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Can Work Alter Welfare Recipients'  
Beliefs about How They Will Fare in the  
Labor Market?

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# Can Work Alter Welfare Recipients' Beliefs about How They Will Fare in the Labor Market?

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## **Abstract**

Some public policies aimed at integrating welfare recipients into the world of work are predicated on the premise that getting welfare recipients to work will change their beliefs about how they will be treated in the labor market. This paper explores the rationale for these policies and concludes that a plausible argument can be made on the basis of concepts developed by social psychologists and by economists. The prediction that work affects beliefs is tested using a unique data set that allows us to estimate the causal effect. We find that exogenous increases in work induced by an experimental tax credit led to the predicted changes in self-efficacy.

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# 1 Introduction

The possibility that getting welfare recipients to enter the labor market can have cumulative benefits is central to the jobs oriented welfare reform:

“Work First programs share a common philosophy regarding work: any job is viewed as a good job and program efforts should be geared toward helping recipients enter the paid labor force as quickly as possible (Holcomb et al. (1998), page 4)

The argument for this strategy can take two forms. The first is the usual human capital argument that welfare recipients lack job relevant skills and that learning by doing or on-the-job training can lead to skill acquisition. The second argument for getting welfare recipients into jobs focuses on changing their perceptions about their ability to function in the world of work :

“The major challenge in welfare administration is to get people involved and to overcome their pessimism.”<sup>1</sup>

This policy prescription is based either implicitly or explicitly on the presumption that work can change a welfare participants beliefs about her ability to succeed, which can in turn break the cycle of welfare dependency. If this presumption is true then work provides not only current income but may also change beliefs that can lead to future success in the labor market.

This policy prescription raises an old question: Can labor market activity change people’s perceptions about the obstacles they face? This issue which was central to much of the early work on the culture of poverty and expectancy theories of poverty (see Bane and Ellwood (1994) for a review) was abandoned by economists in the 1970’s and 1980’s who viewed the question as hopelessly vague and based on concepts more in the realm of sociology

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<sup>1</sup>Mead (1997) , p.172

and psychology than in the realm of economics.<sup>2</sup> The recent up interest in the intersection of labor economics and psychology (see Benabou and Tirole (2002)) suggests that it may be fruitful to revisit this old question.

This paper has two objectives. The first is to provide a bridge between the concept of self-efficacy developed in the social psychology literature and the concept of informational updating which is more familiar to economists. We argue that these two concepts lead to the same conclusion. Namely that entering the labor market can potentially lead welfare recipients to revise their beliefs about their chances of succeeding in the labor market. We stress that this outcome is possible but by no means assured. The second objective of this paper is test the prediction that work does lead to a change in beliefs.

The central problem in testing whether work alters beliefs is that there is an inherent simultaneity between these two outcomes. It has long been recognized that the correlations between work and beliefs does not identify the causal impact of either. There is ample evidence that respondents who work are less likely to think that they will be treated unfairly or to think that they do not have the skills necessary to succeed. But this could simply reflect the fact that individuals who have these beliefs are more likely to work. This would lead to the observed relationship even if work did not affect beliefs. This problem has long been recognized in the literature. The problem has been to find a credible exogenous source of variation in work. We use a unique data set from the Self-Sufficiency Project (SSP) to overcome this problem. This experimental project offered an earnings subsidy to a randomized group of long term welfare recipients. Randomization insures that the treatment is not correlated with the recipient's beliefs about her ability to succeed in the world of work. Since the earnings subsidy has been shown to have a substantial affect on work it also satisfies the second criteria

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<sup>2</sup>his shift also affected data collection as well. For example the 1968 to 1972 the PSID asked a set of attitudinal questions that were subsequently dropped

for a valid instrument, namely that the instrument be correlated with work as well as not correlated with beliefs. Our empirical results indicate that getting long term welfare recipients to work by offering a wage subsidy does alter their beliefs as measured by standard measures of self-efficacy.

This paper consists of the following sections. We start by presenting the social psychology and economic arguments that lead to the prediction that work can result in a change in beliefs. This is followed in Section 3 by a discussion of the statistical issues in estimating the causal impact of work on beliefs. We then describe the data in section 4 and present the results in section 5.

