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## **What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations**

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David Card, Jochen Kluge, and Andrea Weber<sup>1</sup>

# What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations

## Abstract

*We present a meta-analysis of impact estimates from over 200 recent econometric evaluations of active labor market programs from around the world. We classify estimates by program type and participant group, and distinguish between three different post-program time horizons. Using meta-analytic models for the effect size of a given estimate (for studies that model the probability of employment) and for the sign and significance of the estimate (for all the studies in our sample) we conclude that: (1) average impacts are close to zero in the short run, but become more positive 2-3 years after completion of the program; (2) the time profile of impacts varies by type of program, with larger gains for programs that emphasize human capital accumulation; (3) there is systematic heterogeneity across participant groups, with larger impacts for females and participants who enter from long term unemployment; (4) active labor market programs are more likely to show positive impacts in a recession.*

*JEL Classification: J00, J68*

*Keywords: Active labor market policy; program evaluation; meta-analysis*

*July 2015*

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## I. Introduction

In the aftermath of the Great Recession there is renewed interest in the potential for active labor market policies (ALMP's) to help ease a wide range of labor market problems, including youth unemployment and persistent joblessness among displaced adults (e.g., Martin, 2014). Although training programs, employment subsidies, and other "active" policies have been in use for well over 50 years, credible evidence on their causal impacts has only become available in recent decades (see Lalonde 2003 for a brief history). Within a relatively short period of time the number of scientific evaluations has exploded, holding out the prospect of being able to learn from past studies what types of programs work best, in what circumstances, and for whom.

In this paper we undertake a meta analysis of the recent ALMP evaluation literature, looking for systematic evidence on these questions.<sup>1</sup> Building on an earlier effort to track down the relevant literature (Card, Kluve, Weber, 2010; hereafter CKW), we assemble a sample of 207 studies that provide 857 separate estimates of the effect of a specific program on a particular subgroup of participants at a given post-program time horizon. Our sample includes estimates for different types of programs and many different participant subgroups, providing the opportunity to test whether certain programs tend to work better (or worse) for specific groups. In many cases we also observe impacts for the same program at shorter and longer horizons, allowing us to characterize the profile of post-program impacts for different ALMP policies.

We summarize the estimates from different studies in two complementary ways. Extending the traditional vote count approach, we classify "sign and significance" based on whether the estimate is significantly positive, statistically insignificant, or significantly

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<sup>1</sup> Previous reviews include Heckman, Lalonde and Smith (1999), who summarize 75 microeconomic evaluations from the U.S. and other countries, Kluve (2010), who reviews close to 100 studies from Europe, and Filges et al. (2015), who analyze a narrower set of 39 studies. Greenberg, Michalopoulos and Robins (2003) review U.S. programs targeted to disadvantaged workers. Ibararán and Rosas (2009) review programs in Latin America supported by the Inter-American Development Bank. Related meta analyses focusing on labor market interventions in low and middle income countries include Cho and Honorati (2014) and Grimm and Paffhausen (2015).

negative. This classification can be applied to all the estimates in our sample, regardless of the outcome variable or econometric technique used in the evaluation. Our preferred approach, which we use for the large subset of studies that measure the impact of a program on the probability of **employment**, models the effect size of the estimate – the impact on the employment rate of the program group, divided by the standard deviation of employment in the comparison group. An effect size approach is favored in the meta analysis literature (e.g., Hedges, 1981; Hedges and Olkin, 1985), since effect sizes are not mechanically related to the number of observations used in the study, whereas statistical significance is (in principle) sample-size dependent. Fortunately, the two approaches yield similar conclusions when applied to the subset of studies for which effect sizes are available, giving us confidence that our main findings are invariant to how we summarize the literature.

We reach four main substantive conclusions. First, on average ALMP's have relatively small effects in the short run (less than a year after the end of the program), but larger positive effects in the medium run (1-2 years post program) and longer run (2+ years). The average short run effect size for ALMP's that measure impacts on employment is 0.04  $\sigma$ 's (standard deviation units) and is not significantly different from zero. The average medium run effect size, by comparison, is 0.12  $\sigma$ 's, while the average longer run effect size is 0.19  $\sigma$ 's, and both are highly significant ( $t > 3$ ).

Second, the time profile of impacts in the post-program period varies with the type of ALMP. Job search assistance and sanction programs that emphasize "work first" have relatively large short term impacts, on average. Training and private sector employment programs have smaller short term impacts but larger effects in the medium and longer runs. Public sector employment subsidies tend to have negligible or even negative impacts at all horizons.

Third, we find that the average impacts of ALMP's vary across groups, with larger effects for females and participants drawn from the pool of long term unemployed, and smaller effects for older workers and youths. We also find suggestive evidence that

certain types of programs work better for specific subgroups of participants. Job search assistance and sanction programs appear to be relatively more successful for disadvantaged participants, whereas training and private sector employment subsidies tend to work better for the long term unemployed. Finally, we investigate the role of labor market conditions on the relative efficacy of ALMP's, and conclude that programs have larger impacts in periods of slow growth and higher unemployment.

An important development in the recent evaluation literature is the increasing use of randomized controlled trials (RCT's): one-fifth of our sample is obtained from randomized designs. Reassuringly, RCT-based program estimates are not much different from the non-experimental estimates in our sample, nor are there significant differences between published and unpublished studies, or between highly-cited and less-cited studies. Nevertheless, the choice of outcome variable and econometric method has some influence on the sign and significance of the impact estimates, with a tendency to find more positive estimates in studies that model endpoints like the time to exit from the benefit system or the time to a new job.

## **II. Sample Construction**

### *a. Sampling Impact Evaluation Studies*

Our sample of studies extends the sample developed in CKW, using the same criteria to select in-scope studies and the same protocols to extract information about the programs and their impacts. The CKW sample was derived from responses to a 2007 survey of researchers affiliated with the Institute for the Study of Labor (IZA) and the National Bureau of Economic Research (NBER). To extend this sample we began by reviewing the research profiles and homepages of IZA research fellows with a declared interest in "program evaluation", looking for ALMP evaluations written since 2007. We also searched the NBER working paper database using the search strings "training", "active", "public sector employment", and "search assistance."



In a second step we used a Google Scholar search to identify all papers citing CKW or the earlier review by Kluge (2010). We also searched through the *International Initiative for Impact Evaluation's* "Repository of Impact Evaluation Published Studies," the online project list of the *Abdul Latif Jameel Poverty Action Lab* (J-PAL), and the list of Latin American program evaluations reviewed by Ibararán and Rosas (2009).

After identifying an initial sample of studies using these steps, we reviewed the citations in all the studies to verify whether there were any other studies that we had not yet included. Finally, we identified four additional papers presented at a conference in early fall 2014. The search process lasted from April to October 2014 and yielded 154 new studies that we considered for inclusion in our ALMP impact evaluation data base.

#### *b. Inclusion Criteria*

In order to generate a consistent data base across the two waves of data collection (2007 and 2014) we imposed the same restrictions adopted in CKW. First, the program(s) analyzed in the evaluation had to be one of following five types:

- classroom or on-the-job training
- job search assistance
- sanctions for failing to search, including threat of assignment to a program
- subsidized private sector employment
- subsidized public sector employment.

Second, we limited the employment subsidies to *individually targeted* subsidies, excluding programs that allow firms to select the employees who receive a subsidy. Third, we restricted attention to time-limited programs, eliminating open-ended entitlements like education grants or child care subsidies. Fourth, we excluded public programs with no explicitly "active" component, such as the manipulation of benefit levels for unemployment insurance recipients.

Methodologically, we include only well-documented studies that use individual micro data and incorporate a counterfactual/control group design or some form of selection correction.

Applying these inclusion criteria, we retained 110 of the 154 studies identified in the search process.<sup>2</sup> We added these to the 97 studies from CKW, resulting in a total of 207 ALMP impact evaluations in our final data base. A complete list of these studies is contained in an Appendix available on request for the authors.

### *c. Extracting Impact Estimates and Information on Programs and Participants*

The next step in our data collection process was to extract information about the programs and participants analyzed in each study, and the corresponding program estimate. Using the same classification system as in CKW, we gathered information on the type of ALMP, the age and gender of the participant population, the type of dependent variable used to measure the impact of the program, and the econometric methodology.<sup>3</sup> We also gathered information on the (approximate) dates of operation of the program; on the types of program participants (long term unemployed, disadvantaged workers, or regular unemployment insurance recipients), on the source of the data used in the evaluation (administrative records or a specialized survey), and on the approximate duration of the program.

If a study reported separate impact estimates either by program type or by participant group, we identified the *program/participant subgroup* (PPS) and coded the impact estimates separately. Overall, we have information on 526 separate PPS's from the 207 studies, with a minimum of 1 and a maximum of 10 PPS's in each study. We also identified up to three impact estimates for each PPS, corresponding to three different post-program time horizons: short-term (approximately one year after

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<sup>2</sup> The main reasons for exclusion were: overlap with other papers (i.e. estimating impacts for the same program); program out of scope; and no explicit counterfactual design.

<sup>3</sup> As in CKW, we extracted the information from the studies ourselves, since we found that even advanced graduate students were often unable to interpret the studies.

completion of the program); medium term (approximately two years after); and longer-term (approximately 3 years after). In total, we have 857 separate program estimates for the 526 program/participant subgroups, with between one and three estimates of the effect of the program at different time horizons.<sup>4</sup>

We use two complementary approaches to quantify the estimated program impacts. First, we classify the estimates as significantly positive, insignificantly different from zero, or significantly negative. This measure of effectiveness is available for every estimate in our data base. For the subset of studies that measure program effects on the probability of employment, we also extract an estimated effect size, defined as the estimated impact on the employment rate of the program group, divided by the standard deviation of the employment rate of the comparison group.<sup>5</sup> As discussed in more detail in section IVa, below, the effect size estimates are unaffected by the size of the sample used in the estimation procedure, whereas the significance levels are in principal dependent on the sample size. In the studies reviewed here, however, there is little or no association between sample size and the likelihood of a significant point estimate (either positive or negative). As a result the two ways of quantifying program impacts lead to very similar conclusions.<sup>6</sup>

A final step in our data assembly procedure was to add information on labor market conditions at the time of operation of the program. Specifically, we gathered country-specific information on GDP growth rates and unemployment rates from the OECD, the World Bank, and the ILO. We use the average growth rate and the average unemployment rate during the period the program group participated in the ALMP to proxy for cyclical conditions during the evaluation.

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<sup>4</sup> For a specific PPS and time horizon we try to identify and code the main estimate in the study. We do **not** include multiple estimates for the same PPS and time horizon.

<sup>5</sup> Note that to measure the effect size we need both an impact estimate and the mean employment rate of the comparison group, which is not always available. We also extracted effect sizes for one study that measured program impacts on the duration of time to the start of the first job.

<sup>6</sup> The same finding was obtained in CKW. As discussed below, we believe that this arises because larger sample sizes tend to be used with more complex research designs.

### III. Descriptive Overview

#### *a. Program Types, Participant Characteristics, Evaluation Design*

Table 1 presents an overview of the program estimates in our final sample. As noted, we have a total of 857 different impact estimates for 526 different PPS's (program-type/participant subgroup combinations) extracted from 207 separate studies. To deal with potential correlations between the program estimates from a given study, throughout this paper we calculate standard errors **clustering by study**.

Column 1 of the table presents the characteristics of our overall sample, while columns 2-6 summarize the estimates from five subgroups of countries: Austria, Germany and Switzerland (the "Germanic" countries), which account for about one quarter of all studies; Denmark, Finland, Norway and Sweden (the "Nordic" countries), which account for another quarter of studies; Australia, Canada, New Zealand, U.K. and U.S. (the "Anglo Saxon" countries), which account for just over 10% of studies; and two non-mutually exclusive groups of lower and middle income countries -- "non-OECD" countries (10% of studies), and Latin American and Caribbean (LAC) countries (10% of studies). For reference, Appendix Figure 1 shows the numbers of estimates by country. The largest source countries are Germany (253 estimates), Denmark (115 estimates), Sweden (66 estimates), the U.S. (57 estimates) and France (42 estimates).

As shown in the second panel of Table 1 we classify programs into broad types. Training programs -- including classroom and on-the-job training -- account for about one half of the program estimates, with bigger shares in the non-OECD and LAC countries, and a smaller share in the Nordic countries. Job search assistance (JSA) programs, private subsidy programs, and sanction/threat programs each account for about one-sixth of the program estimates, though again there is variability across country groups, with JSA and sanction/threat programs being particularly prevalent in the Nordic and Anglo Saxon countries. Subsidized public sector job programs are relatively rare in all county groups.

