ESTIMATING THE COST OF GOVERNMENT JOB CREATION PROGRAMS[1]

By Philip Harvey[2]

All governments create jobs, but job creation is rarely the goal of the activities that create the jobs. Instead, the government's goal is to provide public goods, services, and benefits at lowest cost to taxpayers. Creating jobs is simply the means to this end.

Occasionally, though, governments create jobs for their own sake. Setting aside instances in which the motive for doing so is corrupt, the goal of almost all such initiatives is to secure for unemployed individuals what the regular labor market has failed to provide them – decent work. A jobs program may also be intended to stimulate the economy, but if that were its only goal there would be no need to provide the stimulus in this form. Other types of government spending would work just as well.

Jobs provided for this purpose are best viewed as a social welfare benefit – like government funded pensions, health care, and education. Indeed, the closest analogy may be unemployment insurance, which provides an income substitute for wages lost by unemployed individuals who receive the benefit. A jobs program is similar except the benefit is provided in the form of a job rather than a transfer payment.

Viewed in this light, the appropriate way to evaluate the cost of a jobs program is the same way the cost of other social welfare benefits is evaluated. There are special features of job creation programs, though, that make such an analysis tricky. I shall discuss four of these. The first can be termed the "twofer effect" of a jobs program; the second is its "displacement effect"; the third consists of its effect on government tax receipts; and the fourth is comprised of the indirect savings a job-creation program would generate in both the public and private sectors.

The "Twofer" Effect: One source of difficulty in analyzing the cost of a jobs program is that in addition to providing jobs for program participants, the program also produces public goods and services that may be indistinguishable from those produced by regular government employees or by workers employed by regular government contractors. If a jobs program is created to provide work for the unemployed but the individuals hired are employed grading roads, how do you allocate the cost of the program between the program's job creating function and its public works function? Is the labor component of the public works function "free" because it is provided by the jobs program, or is the jobs program "free" because it produces public works that otherwise would have to be funded from other sources?

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The proper way to think about this question may be to recognize first, that a jobs program provides taxpayers what Americans call a "twofer" (as in "two for the price of one") and secondly, that the place to note this "twofer" effect is on the benefit side of a cost-benefit analysis rather than the cost side. The cost of operating a jobs program depends in part on what the program produces – because the projects it undertakes determine the nature and extent of the program's non-labor costs and the skill distribution of its labor force – but the program's cost is not reduced simply because it produces public goods and services in addition to performing a social welfare function. To suppose otherwise is to confuse benefits with costs.

This does not mean the "twofer" effect of a jobs program is unimportant in discussions of program cost, only that it's importance lies mainly in its political impact on the public's willingness to bear those costs rather than its economic impact on the costs themselves. The "twofer" effect of a jobs program plays a key role in shaping public perceptions of the program and hence the political process that funds it. For most members of the public, what a jobs program produces is the most salient evidence of its contribution to society. It is these contributions that constitute the public face of the program, even though its more important contribution may be achieved through its social welfare function. The problem from a political perspective is that those benefits are enjoyed for the most part behind closed doors, in the homes of the program's workforce, rather than in the public spotlight.

Unfortunately, this political reality is likely to limit the effectiveness of a jobs program as a social welfare device. If the "twofer" effect of a jobs program was enlisted exclusively for the support of its social welfare function, it could effectively double the benefits it provided its beneficiaries. Suppose, for example, that instead of engaging in the construction of public works, which might or might not provide tangible benefits to the poor, jobs program participants were employed building low-cost housing in their own communities. In that case the program's "twofer" effect would be used to enhance the value of the social welfare benefits provided by the program to the poor rather than to provide public goods and services to other segments of the public. The program's cost would be unaffected, but the social welfare benefits it provided would be doubled. Instead of job alone, the program would provide both jobs and housing to the poor.

Although the "twofer" effect does not reduce the operating cost of a jobs program, it can be used to generate revenue to help defray those costs. For example, suppose a jobs program were used to build low-cost housing in poor communities but, instead of giving the housing away for free, it was rented or sold at discounted prices to members of the community, possibly using a sliding price scale based on a family's ability to pay. Revenue collected from this source appropriately should be credited to the program, thereby reducing its cost to taxpayers.

Program output also can be "sold" in less obvious ways. For example, the principal job creation program operated by the U.S. government in the 1930s, the Works Progress Administration or WPA, was funded and administered by the federal government, but local governments were routinely permitted to select the projects on which WPA employees worked in exchange for their agreement, if able, to pay for the materials and supplies used in completing the projects. On average, these contributions

covered approximately 25% of the cost of WPA projects. Thus the program budget funded by the federal government was actually 25% below the actual cost of the program.

A similar arrangement was occasionally used to help fund projects on private property. My father worked as a supervisor on a 1930s jobs program in the United States called the Civilian Conservation Corps or CCC. The CCC provided jobs to youths aged 16-25 whose families qualified for public assistance. Unlike the WPA, CCC participants were housed in residential camps away from their home communities, and most of the projects they undertook were in rural areas. Their best know contributions consisted of improvements to the U.S. national park system, mainly in the form of walkways, trails, bridges and dams, many of which are still in use today.