## 2 Two Perspectives

While psychologists and social psychologists use a language that is often unfamiliar to economists their interest in the causes of low achievement is directly relevant to this study that focuses on the formation of beliefs<sup>3</sup>. This literature suggests that low achievement can reflect two conceptually different mechanisms. Individuals may not seek out job opportunities because (1) they do not value the rewards that come from work (i.e. they are not motivated) or (2) because they do not expect that their effort to find a job will result in employment (i.e. they have low “expectancy” that their effort will be rewarded which is reflected in low self-efficacy). Individuals have to desire an outcome *and* to believe that they can achieve that outcome in order for them to achieve a goal. If either of these is lacking then the individual does not undertake the task.

These concepts from social psychology map directly into concepts familiar to economists. “Motivation” reflects tastes (what people want) and “expectancy” reflects expected constraints (the perception of what is possible). Achievement can be increased either by motivating people (i.e. changing

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<sup>3</sup>Skinner et al. (1998) offers a useful overview.

their tastes) or by changing their perceptions of what is possible (changing their beliefs about the constraints they face). The latter can include skill acquisition (increasing human capital) or changes in perceptions of how these skills are evaluated (changes in their prior beliefs that they will experience discrimination). Individuals who believe that they cannot attain the ends they desire feel they have little control over their lives (their opportunity set is highly constrained either by skills or discrimination). In the extreme, they view that they have no options to choose from and conclude that they have no control over their own lives.<sup>4</sup>

These two frameworks open the possibility that getting welfare recipients to enter the job market can have cumulative effects by providing information on the constraints they face<sup>5</sup>.

“Dependence may reflect a lack of information. In expectancy models, people often incorrectly perceive their level of control over their destiny. Such misperception would be quite likely if people simply did not have important information”<sup>6</sup>

For example, welfare recipients may believe that employers would not hire them because they lack the required skills or because employers are prejudiced against young single mothers. However, some employers may have had successful previous experience with welfare recipients and may believe that mothers who want to work are particularly good employees. If this is the case then getting welfare recipients into the labor market may change their beliefs about how they will be treated in the labor market. In the language of the social psychology this will lead to a change in expectancy or self-efficiency. In the language of economics this will lead to a change in prior beliefs about the constraints the individual faces in the labor market.

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<sup>4</sup>In his seminal work in this area Rotter (1966) introduced the concept of internal and external locus of control.

<sup>5</sup>See the appendix for a formal treatment of the material presented in this section.

<sup>6</sup>Bane and Ellwood (1994), p.75

One of the contributions of the economic approach is that it highlights that while entering the world of work may lead to more optimistic appraisal of one's ability to succeed in the world of work this is by no means a necessary consequence. Work can lead some welfare recipients to conclude that they had been too optimistic about how the labor market would treat them. If a welfare recipient initially thought that she was qualified for a job and that she would get treated fairly but she was then turned down for the job (or was hired and subsequently fired), then she may conclude that she has fewer options than she formerly believed. In this case work would lead to a more pessimistic assessment of how she would fare in the world of work. Furthermore, welfare recipients who find that their treatment in the labor market was largely consistent with their prior beliefs hold on to these beliefs more strongly. For them there is no change in beliefs.

The foregoing implies that the net impact of work oriented welfare programs depends on the relative number of welfare recipients who are overly pessimistic compared to those who are overly optimistic. If these two cancel then the policy will have no net effect on beliefs<sup>7</sup>. If a program is to have a positive effect on beliefs then it must be true that, on average, welfare recipients covered by the program are too pessimistic about how they will be treated in the labor market. While one can make a credible case that welfare recipients are overly pessimistic, this remains an empirical issue<sup>8</sup>.

### 3 Empirical Issues

Very few studies explore the determinants of people's beliefs. The vast majority of the literature treats beliefs as an explanatory variable by including

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<sup>7</sup>In the language of economics, expectations are rational even if individual members of the group are overly optimistic or pessimistic. All that is required is that these cancel so that the average expectation is correct.

<sup>8</sup>Note that welfare recipients may be overly pessimistic because those are the people who are most likely to enter the welfare system (i.e a pure selection effect) or because the welfare system causes pessimism (i.e. true state dependence).

attitudinal variables. in an equation with labor market or welfare outcomes as dependent variables. Andrisani (1977), Andrisani (1981), Duncan and Morgan (1981), Corcoran et al. (1985), Goldsmith et al. (1997) and Dunifon and Duncan (1998) examine the impact of various attitudinal variables on labor market outcomes.<sup>9</sup> Kunz and Kalil (1999) and Edwards et al. (2001) estimate the impact of differences in beliefs on welfare utilization. Coleman and DeLeire (forthcoming) examine the relationship between locus of control and human capital accumulation.