The next three panels of the table show the characteristics of the program participant groups, classified by age group, gender, and "type" of participant. About one-half of the estimates are for mixed age groups and mixed gender groups, but we also have relatively large subsets of estimates that are specific to either younger or older workers, or females or males. The majority of program estimates are for participants who enter from the regular unemployment insurance (UI) system. Typically these participants are assigned to a program and required to attend as a condition for continuing benefit eligibility.<sup>7</sup> The remaining estimates are split between programs that serve the long term unemployed (LTU) and those that serve "disadvantaged" participant groups. In many cases, LTU and disadvantaged participants are recruited from the overall population and enroll voluntarily. Such voluntary programs are more common in the Anglo Saxon countries and in less developed countries that lack a formal UI system.<sup>8</sup>

Next we show the outcome variables used to measure the program impact and the time horizons of the estimate. The most common outcome -- particularly in the Germanic and non-OECD countries -- is the probability of employment, while the level of earnings is the most common metric in the Anglo Saxon countries. About one sixth of the program estimates -- but 40% of the estimates from Nordic countries -- measure the exit rate from the benefit system, typically focusing on the rate of exit to a new (unsubsidized) job. Finally, a small subset of estimates - mostly from Anglo Saxon countries -- focus on the probability of unemployment. About one half of the estimates are for a short term horizon (<1 year) after program completion, 35% for a medium term (1-2 years), and 18% for a longer term (more than 2 year after).

The last row of the Table shows the fraction of program estimates that are based on an experimental design. In most of our country groups about 30% of estimates come from randomized controlled trials (RCT's) that have been explicitly designed to measure

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<sup>7</sup> This type of program requirement is widespread in Europe -- see Sianesi (2004) for a discussion.

<sup>8</sup> The U.S. job training programs analyzed in the seminal papers of Ashenfelter (1978), Ashenfelter and Card (1985), Lalonde (1986), Heckman, Ichimura, Smith, and Todd (1998) are all of this type.

the effectiveness of the ALMP of interest. An important exception is the Germanic countries, where no experimentally based estimates are yet available.

The distribution of program estimates over time (defining time by the earliest intake year of the program) is shown in Figure 1, with separate counts for the experimental and non-experimental estimates. Our sample includes programs from as far back as 1980, though the majority of estimates are from the 1990s and early 2000s. The trend toward increasing use of experimental designs is clearly evident: among the 210 estimates from 2004 and later, 61% are from randomized designs.

#### *b. Measures of Program Impact - Overview*

Table 2 gives an overview of our two main measures of program impact, contrasting results for the short term, medium term, and long term. Column one summarizes the sign and significance of all the available program estimates. Among the 415 short term estimates, 40% are significantly positive, 42% are insignificant, and 18% are significantly negative. The pattern of results is more positive in the medium and longer terms, with a majority of estimates (52%) being significantly positive in the medium term, and 61% being significantly positive in the longer term.

Column 2 shows the distribution of sign and significance for the subset of studies that use post-program employment rates to evaluate the ALMP program. These 111 studies account for 490 program estimates (57% of our total sample). The short term program estimates from this subset of studies are somewhat less positive than in the overall sample: only 31% are significantly positive, while 22% are significantly negative, and 47% are insignificantly different from zero. In the medium and longer terms, however, the discrepancy disappears. Indeed, the longer term estimates from evaluations that study the probability of employment are slightly more positive than estimates from studies that use other outcome variables. As discussed below, these patterns are not explained by differences in the types of ALMP programs analyzed in different studies, or by differences in participant characteristics. Instead, they reflect a

systematic tendency for studies based on hazard models for program exit to exhibit more positive short term impacts than studies based on employment or earnings.

Column 3 of Table 2 shows the distributions of sign and significance associated with the impact estimates that we can actually convert into effect sizes.<sup>9</sup> The distributions are very similar to those in column 2, suggesting that there is no systematic bias associated with the availability of an effect size estimate, once we condition on the outcome used in the evaluation.

Finally, column 4 shows the mean effect sizes for the subsample in column 3, along with robust standard errors that take account of correlation among the program estimates from the same study. The mean short term effect size estimate is 0.04  $\sigma$ 's and is at best only marginally significant ( $t=1.65$ ). By comparison the average effect sizes in the medium and longer terms are 0.12  $\sigma$ 's and 0.19  $\sigma$ 's, respectively, and both are significantly different from zero with a high degree of confidence. These estimates reinforce the conclusion that on average, ALMP's have a relatively small impact in the short run, but more positive effects in the medium and longer runs.

Distributions of effect size estimates in the short, medium, and longer runs are shown in Figures 2a, 2b, and 2c, which give "forest plots" of the effect size estimates, along with their associated confidence intervals, for studies from our most recent wave of data collection.<sup>10</sup> As suggested by the means in Table 2, the overall distribution of effect size estimates clearly shifts to the right as the time horizon is extended. Another interesting fact is that the width of the confidence intervals is uncorrelated with the magnitude of the effect size estimates. There is no evidence that more positive effect size estimates tend to be less precise -- as might be feared if authors tend to search for

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<sup>9</sup> The main reason why we cannot extract an effect size estimate from a study that models the probability of employment is that there is no information on the employment rate of the comparison group in the relevant time frame.

<sup>10</sup> Information to construct confidence intervals was not extracted in CKW. Thus, the estimates reported in Figures 2a, 2b, and 2c are from the latest studies collected in our second round.

specifications that show a positive impact, or if small scale studies are more likely to be written up if the results are positive (the so-called "file drawer" bias problem).

Returning to Table 2, column 4 also shows the mean effect sizes among program estimates that are classified as significantly positive, insignificant, or significantly negative. As would be expected if the classification of sign and significance is mainly driven by variation in the magnitude of a particular effect size estimate -- and *not* by variation in the standard errors of the estimates -- the mean effect size for significant positive estimates is relatively large and positive, the mean effect size for significant negative estimates is relatively large and negative, and the mean effect size for insignificant estimates is close to 0. This pattern is illustrated in Appendix Figures 2a, 2b, and 2d, where we plot the histograms of effect size estimates at each time horizon, highlighting the contributions of estimates in each category of sign and significance. At all three time horizons, the three subgroups of estimates appear to be drawn from distributions that are centered on different midpoints. This separation suggests that the sign and significance of an estimate can serve as (noisy indicator) of its effect size.

### *c. Variation in Program Impacts*

Tables 3a and 3b provide a first look at the question of how ALMP impacts vary across different types of programs and different participant groups. For each subset of estimates we show the mean effect sizes at each time horizon and the corresponding fraction of program estimates that is significantly positive.

Focusing first on comparisons across program types (Table 3a), notice that training and private sector employment programs tend to have small effects in the short run, coupled with more positive impacts in the medium and longer runs. In contrast, JSA and sanction/threat programs have more stable or declining impacts over time. These profiles are consistent with the nature of the two broad groups of programs. Training and private subsidy programs require participants to pass up regular job opportunities while in the program. This temporary withdrawal from the regular labor



market would be expected to depress outcomes in the period immediately after completion of the program -- a so-called "lock-in" effect (e.g., Ham and Lalonde, 1996). Assuming that investments made during the program period are valuable, however, the outcomes of participants will gradually catch up with those of the comparison group.<sup>11</sup> By comparison, JSA and sanction/threat programs are designed to push participants into the labor market quickly, with little or no investment component. In the absence of large returns to recent experience, it is unlikely that these programs can have large long run effects.<sup>12</sup>

Another clear finding in Table 3a is the relatively poor performance of public sector programs -- a result that has been found in other previous analyses (e.g., Heckman et al., 1999) and in our earlier study. This pattern suggests that private employers place little value on the experiences gained in a public sector program -- perhaps because many of these programs have little or no skill-building component, and only serve to slow down the transition of participants to unsubsidized jobs.

The lower panel of the table compares estimates for different intake groups. An interesting conclusion here is that programs that serve the long term unemployed and disadvantaged individuals appear to have more positive short run outcomes than programs for UI recipients. In the medium and longer runs, UI recipients appear to catch up somewhat relative to the other two groups.

Table 3b shows the contrasts by age, gender and experimental design. The comparisons by age show a mixed pattern, with somewhat larger average effect sizes for youth than the other groups in the short run, but worse outcomes for both youth and older participant groups in the medium and longer runs. The contrasts by experimental design are also mixed, with the effect size comparisons suggesting more

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<sup>11</sup> As noted by Mincer (1974) a similar cross-over pattern is observed in the comparison of earnings profiles of high school graduates and college graduates.

<sup>12</sup> Evidence on the value of labor market experience for lower skilled workers (Gladden and Taber, 2000; Card and Hyslop, 2005) suggests that the returns are modest and unlikely to exceed 2 or 3 percent per year of work.

positive results for experimental designs in the short run and more negative results in the long run. The comparisons by gender are more consistent and suggest that female participants benefit more than males or mixed gender groups.

We note that these simple contrasts must be interpreted carefully because there are multiple sources of potential heterogeneity in the program impacts. For example, the fractions of training programs evaluated by RCT's is relatively low. The meta analysis models in Section IV directly address this issue using a multivariate regression approach.

#### *d. Profile of Post-Program Impacts*

Simple comparisons across the impact estimates in our sample suggest that ALMP's have more positive effects in the medium and longer terms. To verify that this is actually true for a *given* program and participant subgroup – and is not simply an artefact of heterogeneity across studies – we examine the within-PPS evolution of impact estimates in Table 4.

Columns 1-3 show the changes in estimated effect size for the subset of studies for which we observe both short and medium term estimates, medium and long term estimates, and short and long term estimates, respectively. Estimated effect sizes tend to increase as the time horizon is extended from the short run to the medium run. The average change between the medium and longer runs is slightly negative, but overall the short-run to long-run change is still positive.

Comparing across program types it is clear that the pattern of rising impacts is driven almost entirely by training-based programs, which show a relatively large gain in effect sizes from the short term to the medium term and only a small decline between the medium and longer runs. The patterns for the other types of programs suggest relatively constant or declining effect sizes over the post-program time horizon. In particular, in contrast to the patterns in Table 3a, there is no indication of a rise in impacts for private subsidy programs over time, suggesting that the gains in Table 3a may be driven by heterogeneity between studies. We return to this point below.

In columns 4-6 we examine the within-study changes in sign and significance for a broader set of studies. Here, we assign a value of +1 to PPS estimates that change from insignificant to significantly positive or from significantly negative to insignificant; -1 to estimates that change from significantly positive to insignificant or from insignificant to significantly negative; and 0 to estimates that have the same classification over time. This simple way of summarizing the within-study patterns points to generally similar conclusions as the changes in effect size, though job search assistance programs show more evidence of a rise in impacts from the short-run to the medium run in column 4 than column 1, and private employment subsidies show a more positive trend in impacts from the short to long run.

Appendix Table 1 presents full cross-tabulations of sign/significance at the various post-program time horizons. As suggested by the simple summary statistics in Table 4, most program estimates either remain in the same category, or become "more positive" over time.

#### **IV. Meta Analytic Models of Program Impacts**

##### *a. Conceptual Framework*

Consider an ALMP evaluation that models an outcome  $y$  observed for members of both a participant group and a comparison group. Let  $b$  represent the estimated impact of the program on the outcomes of the participants, let  $N$  represent the combined sample size of participants and comparisons, let  $\beta$  represent the probability limit of  $b$  (i.e., the estimate that would be obtained if  $N$  were infinite) and let  $\sigma$  represent the standard deviation of  $y$  in the comparison group population. Assuming that  $b$  has a standard asymptotic distribution, the estimator obtained with a sample size of  $N$  is approximately normally distributed with mean  $\beta$  and variance  $v$ , where

$$v = K^2 \sigma^2 / N \tag{1}$$

and  $K$  is a design factor reflecting the design features of the study.<sup>13</sup> The actual estimate obtained in the study can be written as:

$$b = \beta + K \sigma N^{-1/2} z ,$$

where  $z$  is a realization from an approximately normal distribution.

Assuming that  $\sigma$  is known (or can be estimated with high precision), the associated estimate of the effect size is:

$$b/\sigma = \beta/\sigma + K N^{-1/2} z , \tag{2}$$

which differs from the limiting effect size  $\beta/\sigma$  by a sampling error with variance  $K^2/N$ .

Assume that the limiting effect size in a given study depends on a vector  $X$  of observed characteristics of the study, (including features of the program, the participants, and the evaluation design) and on unobserved factors  $\varepsilon$ :

$$\beta/\sigma = X\alpha + \varepsilon . \tag{3}$$

where  $\alpha$  is a vector of coefficients. This leads to a meta analysis model for the observed effects size estimates of the form:

$$b/\sigma = X\alpha + u , \tag{4}$$

where the error  $u = \varepsilon + N^{-1/2} K z$  includes both the sampling error in the estimate  $b$  and the unobserved determinants of the limiting effect size for a given study.