The CCC camp to which my father was assigned, however, undertook soil conservation projects on private farms. Representatives of the CCC would visit farmers and offer to perform soil conservation work on the farms. In most cases the work consisted of the construction of "check dams" across gullies to reduce soil erosion. The work was performed for free, but the farmer was required to contribute whatever materials were needed to complete the project. If a farmer accepted the program's assistance, program architects visited the farm and drew up plans for the improvements – usually simple schematics. Once these arrangements were complete, teams of 15-25 CCC workers and a supervisor (my father's job) were driven to the farm from the local CCC camp on a daily basis to perform the work. The net effect of this arrangement was to reduce program cost, but viewed from the farmers' perspective, the program offered valuable benefits at a deeply discounted price, and of course the public as well as the farmer benefited from the conservation measures.

Displacement Effects: A second source of difficulty in analyzing the cost of a jobs program arises from the fact that the allocation of funds to support a jobs program can result in reduced spending (and consequent reductions in employment) in other areas of both the public and private sectors.

Focusing first on the public sector, reallocations of existing budgetary resources will produce a displacement effect that varies with the job-creating effect of the existing budget allocation. For example, a reallocation of funds from a park maintenance budget to a job creation program would probably involve a displacement effect close to 100%, since the funds at issue already are being used almost entirely for the employment of relatively low-skilled labor. On the other hand, a reallocation of funds from programs that provide cash transfer benefits to unemployed individuals are likely to entail little or no displacement effect, since these programs involve very little job creation. Indeed, in societies that provide significant transfer benefits to unemployed individuals, transfer program budgets comprise an attractive source of potential funding for job-creation initiatives because of their negligible displacement effect (Harvey, 1989).

Reallocations of public works budgets constitute an intermediate case between these two extremes. Consider, for example, a jobs program funded entirely from existing public works budget allocations. The job program's net job-creation effect would be reduced but not eliminated in this instance by the program's displacement effect. The size of this displacement effect would be measured by the number of conventional public

works jobs eliminated or foregone as a result of the reallocation of public works funding to the jobs program.

A study by McCord and van Seventer (2004) illustrates these effects but also how difficult it is to measure them. Using data drawn in part from the Gundo Lashu Programme, a precursor of the EPWP established in Limpopo Province in mid 2000, they compared the relative labor intensity of two hypothetical public works programs – one that employed conventional capital-intensive methods of production and another that employed labor-intensive methods of production similar to those employed in the Gundo Lashu Programme and the EPWP.

McCord and van Seventer estimated that a total program expenditure of R3 billion per year allocated to conventional public works contracting would create 25,068 low-skilled, 2,513 medium-skilled, and 984 high-skilled jobs on an annualized basis, compared to 102,836 unskilled, 2,027 medium skilled, and 984 high-skilled jobs if the same funds were allocated to a jobs program that used more labor-intensive methods of production. Thus, the job-creation program they modeled would have created a total of 105,847 jobs, but if the funds to pay for such a program were drawn from public works budgets, the jobs program would have displaced 25,865 jobs that otherwise would have been created in conventional, capital-intensive public works projects. Accordingly, the job program's net *direct* job-creation effect would have equaled 77,282 jobs, rather than the 105,847 jobs actually provided by the program.

It should be noted, however, that in addition to this *direct* job-creation effect, both of the programs modeled by McCord and van Seventer would create jobs *indirectly* as a result of two "ripple effects" that are economically similar but which it is useful to distinguish for expositional clarity.

The first of these ripple effects is the indirect job-creation that would result from program expenditures on capital equipment, raw materials and vendor services required to carry out program projects. The jobs created to produce these goods and services comprise part of the job-creation effect of program expenditures themselves.

The second ripple effect results not from expenditures of program funds but of the income created by program expenditures. Program employees and workers employed producing capital goods, raw materials and vendor services for the program spend their wages, and their employers spend their profits. This spending creates additional demand for goods and services which translates into additional labor demand and, hence, additional job creation. The income received as a result of this round of spending similarly produces another round of spending, and so forth.

Estimating the indirect employment effects of a job-creation program is far more difficult than estimating the program's direct job-creation effects. McCord and van Seventer used a macro-economic accounting procedure called a Social Accounting Matrix (SAM) to estimate the indirect job-creation effects of their two hypothetical public works programs. Their analysis suggests that the indirect employment-effect of the labor-intensive job-creation program would add an additional 12,003 jobs to the 105,847 jobs created within the program itself, while the indirect employment effect of using conventional capital-intensive methods of production would add an additional 11,338 jobs to the 28,565 jobs created in the public works program itself. The total number of

jobs created by the former therefore would equal 117,850, while the later would create 39,303, a difference of 78,547 jobs.