The problem in isolating the causal effect of work is that work and beliefs are simultaneously determined. Individuals are more likely to enter the labor market if they believe they will be treated fairly but their beliefs about how they will be treated may also reflect their labor market experiences. This two way causation is explicitly recognized in Rotter (1990) and Kane (1987) but is often ignored in the empirical literature<sup>10</sup>. One of the reasons for this gap is that it has been difficult to find an exogenous source of variation in labor market outcomes that could causally affect beliefs.

The problem can be seen clearly by considering the following simultaneous system.

$$\Delta Beliefs_i = X_{it}^B \beta^B + \alpha_i^B \Delta Work_i + \varepsilon_i^B \quad (1)$$

$$\Delta Work_i = X_i^W \beta^W + \alpha^W \Delta Beliefs_i + \varepsilon_i^W \quad (2)$$

$\Delta Beliefs_i$  is a variable that captures the change in workers beliefs between period  $t$  and  $t + 1$ .  $\Delta Work_i$  is the change in work experience over the same period and  $X_i^B$  is a vector of observables that may affect beliefs, independent of the change in work experience. Equation 1 allows beliefs to change as individuals gain labor market experience,  $\Delta Work_i$ . Equation 2 captures the other possible direction of causation by allowing the accumulated labor

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<sup>9</sup>Corcoran et al. (1985) summarize the results of a set of project reports.

<sup>10</sup>There are some exceptions. Dunifon and Duncan (1998) avoid the issue of endogeneity of beliefs by using long lags of the attitudinal variables. Corcoran et al. (1985) and Goldsmith et al. (1997) use exclusionary restrictions to estimate causal impacts.

market experience to depend on the agents beliefs about the constraints she faces. The econometric problem is to untangle these two potential behavioral links between work and beliefs. Does work lead to more positive beliefs about one's ability (i.e.  $\alpha^B > 0$ ) or do people with more positive beliefs about themselves accumulate more work experience (i.e.  $\alpha^W > 0$ )?

Any contemporaneous correlation between work and beliefs can reflect either or both of these behavioral links that have substantially different policy implications. The first (i.e.  $\alpha^B > 0$ ) indicates that getting a welfare recipient to work will change her beliefs about her ability to succeed in the labor market. The second (i.e.  $\alpha^W > 0$ ) states that changing a welfare recipient's beliefs, through work (or counselling), will lead to greater labor market participation.

In order to identify the causal impact of work on beliefs,  $\alpha^B$ , it is necessary to find an exogenous source of variation in work experience,  $\Delta Work_i$ . The standard approach to solving this problem is to try to find a variable (i.e. an instrument) that is correlated with work experience,  $\Delta Work_i$ , but not correlated with unobservable factors that affect beliefs,  $\varepsilon_i^B$ . The problem has been to find a credible instrument.

We use data from a unique data set that allows us to overcome this serious econometric problem.<sup>11</sup> The Self-Sufficiency Project (SSP) was an experimental program that offered a wage subsidy to a randomized group of Canadian welfare recipients. Evaluation studies of the SSP show strong positive impacts on employment<sup>12</sup>. The SSP treatment, therefore, satisfies the two criteria for a good instrumental variable. The randomized nature of the treatment insures that assignment is not correlated with  $\varepsilon_i^B$ . Treatment is, however, correlated with  $\Delta Work_i$  since it increased employment.

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<sup>11</sup>The New Hope Project offers another potential data set that includes information on attitudinal variables (see Huston et al. (2001)). This experimental project, however, offered earnings subsidies only as part of larger package, which may have had a direct impact on attitudes.

<sup>12</sup>See Michalopoulos et al. (2002)

## 4 Data and Measures

The SSP program was designed to determine the impact of instituting an earnings supplement for welfare recipients in order to reduce the reliance on long-term Income Assistance (IA). The hope was that the subsidy would not only lead to an increase in employment, but also to a change in beliefs toward work and welfare. A random sample of single parents in New Brunswick and British Columbia, aged 19 or over, who had received Income Assistance for at least 12 of the previous 13 months were assigned to a treatment group and a control group. The treatment group was offered a substantial earnings subsidy for a period of three years so that most eligible families would find work to be financially preferable to continued receipt of IA.

SSP sample members were eligible for the earnings subsidy if they worked at least 30 hours per week in a an eligible job<sup>13</sup>. The supplement was equal to 50 percent of the difference between the individual's monthly earnings and a target earnings level each pay period. In 1993, the monthly target earnings for an individual in New Brunswick was \$2,500, translating to a maximum subsidized wage of \$19.23 for someone working 30 hours per week. The target earnings in British Columbia was \$3,083, or \$23 per hour for someone working 30 hours. A person earning the minimum wage of \$5.00 per hour working 30 hours per week would, therefore, receive a supplement of over \$7.00 per hour in New Brunswick, effectively more than doubling her wage. It was expected that a subsidy of this size would increase labor supply and that the resulting work experience would lead to a change in belief toward work and welfare.