We use simple regression models based on equation (4) to analyze the effect sizes that are available in our sample. For the broader sample we use ordered probit (OP) models for the 3-way classification of sign and significance. To understand the interpretation of the OP models, note that equations (1) and (2) imply that the t-statistic associated with the estimated impact ( $b$ ) is:

$$t = b/v^{1/2} = (\beta/\sigma) N^{1/2}/K + z .$$

Using equation (3):

$$t = [N^{1/2}/K] X\alpha + z + [N^{1/2}/K] \varepsilon . \tag{5}$$

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<sup>13</sup> For example, in an experiment with 50% of the sample in the treatment group and no added covariates,  $K^2 = 2 (\delta^2 + 1)$ , where  $\delta$  is a factor representing the ratio of the standard deviation of the outcome after exposure to treatment to the standard deviation in the absence of treatment. In more complex designs such as difference in differences or instrumental variables  $K$  will be bigger.

If  $N/K^2$  -- the "effective sample size" of a given study, taking account of the research design -- is constant across studies and there are no unobserved determinants of the limiting effect size (i.e.,  $\epsilon=0$ ) the t-statistic will be normally distributed with mean  $X\alpha'$  where  $\alpha'=[N^{1/2}/K]\alpha$ .<sup>14</sup> In this case the coefficients from an OP model for whether the t statistic is less than -2, between -2 and 2, or greater than 2 (i.e., the sign and significance of the estimated program effects) will be *strictly proportional* to the coefficients obtained from a regression model of the corresponding effect sizes. One reason for the effective sample size to remain roughly constant across studies is the endogenous selection of research designs. Most analysts will only pursue a complex research design if there is a big enough sample to ensure some minimum statistical power.

Even if  $N/K^2$  varies across studies, or there are unobserved determinants of the limiting effect size in different studies, the implied data generating process may be reasonably approximated by a simple ordered probit. Indeed, as we show below, in our sample of studies the coefficients from effect size models and OP models are very nearly proportional so we believe the approximation is reasonable.

#### *b. Basic Effect Size Models*

Table 5 presents the estimates from a series of regression models for 352 effect size estimates observed for 200 program/participant subgroups in 83 different studies. We pool the effect sizes for different post-program horizons and include dummies indicating whether the program estimate is for the medium or long term (with short term estimates in the omitted group). The basic model in column 1 includes only these controls and a set of dummies for the type of program (with training programs in the omitted category). Consistent with the simple comparisons in Table 3a, we find that the

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<sup>14</sup>As can be seen from equation (2), the sampling variance of the effect size estimate from a given study is proportional to  $K^2/N$ . From the sample of effect sizes and associated sampling errors summarized in Figures 1a, 1b and 1c we can estimate the variability of  $N/K^2$  across studies. This exercise suggests that the effective sample size varies fairly widely across studies, but is not highly correlated with N.

effect size estimates are larger in the medium and long run, and that public sector employment programs are associated with smaller effect sizes.

The model in column 2 introduces additional controls for the type of participant (UI recipients versus long term unemployed or disadvantaged), their age and gender, the country group in which the program was offered, the duration of the program, and four features of the evaluation: whether it had an experimental design, the square root of the sample size, whether the study was published, and the study's citation percentile relative to all studies in our sample released in the same year.<sup>15</sup> These controls slightly attenuate the growth in effect sizes over longer post-program horizons but have little effect on the program type dummies.

Columns 3 and 4 introduce a parallel set of models that allow the time profiles of post-program impacts to vary with the type of program. In these specifications the "main effects" for each program type show the short term impacts relative to training programs (the omitted type), while the interactions of program type with medium term and long term dummies show how the impacts evolve *relative to the profile for training programs* (which are summarized by the main effects in the first two rows). Three key conclusions emerge from these more flexible specifications. First, as suggested by the patterns in Table 4, the effect sizes for training programs tend to rise over time while the effects for job search assistance and sanction/threat programs are nearly constant.. Second, public sector employment programs appear to be relatively ineffective at all time horizons. Third, the profile for private sector training programs is relatively similar to the profile for training programs.

The estimated coefficients for the extra control variables included in the models in columns 2 and 4 of Table 5 are reported in the first two columns of Table 7. The coefficient estimates from the two specifications are quite similar and suggest that the

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<sup>15</sup> We conducted a Google Scholar search for citations of all the studies in our final analysis sample in October 2014. We construct the citation rank of each study relative to other studies with the same publication date in our sample as our measure of citations. We also fit models that include the date of the study and the data source. These are very similar to the models presented in the table.

impact of ALMP's varies systematically with the type of participant (with larger effects for the long term unemployed), their age group (more negative impacts for older and younger participants), and their gender (larger effects for females). On the other hand there is no indication that the country group, the duration of the program, or the features of the evaluation matter. In particular, the estimated coefficient of the experimental design dummy is relatively small in magnitude and insignificantly different from 0 ( $t=0.63$  in column 1 and  $0.55$  in column 2).

*c. Basic Models for Sign and Significance*

Effect sizes are available for only 40% of our overall sample. To supplement these models we turn to ordered probit models for sign and significance. The first 4 columns of Table 6 present a series of OP models that are parallel to those in Table 5, but fit to our overall sample of program estimates. The specifications in columns 1 and 3 have no controls other than dummies for medium and long term horizons and the type of ALMP -- in the latter case interacting the type of program with the time horizon dummies. Columns 2 and 4 report expanded specifications that add the control variables reported in columns 3 and 4 of Table 7. Finally, column 5 of Table 6 repeats the specification from column 4, but fit to the subsample of 352 program estimates for which we have an effect size estimate.

The OP models yield coefficients that are very highly correlated with the corresponding coefficients from the effect size models, but 4-5 times bigger in magnitude. For example, the correlation of the 14 coefficients from the specification in column 4 of Table 6 with corresponding coefficients from the specification in column 4 of Table 5 is 0.84.<sup>16</sup> Thus, the OP models confirm that the impacts of job search assistance and sanction/threat programs tend to fade relative to the impacts of training

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<sup>16</sup> The regression model is:  $OP\text{-coefficient} = 0.00 + 4.64 \times \text{Effect-size-coefficient}$ ; standard error = 0.85.

programs, and that public sector employment programs are relatively ineffective at all time horizons.<sup>17</sup>

The OP models also confirm most of our conclusions about the differential impacts of ALMP's across different participant groups and in different countries.<sup>18</sup> Comparing the coefficients in Table 7, both the effect size models and the sign/significance models show smaller impacts of programs on young participants and older participants, relative to the impacts on mixed age groups, and larger impacts for long-term unemployed participants. Using the overall sample of program estimates the OP models also point to a significantly positive relative impact for disadvantaged participants. In contrast, the effect size models (and the OP models fit to the effect size sample) yield an insignificant coefficient, arguably as a consequence of the small number of studies that focus on this group.

One important difference between the effect size models and the OP models concerns the relative impact of ALMP's on female participants. In the effect size models the estimated coefficients for female participants are around 0.11 in magnitude, and statistically significant at conventional levels (with t statistics around 2). In the OP models, by comparison, the corresponding coefficients are relatively small in magnitude, and far from significant. Further investigation reveals that this divergence is driven by the upper tail of effect size estimates for female participants (see Appendix Figure 3), and in particular by the relatively large effect size estimates for programs that show a significantly positive effect.<sup>19</sup> This upper tail of effect sizes does not appear to be driven

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<sup>17</sup> We also fit two simpler probit models for the events of reporting a positive and significant or negative and significant estimate, reported in Appendix Table 2. As would be expected if the ordered probit specification is correct, the coefficients from the model for a significantly positive effect are quite close to the OP coefficients, while the coefficients from the model for a significantly negative effect are close in magnitude but opposite in sign. Interestingly, neither of the probit models yields a significant effect for the square root of the sample size, confirming that variation in the significance of the program estimates across different studies is only weakly related to the sample size used in the study.

<sup>18</sup> The correlation between the coefficients in columns 2 and 4 of Table 7 is 0.69.

<sup>19</sup> The median and 75th percentiles of the effect size distribution for female participant groups, conditional on a positive impact, are 0.25, and 0.46 respectively. By comparison, the corresponding statistics for male and mixed gender participant groups are 0.15, and 0.27.



by a few outliers, but instead reflects a systematically higher probability of estimating a large positive effect size when the participant group is limited to females.<sup>20</sup>

A final interesting aspect of the OP models is the pattern of coefficients associated with the choice of dependent variable, reported in the top rows of Table 7. These coefficients show that studies modeling the hazard rate of exiting the benefit system or the probability of unemployment are significantly more likely to report positive findings than studies modeling employment (the omitted category) or earnings. Studies that model the hazard to a new job are also somewhat more likely to obtain positive findings.<sup>21</sup> We infer that some caution is warranted in interpreting the short term impact estimates from studies that use outcomes other than employment or earnings.

#### *d. Are Some Programs Better (or Worse) for Different Participant Groups?*

A longstanding question in the ALMP literature is whether certain participant groups would have better outcomes if they were assigned to specific types of programs. We address this in Table 8, which presents separate meta analysis models for the effect sizes from different types of ALMP's.

As a benchmark column 1 presents a baseline specification fit to all 5 program types, with dummies for the program types (not reported) and controls for the intake group, the gender group, and the age group.<sup>22</sup> The (omitted) base group is comprised of mixed gender and age groups from the regular UI rolls. In this pooled specification the estimated effects for females and long term unemployed participants are significantly

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<sup>20</sup> We also estimated separate effect size models for different types of participants -- those from the regular UI system versus long term unemployed or disadvantaged groups. We found a significant positive coefficient for female participants in the models for both UI recipients and the long term unemployed.

<sup>21</sup> Estimates from interacted models that allow different effects of the dependent variable at different time horizons (not reported in the table) show that the positive bias associated with the use of exit hazards is largely confined to short term impacts.

<sup>22</sup> This is a simplified version of the specification reported in column 2 of Table 5 and column 1 of Table 7.

positive, while the coefficient for older participants is significantly negative, and the coefficient for young participants is negative and marginally significant.

Columns 2-6 report estimates for the same specification (minus the controls for the type of program) fit separately to effect sizes for each of the 5 program types. Comparisons across these models suggest that long-term unemployed participants benefit relatively more from "human capital" programs (i.e., training and private sector employment), and relatively less from "work first" programs (i.e., job search and sanction/threat programs). In contrast, disadvantaged participants appear to benefit more from work first programs and less from human capital programs. Female participants also appear to benefit relatively more from human capital programs, while the relative effects for youths and older participants are not much different across the program types.

Overall these results suggest that there may be potential gains to matching specific participant groups to specific types of programs, though the small sample sizes for most of the program types must be noted. Attempts to expand the power of the analysis by using OP models for the sign and significance of the program estimates lead to generally similar conclusions as the effect size models reported in Table 8 with only modest gains in precision.

#### *e. Effects of Cyclical Conditions*

Another longstanding question in the ALMP literature is whether programs are more (or less) effective in different cyclical environments.<sup>23</sup> One view is that active programs will tend to have smaller effects in a depressed labor market because participants have to compete with other, more advantaged workers for a limited set of jobs. An alternative view is that ALMP's are more effective in weak labor markets

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<sup>23</sup> A related question is whether program externalities are bigger or smaller in weak or strong labor markets. This is addressed in an innovative experiment conducted by Crepon et al. (2013).

because employers become more selective in a slack market, increasing the value of an intervention (particularly those that raise human capital).

Three previous studies have investigated ALMP effectiveness over the business cycle: Kluge (2010) uses between-country variation in a small European meta data set, while Lechner and Wunsch (2009) and Forslund et al. (2011) specifically analyze programs in Germany and Sweden, respectively. All three studies suggest a positive correlation between ALMP effectiveness and the unemployment rate.

To provide some new evidence we added two alternative contextual variables to our analysis, representing the average growth rate of GDP and the average unemployment rate during the years the treatment group participated in the program. Since growth rates and unemployment rates vary widely across countries, we also introduced a set of country dummies that absorb any permanent differences in labor market conditions across countries. The effect of these dummies is interesting in its own right because the shares of different program types and participant groups also vary widely across countries, leading to the possibility of bias in the measured effects of program types and participant groups if there are unobserved country specific factors that affect the average success of ALMP's in different countries.

The results of our analysis are summarized in Table 9. For reference column 1 presents a benchmark specification identical to the simplified effect size model in column 1 of Table 8. Column 2 presents the same specification with the addition of 37 country dummies. The addition of these dummies leads to some modest but interesting changes in the estimated coefficients in the meta analysis model. Most notably, the coefficients associated with job search assistance (JSA) and sanction/threat programs both become more negative, indicating that "work first" programs tend to be more widely used in countries where all forms of ALMP's are relatively successful.

