & McLaughlin, D. (1991). Local marriage markets and the marital behaviour of black and white women. *American Journal of Sociology*, 96: 843–67.
- Lin, W., Robins, P. K., Card, D., Harknett, K., & Lui-Gurr, S. (1998). *When financial incentives encourage work: Complete 18-month findings from the Self-Sufficiency Project*. Ottawa: Social Research and Demonstration Corporation.
- Michalopoulos, C., Card, D., Gennetian, L. A., Harknett, K., & Robins, P. K. (2000). *The Self-Sufficiency Project at 36 months: Effects of a financial work incentive on employment and income*. Ottawa: Social Research and Demonstration Corporation.
- McLanahan, S., & Sandefur, G. (1994). *Growing up with a single parent: What hurts, what helps*. Cambridge, MA: Harvard University Press.
- McLanahan, S., & Casper, L. (1995). Growing diversity and inequality in the American family. In R. Farley (Ed.), *State of the union: American in the 1990s, Volume 2* (pp. 1–45). New York: Russell Sage Foundation.
- Mijanovich, T., & Long, D. (1995). *Creating an alternative to welfare: First-year findings on the implementation, welfare impacts, and costs of the Self-Sufficiency Project*. Vancouver, BC: Social Research and Demonstration Corporation.
- Moffitt, R. (1992). Incentive effects of the U.S. welfare system: A review. *Journal of Economic Literature*, 30(1): 1–61.
- Moffitt, R. (1994). Welfare effects on female headship with area effects. *The Journal of Human Resources*, 29(2): 621–636.
- Moffitt, R. (1998). The effect of welfare on marriage and fertility. In *Welfare, the family, and reproductive behaviour* (pp. 50–97). Washington, DC: The National Academy Press.
- Morris, P., & Michalopoulos, C. (2000). *The Self-Sufficiency Project at 36 months: Effects on children of a program that increased parental employment and income*. Ottawa: Social Research and Demonstration Corporation.

- Oppenheimer, V. (1988). A theory of marriage timing: Assortative mating under varying degrees of uncertainty. *American Journal of Sociology*, 94: 563–91.
- Oppenheimer, V., & Lew V. (1995). American marriage formation in the 1980s: How important was women's economic independence? In K. Mason and A. Jensen (Eds.), *Gender and family change in industrialized countries* (pp. 105-138). Oxford: Claredon Press.
- Quets, G., Robins, P. K., Pan, E. C., Michalopoulos, C., & Card, D. (1999). *Does SSP Plus increase employment?: The effect of adding services to the Self-Sufficiency Project's financial incentives*. Ottawa: Social Research and Demonstration Corporation.
- Reinhold, R. (1979, February 5). Test in Seattle Challenges Minimum Income Plan *The New York Times*, p. 1.
- SRI International. (1983). *Final report of the Seattle-Denver income maintenance experiment*. Washington, DC: U.S. Department of Health and Human Services.
- Weiss, Y. (1997). The formation and dissolution of families: Why marry? Who marries whom? And what happens upon divorce. In M.R. Rosenzweig and O. Stark (Eds.), *Handbook of population and family economics* (pp. 967–1014). New York: Elsevier.
- Wilson, W. J., & Neckerman, K. (1987). Poverty and family structure: The widening gap between evidence and public policy issues. In W.J. Wilson (Ed.), *The truly disadvantaged* (pp. 232–259). Chicago: University of Chicago Press.
- Winkler, A. E. (1995). Does AFDC–UP encourage two-parent families? *Journal of Policy Analysis and Management*, 14(1): 4–24.