The analysis file contains 2858 sample members assigned to the SSP treatment, and 2827 to the control group. A baseline interview was conducted

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<sup>13</sup>Each eligible individual had 12 months from the time of eligibility to begin working full time and to start collecting SSP payments. These individuals could claim the supplement for a maximum of 36 consecutive months, starting the month they began collecting supplemental payments, but only during those months they were employed full time.

with all sample members in late 1992. This instrument contained detailed information on employment and a set of questions regarding self-efficacy at the baseline. Sample members were re-interviewed 18 months and 36 months after the initial interview. The questionnaire gathered information on employment histories and self-efficacy at the time of each survey. Since sample members did not have to start working until the twelfth month after random assignment and since beliefs may change only slowly we contrast beliefs in the 36 month interview with beliefs at the baseline.

The following four questions were asked both at the baseline and 36 month interview. Respondents were asked whether they agreed strongly, agreed, disagreed or disagreed strongly with the following statements :

1. There is little that I can do to change many of the important things in my life.
2. I have little control over the things that happen to me.
3. I am often angry that people like me never get a fair chance to succeed.
4. Sometimes I feel as if I'm being pushed around in life.

These statements have been used extensively in the social psychology literature to measure self-efficacy or the ability to achieve desired ends. Individuals who view themselves as having limited options think there is little they can do to change their lives so they have little control over what happens to them. These beliefs may arise out of the belief that they do not have the skills to change their lives or that they are treated unfairly. In the context of the labor market, individuals may believe that they either lack skills or that there is discrimination against them.

## 5 Results

Table 1 presents descriptive statistics on the demographic and economic characteristics of sample members at the baseline interview. Columns 1 and 2

show the characteristics of experimental and control group members respectively. Comparing across columns shows that the characteristics of experimentals and controls were very similar at the baseline, which is consistent with random assignment. This table shows that sample members were almost all female and that the majority had less than a high school degree. The average number of children was around 1.7, and nearly half of the respondents had never been married

Both experimentals and controls had only limited prior work experience and few were working at the baseline interview. The average work experience for both experimentals and controls at the baseline interview was a little over seven years. This is considerably lower than potential work experience for these sample members with an average age of 32. At the baseline only 20 percent of respondents were working and only about a third of these were working full-time. These descriptive statistics confirm that our sample of SSP welfare recipients had low education and limited work experience.

Table 2 presents descriptive statistics that confirm the popular notion that working welfare recipients have higher self-efficacy than those not working or those working part-time. Entries in each row show the proportion who agree or agree strongly with each statement. The first row shows that 31.9 percent of unemployed welfare recipients agreed with the statement “There is little that I can do to change many of the important things in my life”. In contrast, only 21.4 percent of employed welfare recipients agreed with this statement and the 10.5 percent difference is statistically significant. Full-time workers are even less likely to concur (18.1 percent) and the difference with part-time workers is statistically significant. The pattern of full-time workers being the least likely to agree and unemployed workers being the most likely to agree holds for all four statements, though the difference between full-time and part-time workers is not always statistically significant. While these descriptive statistics should not be interpreted as showing any causal links between work and beliefs they do show that there is a relationship that needs

to be explained

Our estimates of the causal effect of accumulated work experience on beliefs are shown in Tables 3 and 4. We show the impact of increased labor market activity as measured by the number of hours worked between the baseline and 36 month interview (measured in hundreds of hours.) Table 3 shows the impact of this variable on the probability that the respondent disagrees more strongly with each statement in the 36 month interview than in the baseline interview<sup>14</sup>. The converse of greater disagreement is not greater agreement since roughly half of all respondents report the same level of agreement at the two interviews. Table 4, therefore, shows the effects of accumulated work experience between the baseline interview and the 36 month interview on the probability that the respondent reported greater agreement with the statement at the 36 month interview than at the baseline interview.

For all four questions the coefficients on the hours worked between the baseline and 36 month interview are positive in Table 3 and negative in Table 4<sup>15</sup>. This indicates that welfare recipients who spent more time employed during this 36 month period were more likely to report that they disagreed and were less likely to report that they agreed with each statement. The results in Tables 3 and 4 indicate that there is a statistically significant relationship in almost all cases between work and these measures of self-efficacy. This is not surprising in the estimates where we ignore the simultaneity since the estimated coefficients capture the effect of beliefs on work as well as the effects of work on beliefs, which were shown to be significant in Table 2.