Column 3 presents a model that includes the control for average GDP growth rate during the program period. The coefficient is negative and marginally significant ( $t=1.78$ ) providing suggestive evidence that ALMP's work better in recessionary markets.

A model that controls for the average unemployment rate shows the same tendency (coefficient = 0.014, standard error = 0.016) though the effect is less precise.

A concern with the specification in column 3 is that the average number of program estimates per country is small (many countries have only 2 or 3 estimates) leading to potential over-fitting. To address this, we estimated the models in columns 4-6, using only data from the four countries that account for the largest numbers of effect size estimates - Denmark (17 estimates), France (20 estimates), Germany (147 estimates) and the U.S. (16 estimates). As shown in column 4, our baseline specification yields coefficient estimates that are quite similar to the estimates from the entire sample, though the relative impacts of JSA and sanction/threat programs are more negative in these 4 countries.

Columns 5 and 6 present models that add the average GDP growth rate and the average unemployment rate, respectively, to this baseline model. These specifications suggest relatively important cyclical effects on ALMP effectiveness. For example, comparing two similar programs operating in labor markets with a 3 percentage point gap in growth rates, the program in the slower growth environment would be expected to have a 0.2 larger effect size.

While not reported in the table, we also estimated meta analysis models for these four countries that include an interaction between the cyclical variable and an indicator for human capital type programs (i.e. training or private employment programs). Using GDP growth as the cyclical indicator the estimated coefficients are -0.048 (standard error = 0.023) for the main effect and -0.028 (standard error = 0.017) for the interaction. Using unemployment as the cyclical indicator the patterns of the main effect and the interaction are similar but less precise.<sup>24</sup> Both models therefore suggest that the impacts of training and private sector employment programs are *more*

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<sup>24</sup> The estimated main effect of average unemployment is 0.053 (standard error = 0.038), the estimated interaction effect is 0.0230 (standard error = 0.036).

countercyclical than the impacts of JSA, sanction/threat and public sector programs, though the interaction terms are not significant at conventional levels.

While the evidence in Table 9 suggests a countercyclical pattern of program effectiveness, it is worth emphasizing that the explanation for this pattern is less clear. It is possible that the value of a given program is higher in a recessionary environment. It is also possible, however, that the characteristics of ALMP participants, or of the programs themselves, change in a way that contributes to a more positive impact in a slow-growth/high-unemployment environment.

## **V. Summary and Conclusions**

We have assembled and analyzed a new sample of impact estimates from 207 studies of active labor market policies. Building on our earlier study (CKW), we argue that it is important to distinguish between impacts at various time horizons since completion of the program, and to consider how the time profile of impacts varies by the type of ALMP. We also study the importance of participant heterogeneity, and look for evidence that specific subgroups may benefit more or less from particular types of programs. Finally, we study how the state of the labor market affects the measured effectiveness of ALMP's.

With regard to the impacts of different types of ALMP's, we find that the time profiles of "work first" style job search assistance and sanction/threat programs differ from the profiles of "human capital" style training and private sector employment subsidies. Work first programs tend to have larger short term effects, whereas human capital programs have small (or in some cases even negative) short term impacts, coupled with larger impacts in the medium or longer run (2-3 years after completion of the program). We also confirm that public sector employment programs have negligible, or even negative program impacts at all time horizons.

With regard to different participant groups, we find that female participants and those drawn from the pool of long term unemployed tend to have larger program

effects than other groups. In contrast, the program estimates for youths and older workers are typically less positive than for other groups. We also find indications of potential gains to matching different participant groups to specific programs, with evidence that work first programs are relatively more successful for disadvantaged participants, whereas human capital programs are more successful for the long term unemployed.

With regard to the state of the labor market, we find that ALMP's tend to have larger impacts in periods of slow growth and higher unemployment. In particular, we find a relatively large cyclical component in the program estimates from four countries that account for one-half of our sample. We also find suggestive evidence that human capital programs are more cyclically sensitive than work first programs.

Our findings on the relative efficacy of human capital programs for long term unemployed, and on the larger impacts of these programs in recessionary environments, point to a potentially important policy lesson. As noted by Krueger, Judd and Cho (2014) and Kroft et al. (forthcoming), the number of long term unemployed rises rapidly as a recession persists. This group has a high probability of leaving the labor force, risking permanent losses in the productive capacity of the economy. One policy response is countercyclical job training programs and private employment subsidies, which are particularly effective for the longer-term unemployed in a recessionary climate.

Methodologically, we find a number of interesting patterns in the recent ALMP literature. Most importantly, we find that the estimated impacts derived from randomized controlled trials, which account for one-fifth of our sample, are not much different on average from the non-experimental estimates. We also find no evidence of "publication bias" in the relationship between the magnitude of the point estimates from different studies and their corresponding precision. The estimated impacts are also very similar from published and unpublished studies, and from more and less cited studies. We do find that the choice of outcome variable used in the evaluation matters,

with a tendency toward more positive short term impact estimates from studies that model the time to first job than from studies that model the probability of employment or the level of earnings.

Finally, we conclude that meta analytic models based on the sign and significance of the program impacts lead to generally similar conclusions as models based on effect sizes. This arises because much of the variation in the sign and significance of estimated impacts across studies in the ALMP literature is driven by variation in estimated effect sizes, rather than by variation in the corresponding sampling errors.

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Figure 1: Number of Program Estimates, By Year of Program Start

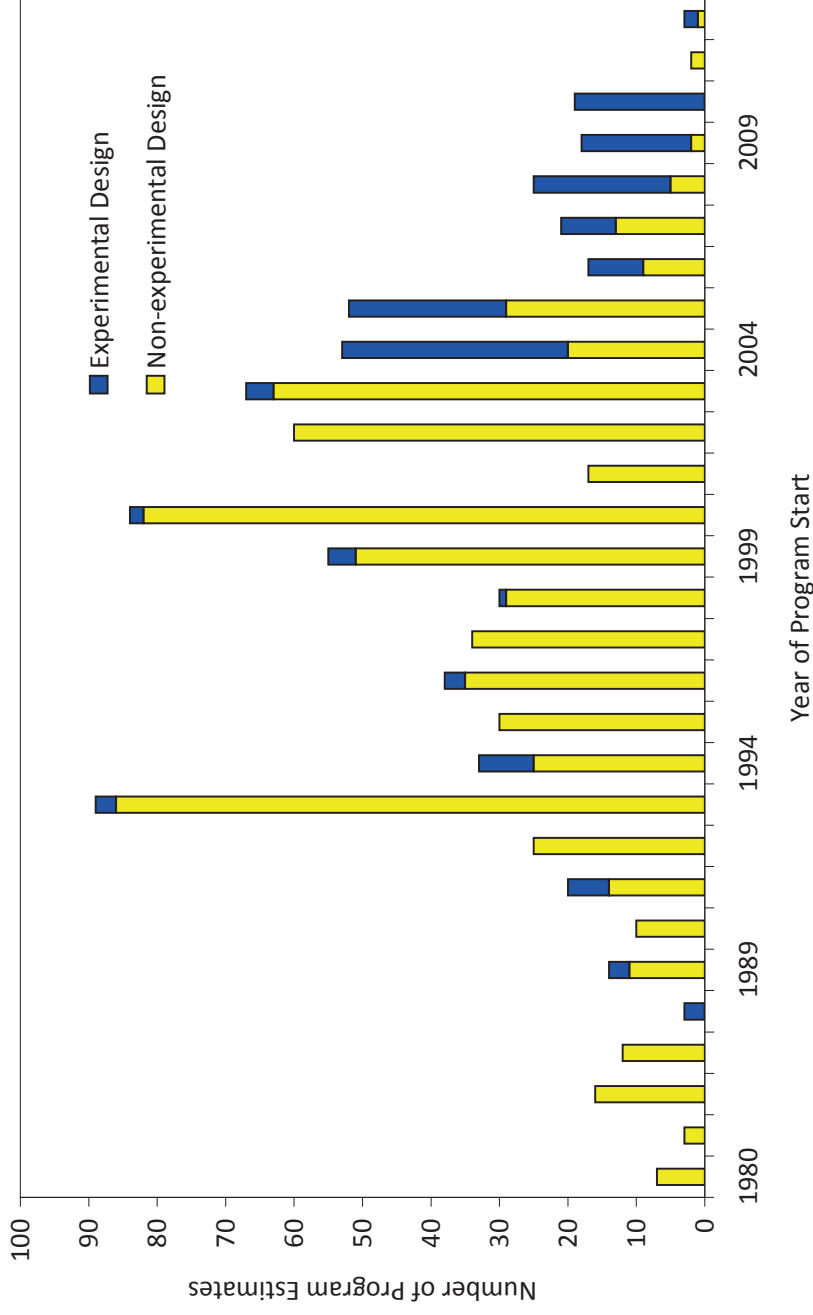
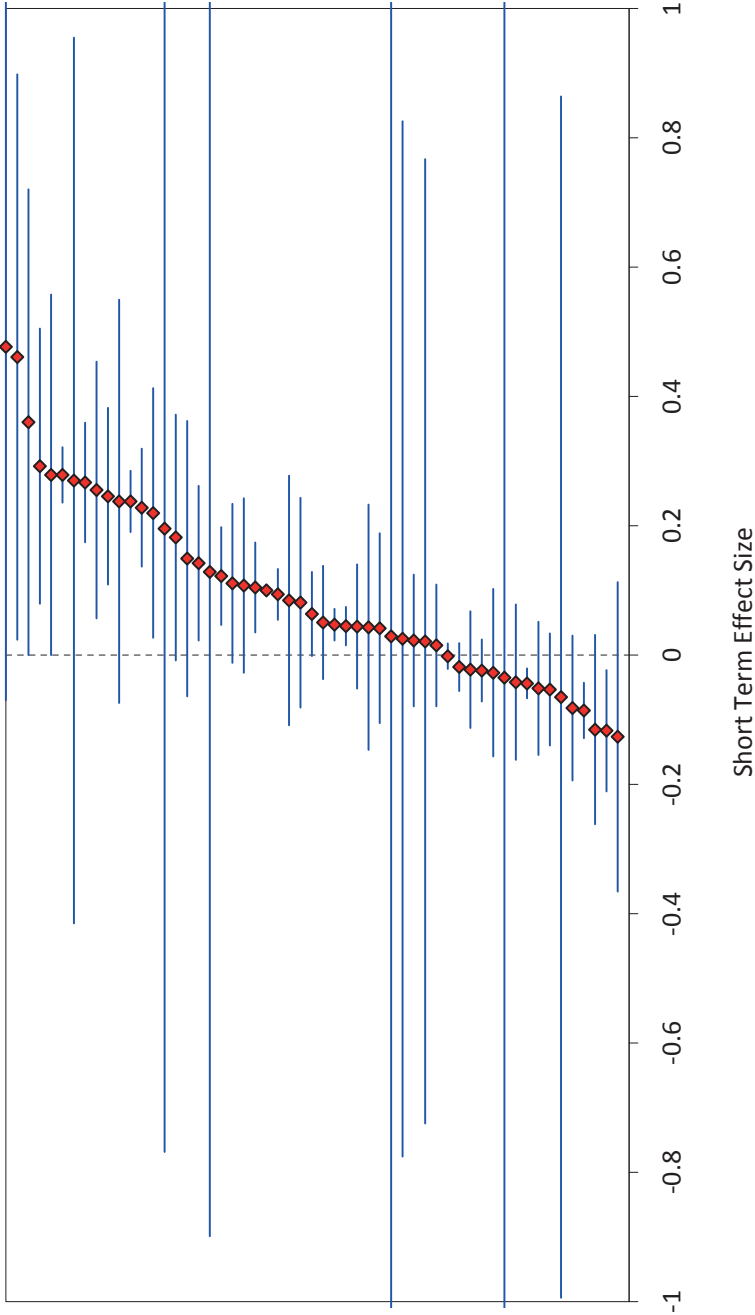


Figure 2a: Short Term Effect Sizes and Confidence Intervals



Note: 3 large positive estimated effect sizes not shown.