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<sup>14</sup>The derivatives evaluated at the means, rather than the probit coefficients are shown for ease of interpretation.

<sup>15</sup>Greater disagreement indicates that the respondent believed that she was better able to change her life, was more in control, or was less likely to believe that she was treated unfairly or pushed around. Therefore, the expected sign on accumulated work experience is positive since increases in this variable should lead to greater disagreement with each statement.

The fact that the coefficient on work continues to be significant in almost all cases when we use only the exogenous variation in work caused by the experiment, however, indicates that the relationship is not spurious. These results indicate that the increased work activity induced by the experiment lead to higher levels of self-efficacy.

The causal effects are not only statistically significant, but also large. When the mean change in hours of 361 is multiplied by the derivatives in Table 3 this yields a large predicted increase in the probability of disagreeing with each of the statements. The increase ranges from .05 (pushed around) to .10 (angry). The impact of work on the probability of being less likely to agree with each statement are smaller but still qualitatively important (the range is from .04 to .07.)

## 6 Conclusions

We have argued that standard concepts in social psychology and in economics are consistent with the theory that getting welfare recipients to work can change their beliefs about their abilities to succeed in the world of work. Social psychologists place considerable emphasis on the role played by success. Welfare recipients who do not think they can successfully achieve a goal do not try, even if they desire to reach that goal. Showing welfare recipients that they can be successful in the labor market may, therefore, have positive repercussions. A parallel economic argument can be made using the concepts of imperfect information and learning . Some welfare recipients may be pessimistic about their abilities to succeed in the world of work. If they enter the labor market they obtain new information which can lead to an updating of information if the reality does not match their prior beliefs. If this is the case then getting pessimistic welfare recipients into the world of work can lead to an updating of their prior beliefs which can lead to further labor market activity. Overly optimistic welfare recipients

may, however, find that their optimism is not met so, for them, work leads to greater pessimism.

While a plausible argument can be made that work will lead to more optimistic beliefs the issue can ultimately be resolved only by going to the data. The difficulty in estimating the causal impact of work on beliefs is that the two are simultaneously determined. Work can affect beliefs but beliefs are also likely to affect work. The raw correlation between these two outcomes can, therefore, reflect either or both directions of causation. The problem has been to find an exogenous source of variation in work. We overcome this obstacle by using data from a unique Canadian experiment in which a random sample of welfare recipients were given a large earnings subsidy that led to large increases in work. We use this exogenous source of variation in work to estimate the causal impact of work on a set of measures of self-efficacy. Our results indicate that this exogenous increases in hours worked led to higher levels of self-efficacy, which indicates that work led welfare recipients to be more optimistic about their abilities to achieve in the world of work.

## 7 Appendix

This appendix formalizes the argument presented in the paper that entering the labor market can lead to revised beliefs about the labor market. Workers start with a set of priors about the probability of being offered a job given their current information on how employers view their qualifications.<sup>16</sup> The latter can take two forms. The first is that applicants may believe that they have few job relevant skills and are, therefore, unlikely to get the job. The

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<sup>16</sup>Coleman and DeLeire (forthcoming) also offer a model that bridges the gap between economics and psychology. Their model formalizes the intuition that persons who believe that their actions have little affect on outcomes are less likely to invest in human capital since they believe that wages are independent of the decision to invest. their analytical model, therefore, formalizes the intuitive notion that beliefs can affect other outcomes, in this case human capital accumulation.

second is that they believe that they have the required skills but that there is discrimination in the labor market. In either case potential applicants believe they have limited options. The worker's actual options depend on employers' beliefs which may be based on a different information set. Based on prior experiences with similar workers, employers may have different priors about the expected job performance of the applicant. These will in turn reflect their past experiences as filtered through their prejudices.

Consider a simple two period model in which an agent decides whether to apply for a job in period 1 based on the cost of applying and the likelihood that she will be hired. The latter depends on her priors of the employer's beliefs about her productivity. The employer decides whether to hire the applicant at the start of period 2. Applicants who are hired are paid a wage of  $w$  during period 2. The applicant's value to the employer is given by  $\theta$ . For shorthand we call this the applicant's productivity, though it should be kept in mind that since  $\theta$  is the employer's evaluation of the applicant's productivity it can reflect his prejudices as well as the applicants true skill.

$\theta$  is not known at the time of application or at the time the employer decides whether or not to hire the worker. The applicant and the employer, however, have beliefs over  $\theta$ . Following Benabou and Tirole (2002) we define these beliefs as the distribution functions  $F(\theta|\Omega_1^a)$  and  $F(\theta|\Omega_1^e)$ , where  $\Omega_1^a$  and  $\Omega_1^e$  are the applicant's and the employer's initial information sets. The applicant's distribution function gives her beliefs that her value to the employer is  $\theta$  or lower. It captures both the applicant's point estimate of her productivity,  $E(\theta|\Omega_1^a)$ , and the degree of certainty with which she holds these beliefs. Likewise, the employer basis his beliefs about the applicant's productivity on his information set,  $\Omega^e$ . The employer's beliefs are given by the distribution function  $F(\theta|\Omega^e)$  which reflects his prior experiences with similar workers that may inform him about the applicant's ability to do the job. The employer's point estimate of the applicant's productivity is given by  $E(\theta|\Omega_1^e)$ .

A risk neutral employer will hire the applicant if her expected productivity exceeds the wage

$$E(\theta|\Omega_1^e) > w \quad (3)$$

The individual's decision whether to apply depends on her perception of the probability of being hired,  $\pi_h$ , the wage,  $w$ , and the cost of applying,  $c$ . The probability of being hired depends on the applicant's beliefs about how the employer views her qualifications. Let  $G(\Omega_1^e|\Omega_1^a)$  be the applicant's distribution function over the employer's beliefs, and let  $I_h(\Omega_1^e)$  be an indicator function that takes the value one if the applicant would be hired by an employer with beliefs  $F(\Omega_1^e)$  (i.e. the condition in 3 is satisfied) The probability of being hired is, therefore, given by

$$\pi = \int I(\Omega_1^e) dG(\Omega_1^e|\Omega_1^a) \quad (4)$$

The individual applies if the cost of applying is less than the expected wage:

$$c_a < w\pi \quad (5)$$

Note that an individual may apply for a job even if she knows that she would not be hired by an employer who shared her beliefs about her productivity (i.e.  $F(\theta|\Omega_1^e) = F(\theta|\Omega_1^a)$ ). As long as she is uncertain about the employer's beliefs then she takes account of the possibility that the employer may have dominant beliefs about her productivity and that she would be hired.

While the applicant does not know the employer's beliefs, the employer's decision whether or not to hire the applicant may impart information which may lead the applicant to revise her own beliefs. The potential applicant can infer what the employer would have done *if* the employer and applicant shared the same beliefs about the applicant's productivity (i.e.  $F(\Omega_1^a) = F(\Omega_1^e)$ ). The applicant knows that *if* the employer shared her beliefs then she would be hired only if

$$E(\theta|\Omega_1^a) > w \quad (6)$$

By contrasting the employer's decision, based on his beliefs  $F(\Omega_1^e)$ , with the decision he would have made had he shared her beliefs. The applicant can gain information about how the employer views her productivity. There are four cases to consider. The first is that the applicant expected that she would not be hired ( $E(\theta|\Omega_1^a) < w$ ) but she was hired ( $E(\theta|\Omega_1^e) > w$ ). This implies that

$$E(\theta|\Omega_1^e) > E(\theta|\Omega_1^a)$$

A sufficient condition for this inequality to hold is that the employer's beliefs statistically dominate the applicant's beliefs. Intuitively, if the applicant did not think she would be hired but she was hired she concludes that the employer has more positive beliefs about her productivity than she has. Having been hired when she expected that she would not be hired is, therefore, informative to the applicant. Recognizing that she was too pessimistic in her beliefs, she revises these beliefs to  $F(\theta|\Omega_2^a) < F(\theta|\Omega_1^a)$ . This revision in beliefs raises her point estimate of her productivity,  $E(\theta|\Omega_2^a) > E(\theta|\Omega_1^a)$ , and her assessment of the jobs open to her ( $1 - F(w|\Omega_2^a) > 1 - F(w|\Omega_1^a)$ )

The second case to consider is when the applicant expects to be hired ( $E(\theta|\Omega_1^a) > w$ ) but she is not hired ( $E(\theta|\Omega_1^e) < w$ ). This implies that

$$E(\theta|\Omega_1^e) < E(\theta|\Omega_1^a)$$

By a similar logic this leads the applicant to lower her point estimate of her productivity, and to revise downward her assessment of the jobs that she can hold. Thus applying for a job and not getting it can lead the applicant to conclude that she has fewer options than she previously thought.