Figure 2b: Medium Term Effect Sizes and Confidence Intervals

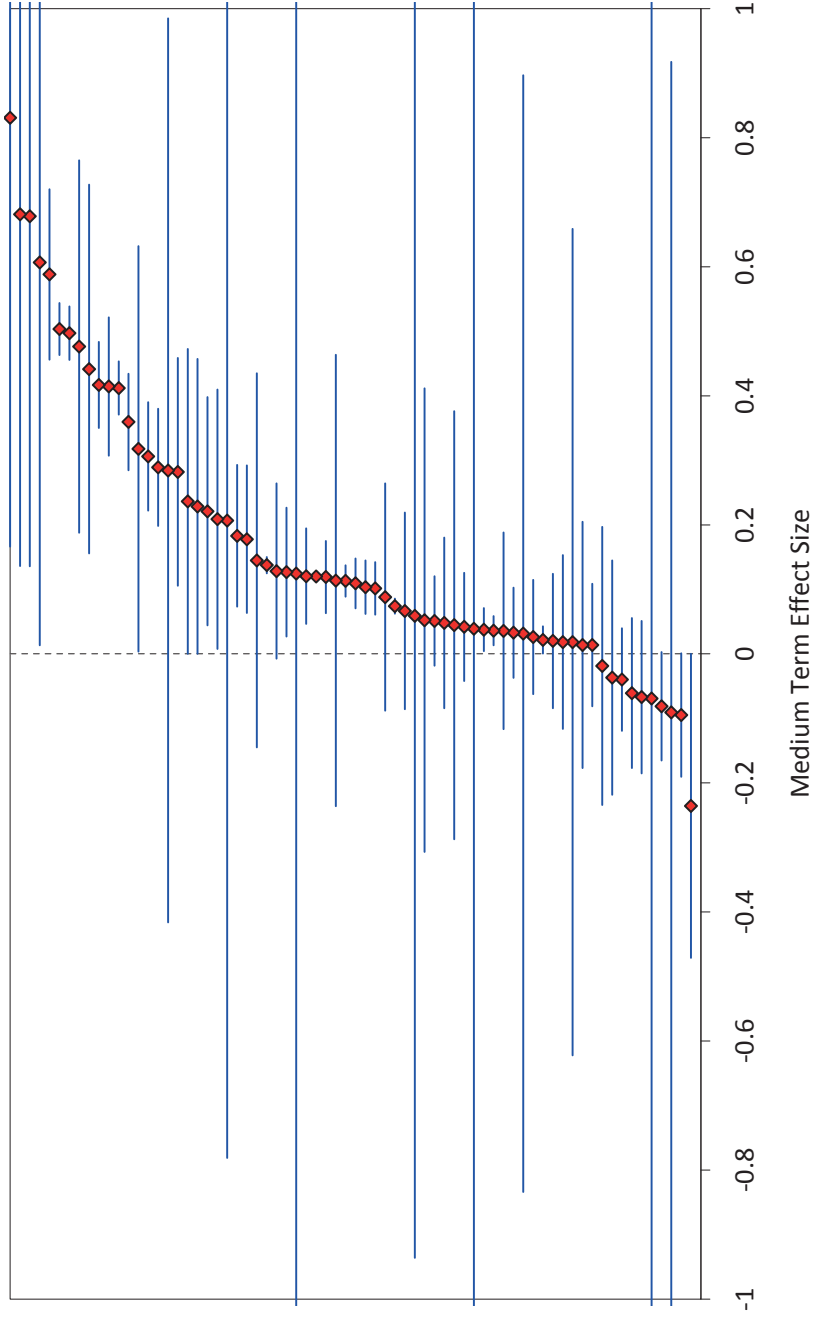


Figure 2c: Long Term Effect Sizes and Confidence Intervals

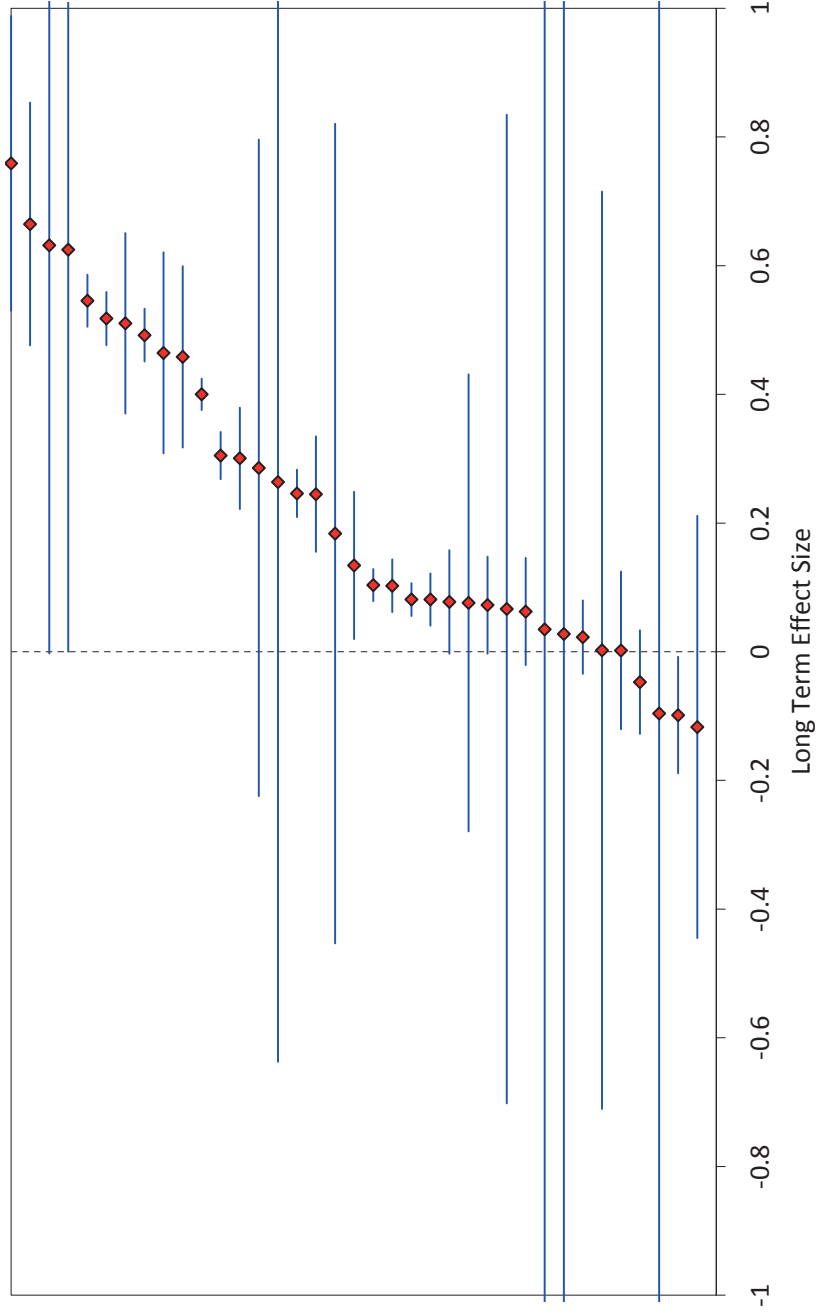


Table 1: Description of Sample of Program Estimates

	Country of Study:					
	Full sample (1)	Austria, Germany, Switzerland (2)	Nordic Countries (3)	U.S., U.K, Aust., N.Z., Canada (4)	Non-OECD (5)	Latin Amer. and Caribbean (6)
Number of estimates	857	290	212	87	132	72
Number of PPS's	526	163	127	45	86	54
Number of studies	207	52	48	24	33	19
<u>Type of program (%):</u>						
Training	49	62	17	45	79	97
Job Search Assistance	15	8	26	22	2	0
Private Subsidy	13	17	15	5	11	3
Public Employment	8	9	10	3	6	0
Sanctions/Threat	16	5	32	25	2	0
<u>Age of program group (%):</u>						
Mixed	56	54	61	72	40	25
Youth (<25 years)	21	12	20	15	53	69
Older (≥25 years)	23	33	19	13	8	6
<u>Gender of Program group (%):</u>						
Mixed	51	53	67	43	43	11
Males only	24	24	18	25	23	44
Females only	24	23	16	32	31	44
<u>Type of Program Participants (%):</u>						
Registered unemployed	64	86	67	33	24	0
Long-term unemployed	10	8	10	25	7	0
Disadvantaged	26	6	23	41	69	100
<u>Outcome of Interest (%):</u>						
Employment status	56	83	31	26	63	54
Earnings	23	8	25	47	36	43
Hazard to new job	11	7	25	3	0	0
Other hazard	6	0	16	2	0	3
Unemployment status	5	2	4	21	1	0
<u>Effect Measured at (%):</u>						
Short Term	47	42	54	37	47	57
Medium Term	35	34	31	40	45	42
Long Term	18	23	16	23	8	1
Experimental Design (%)	19	0	39	31	28	26

Note: see text for description of sample. Study refers to an article or unpublished paper. PPS refers to a program and participant subgroup (e.g., a job search assistance program for mixed gender youths). Estimate refers to an estimate of the effect of the program on the participant subgroup at either a short-term (<1 year after completion of the program), medium term (1-2 years post completion) or long term (2+ years post completion) time horizon.

Table 2: Summary of Program Estimates by Availability of Effect Size

	Full sample (1)	Potentially Have Effect Size (2)	Have Effect Size (3)	Mean Effect Size for Col. 3 Sample (robust std. error) <sup>a</sup> (4)
Number of estimates	857	490	352	--
Number of PPS's	526	274	200	--
Number of studies	207	111	83	--
<u>Short Term Estimates</u>				
All ST estimates -- number [pct. of total estimates]	415 [48]	205 [42]	141 [40]	3.8 (2.3)
Significant positive ST estimate -- pct. of ST sample	40	31	33	21.4 (3.3)
Insignificant ST estimate -- pct. of ST sample	42	47	44	0.5 (1.2)
Significant negative ST estimate -- pct. of ST sample	18	22	23	-14.4 (2.4)
<u>Medium Term (MT) Estimates</u>				
All MT estimates -- number [pct. of total estimates]	301 [35]	194 [40]	143 [41]	11.5 (2.8)
Significant positive MT estimate -- pct. of MT sample	52	50	47	24.2 (4.3)
Insignificant MT estimate -- pct. of MT sample	40	41	43	2.5 (0.8)
Significant negative MT estimate -- pct. of MT sample	8	9	10	-10.9 (2.3)
<u>Long Term (LT) Estimates</u>				
All LT estimates -- number [pct. of total estimates]	141 [16]	91 [19]	68 [19]	18.5 (5.0)
Significant positive LT estimate -- pct. of sample	61	65	65	27.6 (6.1)
Insignificant LT estimate -- pct. of sample	35	32	32	2.7 (1.2)
Significant negative LT estimate -- pct. of sample	4	3	3	-9.7 (0.1)

Notes: see note to Table 1. Short term program estimates are for the period up to 1 year after the completion of the program. Medium term estimates are for the period from 1 to 2 years after completion of the program. Long term estimates are for the period 2 or more years after completion of the program. Effect sizes are only available for studies that model the probability of employment as the outcome of interest, and provide information on mean employment rate of comparison group.

<sup>a</sup> Entries in this column are mean effect sizes for the subset indicated by row heading. Standard error of mean is clustered by study.



Table 3a: Comparison of Impact Estimates by Program Type and Participant Group

	Number Est's. (1)	Median Sample Size (2)	Percent RCT's (3)	Mean Effect Sizes (x100)			Pct. with Sig. Positive Impact		
				Short Term (4)	Medium Term (5)	Longer Term (6)	Short Term (7)	Medium Term (8)	Longer Term (9)
All	857	10,709	19.4	3.8 (141)	11.5 (143)	18.5 (68)	40 (415)	52 (301)	61 (141)
<u>By Program Type:</u>									
Training	418	7,700	12.9	3.9 (90)	14.0 (92)	13.6 (35)	35 (201)	54 (163)	67 (54)
Job Search Assist.	129	4,648	51.2	4.1 (16)	4.4 (13)	2.3 (7)	53 (68)	63 (40)	43 (21)
Private Subsidy	118	10,000	8.5	3.2 (13)	11.7 (17)	45.9 (16)	37 (49)	65 (37)	88 (32)
Public Sector Emp.	76	17,084	0.0	-4.2 (14)	-2.2 (12)	2.5 (6)	32 (41)	25 (24)	27 (11)
Sanction/Threat	116	17,391	31.0	17.8 (8)	14.6 (9)	3.6 (4)	52 (56)	38 (37)	43 (23)
<u>By Intake Group:</u>									
UI Recipients	554	11,000	17.1	-0.6 (93)	8.7 (101)	17.3 (50)	34 (258)	47 (193)	59 (103)
Long Term Unem.	106	8,900	16.0	17.1 (17)	29.9 (16)	30.7 (10)	50 (50)	65 (40)	63 (16)
Disadvantaged	197	7,027	27.4	9.8 (31)	11.1 (26)	10.4 (8)	50 (107)	59 (68)	68 (22)

Notes: see Tables 1 and 2. Number of program estimates associated with each table entry is reported in parentheses. Effect sizes are only available for studies that model the probability of employment as the outcome of interest.