In the other two cases the applicant's inference is the same as the employer's decision. She either thought that she would be hired and was hired or she did not expect to be hired and did not get the job. In either case there is no information revealed by the employer's decision that would lead the applicant to revise her beliefs.

This simple framework has shown that labor market activity can raise the applicant's priors about the options she faces but this is by no means

a necessary outcome. Applicants who underestimate their abilities will be offered jobs that they thought they would not get. This can raise their assessment of the options open to them. However, workers who do not get jobs that they thought they would be offered may legitimately conclude that their options are more limited than they previously thought.

Since some individuals conclude that they have more options, some conclude that they have fewer options and others don't revise their expectations the net impact of inducing or forcing individuals to enter the labor market depends on the distribution of prior beliefs across welfare recipients. If these individuals have rational expectations then the net impact will be zero. Some will realize they understated the options open to them but this will be counter balanced by the number who realized that they overstated their options. It is, however, possible that programs can be targeted to persons who have unrealistically pessimistic expectations. If wage subsidies or mandatory work programs bring a disproportionate number of new workers who underestimated their abilities then such programs can have a net positive impact on beliefs

## References

- Andrisani, P., 1977. Internal-external attitudes, personal initiative, and the labor market experience of black and white men. *The Journal of Human Resources* 12 (3).
- Andrisani, P., 1981. Internal-external attitudes, sense of efficacy, and labor market experience: A reply to duncan and morgan. *The Journal of Human Resources* 16 (4).
- Bane, M. J., Ellwood, D. T. (Eds.), 1994. *Welfare Realities: From Rhetoric to Reform*. Harvard University Press, Cambridge, Massachusetts.

- Benabou, R., Tirole, J., 2002. Self-confidence and personal motivation. *The Quarterly Journal of Economics* 117 (3).
- Coleman, M., DeLeire, T., forthcoming. An economic model of locus of control and the human capital investment decision. *Journal of Human Resources* .
- Corcoran, M., Duncan, G. J., Gurin, G., Gurin, P., 1985. Myth and reality: The causes and persistence of poverty. *Journal of Policy Analysis and Management* 4 (74), 516–536.
- Duncan, G. J., Morgan, J. N., 1981. Sense of efficacy and subsequent change in earnings - a replication. *The Journal of Human Resources* 16 (4), 649–657.
- Dunifon, R., Duncan, G. J., 1998. Long-run effects on motivation on labor-market success. *Social Psychology Quarterly* 61 (1).
- Edwards, M., Plotnick, R., Klawitter, M., 2001. Do attitudes and personality characteristics affect socioeconomic outcomes? the case of welfare use by young women. *Social Science Quarterly* 82 (4).
- Goldsmith, A., Veum, J., Darity-Jr., W., October 1997. The impact of psychological and human capital on wages. *Economic Inquiry* 35 (4), 815–830.
- Holcomb, P. A., Pavetti, L., Ratcliffe, C., Riedinger, S., 1998. Building an employment focused welfare system: Work first and other work-oriented strategies in five states. Tech. rep., U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.
- Huston, A., Duncan, G., Granger, R., Bos, J., McLoyd, V., Mistry, R., Crosby, D., Gibson, C., Magnuson, K., Romich, J., Ventura, A., 2001. Work-based antipoverty programs for parents can enhance the school performance and social behavior of children. *Child Development* 72 (1).

- Kane, T. J., 1987. Giving back control: Long-term poverty and motivation. *Social Service Review* , 405–419.
- Kunz, J., Kalil, A., 1999. Self-esteem, self-efficacy, and welfare use. *Social Work Research* 23 (2).
- Mead, L. M. (Ed.), 1997. *The New Paternalism: Supervisory Approaches to Poverty*. Brookings Institution Press, Washington, D.C.
- Michalopoulos, C., Tattrie, D., Miller, C., Robbins, P. K., Morris, P., Gyarmati, D., Redcross, C., Foley, K., Ford, R., 2002. Making work pay: Final report on the self-sufficiency project for long-term welfare recipients. Tech. rep., Social Research and Demonstration Corporation.
- Rotter, B., 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs* 80 (1), Whole No. 609.
- Rotter, J. B., April 1990. Internal versus external control of reinforcement. *American Psychologist* 45 (4), 489–493.
- Skinner, E. A., Zimmer-Gembeck, M. J., Connell, J. P., 1998. Individual differences in the development of perceived control. *Monographs of the society for Research in Child Development* 63 (254), 1–231.