Table 3b: Additional Comparisons of Impact Estimates by Participant Groups and Design

	Number Est's. (1)	Median Sample Size (2)	Percent RCT's (3)	Mean Effect Sizes (x100)			Pct. with Sig. Positive Impact		
				Short Term (4)	Medium Term (5)	Longer Term (6)	Short Term (7)	Medium Term (8)	Longer Term (9)
All	857	10,709	19.4	3.8 (141)	11.5 (143)	18.5 (68)	40 (415)	52 (301)	61 (141)
<u>By Age:</u>									
Mixed Age	505	10,000	16.6	3.8 (71)	14.4 (84)	22.4 (51)	47 (238)	57 (178)	65 (89)
Youth (<25)	180	3,000	33.3	7.5 (34)	5.9 (29)	0.1 (5)	32 (92)	41 (64)	67 (24)
Non-Youth	172	25,850	12.8	0.3 (36)	8.9 (30)	9.6 (12)	31 (85)	51 (59)	43 (28)
<u>By Gender:</u>									
Mixed Gender	466	11,000	19.7	3.9 (89)	9.4 (85)	11.3 (45)	39 (224)	52 (155)	59 (87)
Males Only	191	10,000	15.2	-2.8 (24)	12.4 (28)	29.2 (9)	41 (95)	50 (72)	58 (24)
Females Only	200	8,345	22.5	9.4 (28)	16.5 (30)	34.5 (14)	41 (96)	55 (74)	70 (30)
<u>By Evaluation Design:</u>									
Experimental	166	1,471	100.0	10.6 (28)	5.6 (25)	0.8 (15)	40 (78)	41 (58)	37 (30)
Non-experimental	691	16,000	0.0	2.1 (113)	12.7 (118)	23.5 (53)	40 (337)	55 (243)	68 (111)

Notes: see Tables 1 and 2. Number of program estimates associated with each table entry is reported in parentheses. Effect sizes are only available for studies that model the probability of employment as the outcome of interest.

Table 4: Transitions in Program Impacts for a Given Program and Participant Subgroup

	Change in Effect Size			Change in Sign/Significance		
	short term	short term to	medium term	short term to	short term to	medium term
	medium term	long term	to long term	medium term	long term	to long term
	(1)	(2)	(3)	(4)	(5)	(6)
All	0.043 (0.020)	0.037 (0.035)	-0.012 (0.007)	0.231 (0.055)	0.250 (0.103)	0.020 (0.052)
<i>Number Studies</i>	105	43	47	225	100	102
<i>By Program Type</i>						
Training	0.070 (0.018)	0.087 (0.035)	-0.010 (0.011)	0.314 (0.072)	0.439 (0.085)	0.048 (0.049)
<i>Number Studies</i>	70	28	28	121	41	42
Job Search Assist.	0.009 (0.019)	-0.005 (0.003)	-0.004 (0.006)	0.265 (0.095)	0.143 (0.167)	-0.111 (0.144)
<i>Number Studies</i>	10	7	7	34	21	18
Private Subsidy	-0.055 (0.126)	-0.006 (0.156)	-0.005 (0.031)	0.083 (0.150)	0.167 (0.267)	-0.062 (0.068)
<i>Number Studies</i>	9	2	6	24	12	16
Public Sector Emp.	-0.007 (0.070)	-0.299 (0.299)	-0.039 (0.039)	0.158 (0.170)	-0.143 (0.494)	-0.143 (0.285)
<i>Number Studies</i>	10	2	2	19	7	7
Sanction/Threat	0.013 (0.035)	-0.048 (0.021)	-0.029 (0.012)	0.000 (0.108)	0.158 (0.182)	0.211 (0.092)
<i>Number Studies</i>	6	4	4	27	19	19

Notes: Change in effect size in column 1 represents the difference between the medium term and short term effect sizes for a given program and participant subgroup (PPS). Changes in columns 2 and 3 are defined analogously. Change in sign/significance in column 4 is defined as +1 if the short term estimate is significantly negative and the medium term estimate is insignificant, or if the short term estimate is insignificant and the medium term estimate is significantly positive; 0 if the sign and significance of the short term and medium term estimates is the same; and -1 if the short term estimate is significantly positive and the medium term estimate is insignificant, or if the short term estimate is insignificant and the medium term estimate is significantly negative. Changes in columns 5 and 6 are defined analogously. Standard deviations (clustered by study number) in parenthesis.

Table 5: Estimated Effect Size Models

	Dependent Variable = Estimated Effect Size			
	(1)	(2)	(3)	(4)
<i>Effect Term (Omitted = Short Term)</i>				
Medium Term	0.071 (0.027)	0.056 (0.021)	0.101 (0.037)	0.088 (0.025)
Long Term	0.131 (0.044)	0.091 (0.038)	0.097 (0.040)	0.099 (0.040)
<i>Program Type (Omitted = Training)</i>				
Job search Assist.	-0.059 (0.027)	-0.012 (0.043)	0.002 (0.026)	0.029 (0.044)
Private Subsidy	0.094 (0.068)	0.086 (0.057)	-0.007 (0.091)	0.044 (0.099)
Public Sector Emp.	-0.120 (0.034)	-0.152 (0.044)	-0.081 (0.055)	-0.084 (0.062)
Sanction/Threat	0.036 (0.071)	0.007 (0.094)	0.139 (0.068)	0.108 (0.098)
<i>Interaction with Medium Term:</i>				
Job search Assist.			-0.098 (0.043)	-0.092 (0.041)
Private Subsidy			-0.016 (0.102)	-0.055 (0.104)
Public Sector Emp.			-0.081 (0.070)	-0.09 (0.073)
Sanction/Threat			-0.133 (0.048)	-0.105 (0.045)
<i>Interaction with Long Term:</i>				
Job search Assist.			-0.115 (0.041)	-0.083 (0.052)
Private Subsidy			0.329 (0.142)	0.182 (0.127)
Public Sector Emp.			-0.030 (0.081)	-0.156 (0.108)
Sanction/Threat			-0.239 (0.073)	-0.273 (0.092)
Additional Controls	No	Yes	No	Yes
R Squared	0.13	0.33	0.21	0.37

Notes: Standard errors (clustered by study) in parentheses. Models are linear regressions with the effect size as dependent variable. Coefficients of additional control variables included in models in columns 2 and 4 reported in Table 7. Sample size is 352.

Table 6: Ordered Probit Models for Sign/Significance of Estimated Program Impacts

	Dependent Variable = Ordinal Indicator for Sign/Significance				
	(1)	(2)	(3)	(4)	(5)
<i>Effect Term (Omitted = Short Term)</i>					
Medium Term	0.372 (0.088)	0.483 (0.099)	0.563 (0.130)	0.639 (0.138)	0.491 (0.145)
Long Term	0.597 (0.157)	0.742 (0.167)	0.901 (0.175)	1.053 (0.171)	1.030 (0.206)
<i>Program Type (Omitted = Training)</i>					
Job search Assist.	0.274 (0.156)	0.286 (0.168)	0.531 (0.180)	0.532 (0.197)	0.569 (0.459)
Private Subsidy	0.139 (0.189)	0.076 (0.210)	-0.04 (0.224)	-0.132 (0.263)	-0.166 (0.438)
Public Sector Emp.	-0.677 (0.219)	-0.758 (0.228)	-0.383 (0.276)	-0.489 (0.279)	-1.399 (0.496)
Sanction/Threat	-0.110 (0.172)	-0.205 (0.184)	0.318 (0.206)	0.202 (0.236)	1.148 (0.653)
<i>Interaction with Medium Term:</i>					
Job search Assist.			-0.289 (0.235)	-0.283 (0.249)	-0.004 (0.343)
Private Subsidy			0.138 (0.289)	0.226 (0.311)	0.353 (0.486)
Public Sector Emp.			-0.645 (0.285)	-0.573 (0.288)	0.051 (0.477)
Sanction/Threat			-0.764 (0.226)	-0.705 (0.245)	-0.662 (0.278)
<i>Interaction with Long Term:</i>					
Job search Assist.			-1.017 (0.313)	-1.022 (0.294)	-0.832 (0.313)
Private Subsidy			0.611 (0.375)	0.58 (0.387)	1.274 (0.798)
Public Sector Emp.			-0.643 (0.490)	-0.675 (0.497)	0.131 (0.832)
Sanction/Threat			-0.999 (0.353)	-1.021 (0.375)	-1.638 (0.430)
Additional Controls	No	Yes	No	Yes	Yes
Number of Observations	857	857	857	857	352
Log Likelihood	-801	-765	-786	-752	-283

Notes: Standard errors (clustered by study) in parentheses. Models are ordered probits, fit to ordinal data with value of +1 for significantly positive, 0 for insignificant, -1 for significantly negative estimate. Estimated cutpoints (2 per model) are not reported in the Table. Model in column 5 is fit to subsample of estimates for which an effect size estimate is available. Coefficients for additional control variables for models in columns 2, 4 and 5 are reported in Table 7.

Table 7: Estimated Coefficients for Additional Control Variables for Models Reported in Tables 5 and 6

	Effect Size OLS Models		Ordered Probit Models for Sign/Significance		
	(1)	(2)	(3)	(4)	(5)
<i>Outcome of Interest (Omitted = Probability of Employment)</i>					
Earnings			-0.003 (0.130)	-0.01 (0.132)	
Hazard to New Job			0.275 (0.211)	0.264 (0.212)	
Other Hazard			0.613 (0.275)	0.547 (0.263)	
Unemployment Status			0.598 (0.293)	0.591 (0.285)	
<i>Age of Program Group (Omitted = Mixed)</i>					
Youths (<25)	-0.062 (0.045)	-0.05 (0.045)	-0.368 (0.151)	-0.348 (0.153)	-0.518 (0.287)
Older (>=25)	-0.151 (0.044)	-0.135 (0.045)	-0.423 (0.157)	-0.425 (0.160)	-0.671 (0.297)
<i>Gender of Program Group (Omitted = Mixed)</i>					
Males only	0.029 (0.049)	0.020 (0.049)	-0.007 (0.149)	-0.006 (0.149)	-0.328 (0.266)
Females only	0.107 (0.052)	0.094 (0.051)	0.064 (0.144)	0.053 (0.146)	0.000 (0.250)
<i>Country Group (Omitted = Nordic)</i>					
Germanic	0.107 (0.073)	0.082 (0.072)	0.250 (0.192)	0.176 (0.196)	0.910 (0.488)
Anglo	-0.07 (0.081)	-0.078 (0.076)	0.177 (0.241)	0.14 (0.236)	1.231 (0.579)
East Europe	0.04 (0.072)	0.055 (0.065)	0.131 (0.201)	0.096 (0.202)	0.618 (0.378)
Rest of Europe	0.019 (0.060)	0.009 (0.059)	0.125 (0.187)	0.088 (0.189)	0.738 (0.483)
Latin America	-0.01 (0.129)	-0.003 (0.130)	0.108 (0.338)	0.1 (0.338)	1.012 (0.826)
Remaining Countries	0.084 (0.091)	0.089 (0.092)	-0.063 (0.281)	-0.064 (0.286)	1.124 (0.529)
<i>Type of Program Participant (Omitted = Registered Unemployed)</i>					
Disadvantaged	0.06 (0.089)	0.049 (0.088)	0.542 (0.228)	0.527 (0.228)	0.356 (0.623)
Long-term Unemployed	0.217 (0.076)	0.212 (0.074)	0.388 (0.181)	0.404 (0.179)	0.392 (0.332)
<i>Other Controls:</i>					
Program > 9 Months	-0.056 (0.042)	-0.043 (0.041)	-0.135 (0.179)	-0.122 (0.177)	-0.55 (0.232)
Experiment	-0.031 (0.049)	-0.027 (0.049)	-0.065 (0.170)	-0.095 (0.170)	-0.314 (0.332)
Square Root of Samplesize	-0.039 (0.086)	-0.028 (0.077)	0.159 (0.184)	0.098 (0.191)	0.484 (0.706)
Published Article	-0.056 (0.043)	-0.063 (0.043)	-0.203 (0.133)	-0.213 (0.132)	-0.41 (0.254)
Citations Rank Index	-0.003 (0.004)	-0.002 (0.003)	0.007 (0.012)	0.005 (0.012)	-0.005 (0.024)
Number of Observations	352	352	857	857	352

Notes: Standard errors (clustered by study) in parentheses. Table entries are coefficient estimates for additional controls included in models in Tables 5 and 6. Models in columns 1-2 correspond to models in columns 2 and 4 of Table 5. Models in columns 3-5 correspond to models in columns 2, 4, and 5 of Table 7.

Table 8: Comparison of Relative Impacts for Different Participant Groups by Type of Program

	All					
	Program Types (1)	Training (2)	Job Search Assistance (3)	Private Sector Job/Subsidy (4)	Public Sector Employment (5)	Theat/Sanctions (6)
Number of Estimates	352	217	36	46	32	21
Number of Studies	83	51	15	19	14	8
Mean Effect Size (x100)	9.77	9.73	3.82	21.17	-2.23	13.70
Constant	0.046 (0.040)	0.026 (0.040)	0.000 (0.034)	-0.117 (0.102)	0.039 (0.073)	0.213 (0.058)
Medium Term	0.063 (0.022)	0.092 (0.023)	0.030 (0.029)	0.037 (0.108)	0.010 (0.065)	0.042 (0.067)
Long Term	0.110 (0.040)	0.123 (0.039)	0.006 (0.025)	0.274 (0.148)	-0.050 (0.089)	-0.019 (0.037)
<i>Intake Group (Base=Regular UI Recipients)</i>						
Disadvantaged	0.003 (0.043)	-0.046 (0.043)	0.200 (0.034)	0.124 (0.068)	--	0.157 (0.114)
Long Term Unemployment	0.190 (0.077)	0.306 (0.138)	0.060 (0.039)	0.274 (0.077)	0.143 (0.049)	-0.239 (0.045)
<i>Gender Group (Base=Mixed)</i>						
Male	0.040 (0.043)	0.060 (0.054)	(omitted)	0.234 (0.147)	-0.132 (0.062)	-0.075 (0.063)
Female	0.119 (0.050)	0.126 (0.063)	(omitted)	0.365 (0.113)	-0.081 (0.061)	-0.312 (0.099)
<i>Age Group (Base=Mixed)</i>						
Youth	-0.076 (0.045)	-0.047 (0.049)	0.016 (0.022)	0.100 (0.092)	-0.155 (0.066)	--
Older Participants	-0.103 (0.041)	-0.113 (0.053)	0.029 (0.041)	-0.244 (0.119)	-0.134 (0.081)	0.114 (0.006)
Controls for Program Type <sup>a</sup>	Yes	No	No	No	No	No

Notes: standard errors, clustered by study, in parenthesis. See note to Table 5. Dependent variable in all models is estimated effect size. Models in column 1 are fit to all available effect sizes. Models in columns 2-6 are estimated on subsets of effect size estimates for program types indicated in column heading.

<sup>a</sup>Four dummies for different types of programs included.

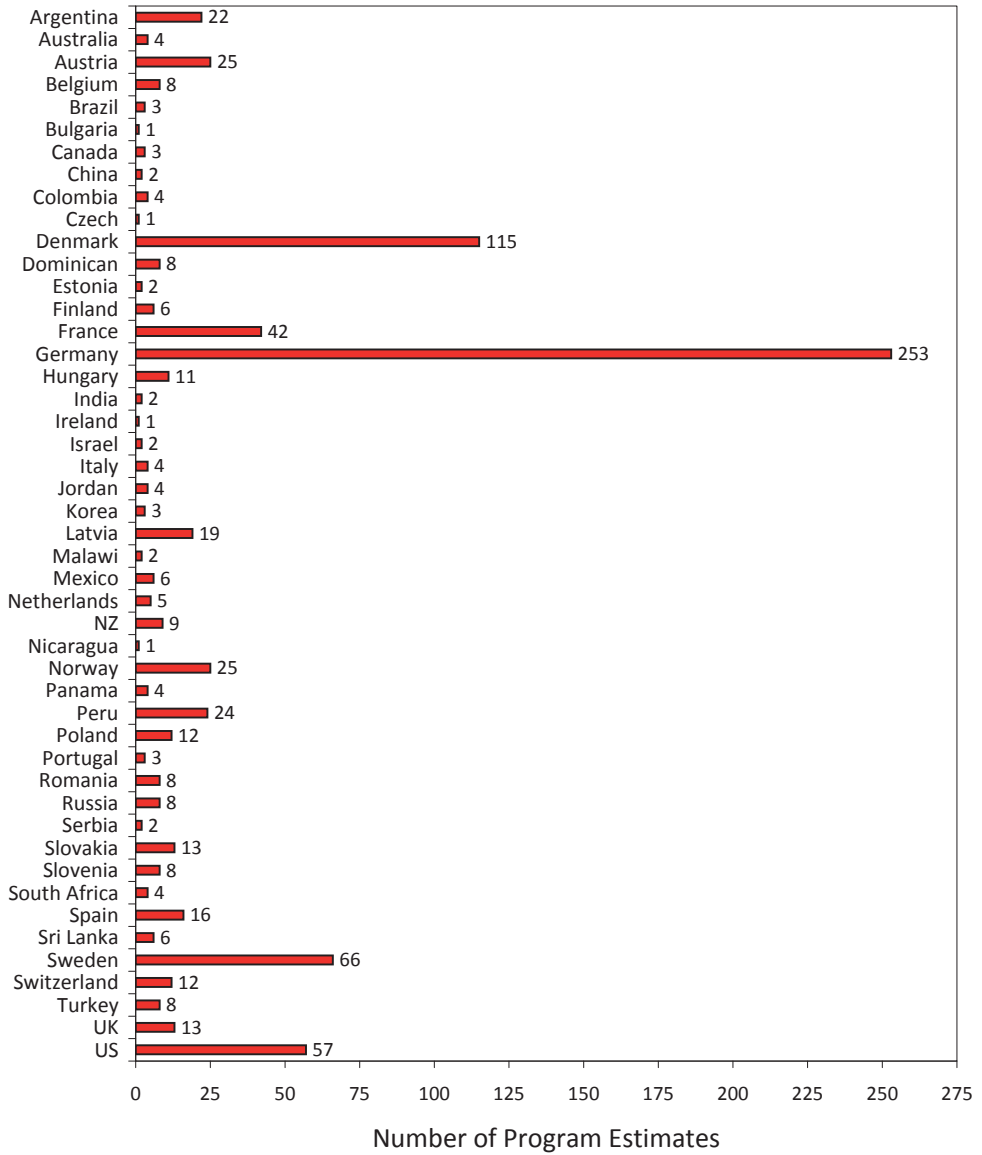
Table 9: Impacts of Macro Conditions on the Effectiveness of Active Labor Market Policies

	All Available Effect Size Estimates			Denmark, France, Germany, and U.S. Only		
	Baseline (1)	+ Country Effects (2)	+ GDP Growth (3)	Baseline (4)	+ GDP Growth (5)	+ Unemp. Rate (6)
Medium Term	0.063 (0.022)	0.062 (0.023)	0.057 (0.022)	0.095 (0.023)	0.078 (0.020)	0.090 (0.025)
Long Term	0.110 (0.040)	0.097 (0.044)	0.084 (0.040)	0.128 (0.053)	0.073 (0.040)	0.109 (0.054)
GDP Growth Rate (%) (Unemp. Rate in col. 6)	--	--	-0.022 (0.013)	--	-0.070 (0.019)	0.078 (0.024)
<i>Program Type (Base=Training)</i>						
Job Search Assistance	-0.065 (0.039)	-0.105 (0.057)	-0.110 (0.055)	-0.149 (0.074)	-0.207 (0.062)	0.051 (0.131)
Private Sector Job/Subsidy	0.066 (0.055)	0.064 (0.062)	0.043 (0.062)	0.038 (0.063)	-0.010 (0.054)	0.024 (0.065)
Public Sector Employment	-0.151 (0.041)	-0.149 (0.057)	-0.137 (0.053)	-0.199 (0.065)	-0.149 (0.053)	-0.208 (0.056)
Sanctions/Threat	-0.024 (0.088)	-0.093 (0.070)	-0.141 (0.084)	-0.250 (0.088)	-0.448 (0.117)	-0.286 (0.136)
<i>Intake Group (Base=Regular UI Recipients)</i>						
Disadvantaged	0.003 (0.043)	0.001 (0.074)	0.024 (0.073)	0.132 (0.068)	0.262 (0.086)	0.140 (0.078)
Long Term Unemployed	0.190 (0.077)	0.245 (0.081)	0.237 (0.076)	0.284 (0.080)	0.279 (0.068)	0.242 (0.080)
<i>Gender Group (Base=Mixed)</i>						
Male	0.040 (0.043)	0.103 (0.056)	0.117 (0.055)	0.148 (0.058)	0.180 (0.051)	0.115 (0.049)
Female	0.119 (0.050)	0.186 (0.067)	0.201 (0.067)	0.212 (0.073)	0.249 (0.068)	0.180 (0.064)
<i>Age Group (Base=Mixed)</i>						
Youth	-0.076 (0.045)	-0.047 (0.048)	-0.047 (0.050)	-0.030 (0.064)	-0.100 (0.056)	-0.054 (0.127)
Older Participants	-0.103 (0.041)	-0.115 (0.054)	-0.130 (0.054)	-0.150 (0.065)	-0.202 (0.053)	-0.131 (0.054)
Country Dummies	No	Yes	Yes	Yes	Yes	Yes

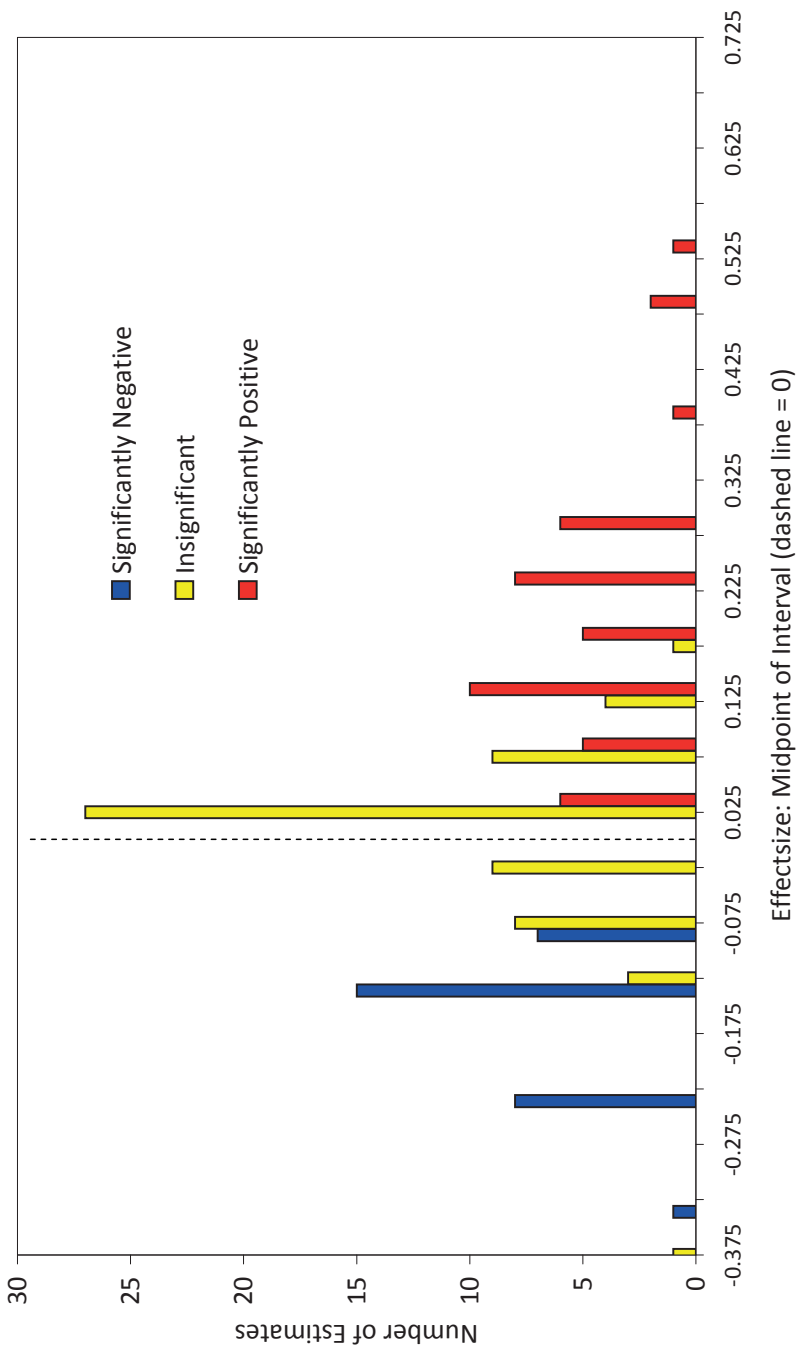
Notes: standard errors, clustered by study, in parenthesis. Models in columns 1-3 are fit to 352 program estimates from 83 studies, with mean of dependent variable = 0.098. Models in columns 4-5 are fit to 200 studies from Denmark, France, Germany, and the U.S. from 38 studies, with mean of dependent variable = 0.089. Model in column 6 is fit to 181 studies from same four countries from 34 studies, with mean of dependent variable = 0.093.