Table 1  
 Baseline Characteristics of Experimentals and Controls

	(1) Experimentals	(2) Controls
<u>Demographic</u>		
Female	0.95	0.95
Age	31.8	31.9
Never Married	0.49	0.48
British Columbia	0.48	0.53
Speak French	0.15	0.14
Number Children	1.67	1.68
Less than H.S.	0.54	0.55
<u>Labor Market</u>		
Experience	7.3	7.5
Unemployed	0.81	0.81
Part-time	0.12	0.12
Full-time	0.06	0.07
Observations	3136	2815

Table 2

Percent Agree at Baseline Interview  
by Employment Status at Baseline

	Employed		All	Unemployed	Difference	
	Part-Time	Full-Time			Unemployed-Employed	PT-FT
Can't Change	.233	.181	.214	.319	.104	.052
					(.014)	(.024)
					[.000]	[.036]
Can't Control	.242	.203	.229	.308	.080	.039
					(.014)	(.025)
					[.000]	[.128]
Angry	.479	.494	.484	.560	.075	-.014
					(.016)	(.031)
					[.000]	[.000]
Pushed Around	.350	.347	.349	.407	.053	.003
					(.016)	.029
					[.001]	[.923]

Note: Standard error of difference in parenthesis, prob value of test  
 $\Pr(\text{Agree}|\text{Unemp}) > \Pr(\text{Agree}|\text{Emp})$  and  $\Pr(\text{Agree}|\text{PT}) > \Pr(\text{Agree}|\text{FT})$  in brackets.

Table 3  
 Probit Estimates of Probability Disgreement with Statement Increases

	Can't Change IV		Can't Control IV		Angry IV		Pushed Around IV	
Hours/100	0.0040 0.0012	0.0210 0.0105	0.0010 0.0013	0.0090 0.0106	0.0090 0.0014	0.0300 0.0122	0.0040 0.0013	0.0140 0.0106
British Columbia	0.0010 (0.0588)	0.0060 (0.3750)	0.0260 1.6250	0.0290 1.7059	-0.0230 2.5556	-0.0170 2.1250	0.0060 0.1714	0.0090 0.2368
Female	-0.0190 (0.0091)	-0.0210 (0.0117)	-0.0420 (0.0278)	-0.0420 (0.0230)	0.0980 0.4900	0.1020 0.9273	-0.0190 (0.0404)	-0.0190 (1.9000)
Speaks French	0.0180 0.0300	0.0090 0.0105	0.0020 0.0083	-0.0020 (0.0022)	-0.0040 (0.0103)	-0.0150 (0.0169)	0.0230 0.0145	0.0180 0.0333
Num Children	-0.0140 (0.0233)	-0.0070 (0.0081)	-0.0010 (0.0042)	0.0030 0.0032	-0.0100 (0.0256)	-0.0020 (0.0022)	-0.0010 (0.0006)	-0.2740 (0.5074)
Observations	5234	5234	5234	5234	5234	5234	5234	5234

Notes:

Marginal effects evaluated at the means  
 Standard error in parenthesis

Table 4  
 Probit Estimates of Probability Agreement with Statement Decreases

	Can't Change IV		Can't Control IV		Angry IV		Pushed Around IV	
Hours/100	-0.0040 (0.0014)	-0.0110 (0.0109)	-0.0040 (0.0012)	-0.0180 (0.0102)	-0.0060 (0.0012)	-0.0160 (0.0096)	-0.0030 (0.0014)	-0.0190 (0.0111)
British Columbia	0.0280 (1.6471)	0.0260 (1.6250)	0.0240 1.5000	0.0200 1.1765	0.0260 (2.8889)	0.0230 (2.8750)	0.0380 1.0857	0.0330 0.8684
Female	-0.0170 (0.0082)	-0.0160 (0.0089)	0.0160 0.0106	0.0170 0.0093	-0.0090 (0.0450)	-0.0080 (0.0727)	0.0350 0.0745	0.0380 3.8000
Speaks French	-0.0370 -0.0617	-0.0350 -0.0407	0.0260 0.1083	0.0320 0.0344	-0.0030 -0.0077	0.0020 0.0022	-0.0090 -0.0057	0.0000 0.0000
Num Children	-0.0040 (0.0067)	-0.0070 (0.0081)	-0.0020 (0.0083)	-0.0070 (0.0075)	-0.0020 (0.0051)	-0.1770 (0.1989)	0.0110 0.0069	-0.1910 (0.3537)
Observations	5234	5234	5234	5234	5234	5234	5234	5234

Notes:

Marginal effects evaluated at the means  
 Standard error in parenthesis