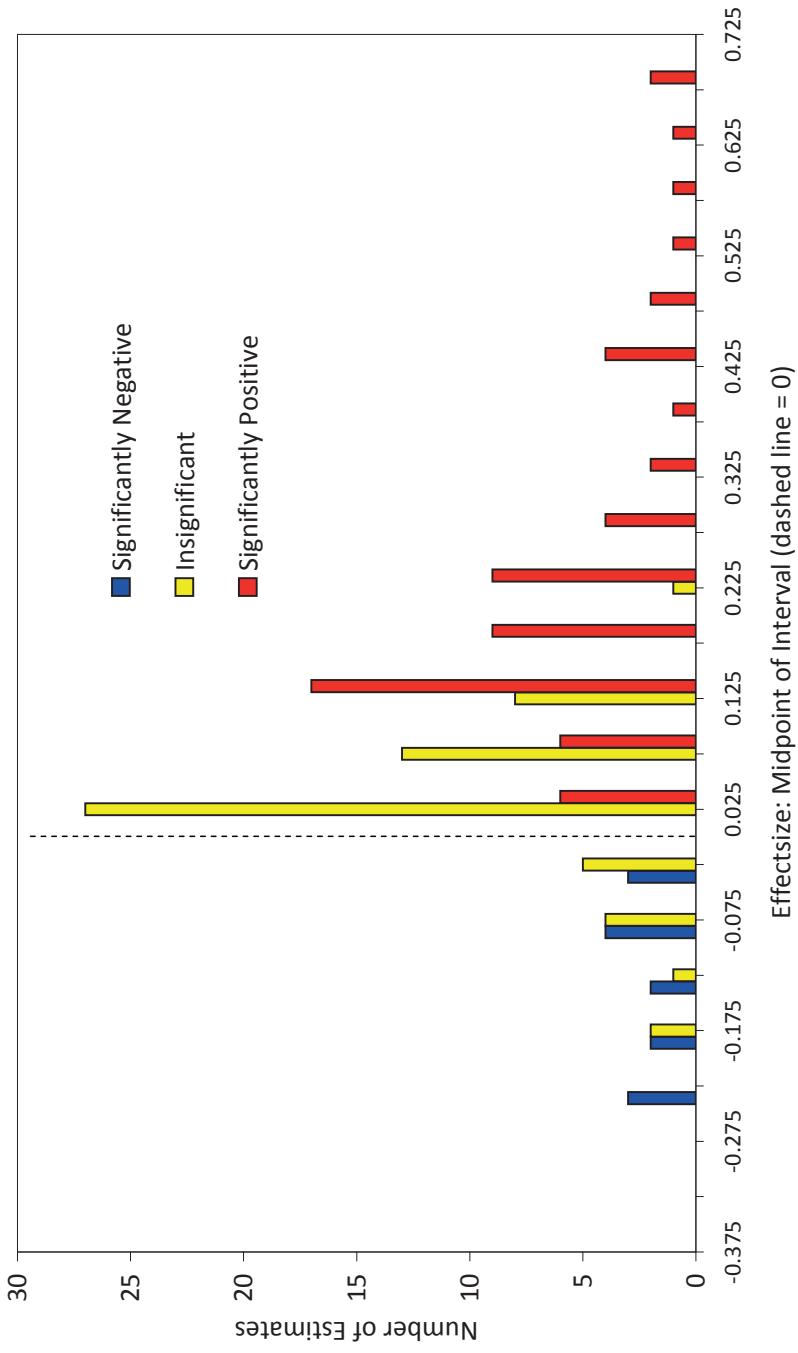
Appendix Figure 1: Distribution of Program Estimates by Country



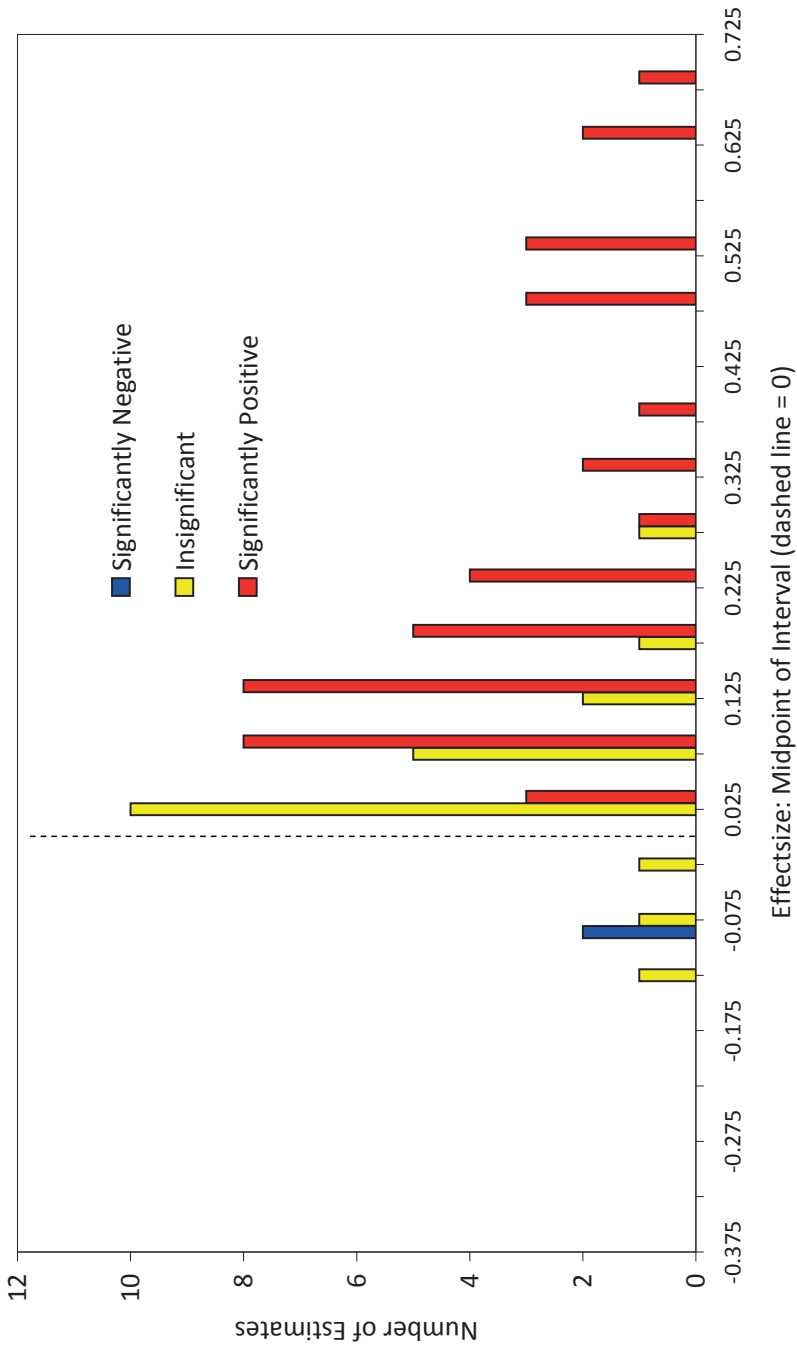
Appendix Figure 2a: Histogram of Short Term Effect Size Estimates



Appendix Figure 2b: Histogram of Medium Term Effect Size Estimates



Appendix Figure 2c: Histogram of Longer Term Effect Size Estimates





Appendix Table 1a: Transitions between Sign- and Significance Categories, All Estimates

	<i>Percent of Medium-term Estimates</i>		
	Significantly Positive	Insufficient	Significantly Negative
<i>Short-term Estimates</i>			
Significantly Positive (N=80)	84	16	0
Insufficient (N=95)	37	60	3
Significantly Negative (N=50)	20	46	34
	<i>Percent of Long-term Estimates</i>		
	Significantly Positive	Insufficient	Significantly Negative
<i>Short-term Estimates</i>			
Significantly Positive (N=39)	72	23	5
Insufficient (N=39)	46	51	3
Significantly Negative (N=22)	32	55	14
	<i>Percent of Long-term Estimates</i>		
	Significantly Positive	Insufficient	Significantly Negative
<i>Medium-term Estimates</i>			
Significantly Positive (N=58)	88	10	2
Insufficient (N=35)	14	83	3
Significantly Negative (N=9)	22	33	44

Appendix Table 1b: Transitions between Sign- and Significance Categories, Subsample with Effect Size

	<i>Percent of Medium-term Estimates</i>		
	Significantly Positive	Insignificant	Significantly Negative
<i>Short-term Estimates</i>			
Significantly Positive (N=31)	87	13	0
Insignificant (N=48)	31	67	2
Significantly Negative (N=26)	12	42	46
	<i>Percent of Long-term Estimates</i>		
	Significantly Positive	Insignificant	Significantly Negative
<i>Short-term Estimates</i>			
Significantly Positive (N=15)	80	13	7
Insignificant (N=19)	37	63	0
Significantly Negative (N=9)	22	67	11
	<i>Percent of Long-term Estimates</i>		
	Significantly Positive	Insignificant	Significantly Negative
<i>Medium-term Estimates</i>			
Significantly Positive (N=27)	89	11	0
Insignificant (N=17)	6	88	6
Significantly Negative (N=27)	0	67	33

Appendix Table 2: Comparisons of Effect Size, Ordered Probit, and Probit Models

	Effect Size (OLS)	Ordered Probit Sign/Significance	Probit Models	
			Sign. Positive (3)	Sign. Negative (4)
	(1)	(2)	(3)	(4)
Medium Term	0.056 (0.021)	0.489 (0.114)	0.429 (0.137)	-0.719 (0.173)
Long Term	0.091 (0.038)	0.969 (0.221)	0.851 (0.218)	-1.365 (0.437)
<i>Program Type (Omitted = Training)</i>				
Job search Assist.	-0.012 (0.043)	0.443 (0.436)	0.507 (0.434)	-0.531 (0.528)
Private Subsidy	0.086 (0.057)	0.252 (0.300)	0.733 (0.314)	0.475 (0.315)
Public Sector Emp.	-0.152 (0.044)	-1.356 (0.287)	-1.239 (0.330)	1.349 (0.335)
Other	0.007 (0.094)	0.550 (0.542)	0.987 (0.492)	0.595 (0.628)
<i>Age of Program Group (Omitted = Mixed)</i>				
Youths (<25)	-0.062 (0.045)	-0.614 (0.282)	-0.643 (0.322)	1.052 (0.499)
Older (>=25)	-0.151 (0.044)	-0.735 (0.280)	-0.657 (0.272)	0.845 (0.428)
<i>Gender of Program Group (Omitted = Mixed)</i>				
Males only	0.029 (0.049)	-0.289 (0.273)	-0.591 (0.310)	-0.101 (0.279)
Females only	0.107 (0.052)	0.043 (0.251)	-0.196 (0.272)	-0.476 (0.315)
<i>Country Group (Omitted = Nordic)</i>				
Germanic	0.107 (0.073)	1.033 (0.460)	1.043 (0.498)	-1.351 (0.454)
Anglo	-0.07 (0.081)	1.265 (0.577)	1.312 (0.625)	--
East Europe	0.04 (0.072)	0.615 (0.358)	0.644 (0.447)	-0.579 (0.437)
Rest of Europe	0.019 (0.060)	0.825 (0.469)	0.909 (0.560)	-0.984 (0.456)
Latin America	-0.01 (0.129)	1.017 (0.826)	1.334 (0.879)	-1.075 (1.170)
Remaining Countries	0.084 (0.091)	1.161 (0.521)	1.138 (0.618)	--
<i>Type of Program Participant (Omitted = Registered Unemployed)</i>				
Disadvantaged	0.060 (0.089)	0.428 (0.618)	0.294 (0.588)	-0.990 (1.022)
Long-term Unemployed	0.217 (0.076)	0.436 (0.311)	0.481 (0.325)	-0.512 (0.332)
<i>Other Controls:</i>				
Program > 9 months	-0.056 (0.042)	-0.599 (0.234)	-0.526 (0.265)	0.563 (0.326)
Experiment	-0.031 (0.049)	-0.312 (0.330)	-0.677 (0.395)	-0.950 (0.461)
Square Root of Samplesize	-0.039 (0.086)	0.471 (0.689)	0.796 (0.851)	0.817 (0.719)
Published Article	-0.056 (0.043)	-0.374 (0.252)	-0.41 (0.277)	0.328 (0.298)
Citations Rank Index	-0.003 (0.004)	-0.009 (0.023)	0.003 (0.024)	0.057 (0.034)
Number of Observations	352	352	352	315
R Squared/ Log Likelihood	0.33	-288	-190	-92

Notes: Standard errors (clustered by study) in parentheses. Dependent variables are as follows: column (1) = estimated effect size; column (2) = classification of sign and significance of the program estimate; column (3) = indicator for significantly positive program estimate; column (4) = indicator for significantly negative program estimate. Model in column (4) is estimated on subset of 315 observations because of perfect predictability of responses for some observations.