These figures allow us to estimate both the employment and the displacement effects of a R3 billion jobs program like the one modeled by McCord and van Seventer. The jobs program would create a total of 117,850 jobs, but if it were funded from the budget of a conventional public works program, it would displace the 39,303 jobs the conventional public works program would have created with the budget allocation. Hence, the net job-creation effect of the jobs program would total 78,547 jobs.

It also should be noted, though, that this analysis does not tell us whether the total cost of completing a particular public works project would be the same using capital and labor-intensive methods of production. Indeed, it seems likely that the capital-intensive method is less costly on a per-project basis, since it is the method employed by profit maximizing private contractors who could use labor-intensive methods if it lowered their costs. The same is likely to be true to varying degrees of other productive functions a jobs program could undertake. The social benefits of using labor-intensive methods of production still may exceed their cost. For private firms the unemployment caused by their selection of profit-maximizing methods of production is an externality. In other words, they do not bear – at least not directly -- the social costs that unemployment imposes on a nation. But for a government devoted to promoting the welfare of all members of society, those social costs are fully internalized. In other words, governments do bear their cost; and taking those costs into consideration may reveal that it is efficient – even from a financial perspective – for a government to select methods of production that would not be profit-maximizing for a private firm to employ. Nevertheless, any sacrifice in the quantity or quality of the goods or services produced by the public sector as a result of a reallocation of budgetary resources from capital-intensive to labor-intensive methods of production should be considered in assessing the cost of a jobs program.

Another point worth emphasizing is that the job-creation effect of a jobs program also will vary depending on the type of projects it undertakes. McCord and van Seventer's analysis compares the relative job-creation effects of using capital-intensive and labor-intensive methods of rehabilitating rural roads, a relatively capital-intensive activity even when performed using labor-intensive methods of production. Direct labor costs account for only 41.5% of the budget of their hypothetical labor-intensive jobs program, and only 31.5% if project design services performed by professional engineers are excluded. A jobs program that undertook less capital-intensive projects would have a different cost profile, and this would affect both the direct and indirect job-creation effects of the program. Indeed, one of the interesting possibilities raised by McCord and van Seventer's methodology is that it would permit a systematic analysis of the degree and ways in which project selection influences the job-creation effects of job-creation programs. Accordingly, it could serve as a useful planning tool in assessing the differential employment effects of configuring job-creation programs in different ways.

This discussion of the displacement effects of reallocating existing government budgets to pay for a jobs program illustrates the potential displacement effects of other methods of funding such a program. Suppose, for example, that instead of reallocating existing public sector funds, taxes were raised to pay for the jobs program. Then the

program would have no displacement effect on other government programs, but it would produce displacement effects in the private sector similar to those discussed above for the public sector. Reduced spending by taxpayers would result in a loss of jobs that otherwise would have been created (mostly indirectly but in some instances directly) by that spending. McCord and van Seventer did not model this possibility, but their methodology easily could be applied to the task. Whether the displacement effect produced by this scenario would be larger or smaller than the one they modeled would depend on a number of factors, including such things as the income level (and hence consumption patterns) of the tax-payers who provided the funding and the effect of their additional tax liabilities on their savings behavior.

A third way to finance a jobs program would be with borrowed funds. While some economists assume that this would result in the "crowding out" of private investment (and the jobs it would produce), the more significant risk is that the increase in deficit spending would be inflationary and hence lead to macro-economic measures that would reduce private-sector employment. The likelihood of this result is an important issue, but it is beyond the scope of this discussion. The point that needs to be emphasized for our purposes is that if these side-effects could be controlled, a jobs program could be financed with borrowed funds without producing any displacement effects because it would reduce neither public nor private-sector spending.

Finally, advocates of "functional finance" have argued that a government that controls its own currency could fund a jobs program without relying on any of the mechanisms described above, provided the jobs program was structured so as to perform a "buffer stock" function in stabilizing wage rates and hence commodity prices in the private sector. If this buffer stock function worked in the manner its advocates predict, a jobs program also could be funded in this way without producing any displacement effects.

Tax Effects: A final factor complicating analyses of the cost of job-creation programs is their effect on tax revenues. The point that needs to be emphasized in this regard is that a jobs program is likely to recoup some of its cost by increasing tax revenues received by a government, but the extent of this effect depends on how the program is funded.

For example, McCord and van Seventer's analysis of the likely effects of shifting R3 billion in expenditures from capital-intensive to labor-intensive methods of producing public works shows that both types of expenditure would produce approximately the same level of government income (i.e., tax receipts). Spending the money on a conventional, capital-intensive program of public-works construction would generate R1.021 billion in government income, whereas spending the same amount on a more labor-intensive job-creation program would generate R1.039 billion in government revenue. In other words, a R3 billion reallocation of government expenditures from capital-intensive to labor-intensive methods of producing public works would increase government tax receipts by only about R18 million – a relatively tiny figure.

Suppose, though, that borrowed funds were used to finance the job-creation program without reducing existing government expenditures, and that there were no displacement effects stemming from the borrowing. In that case government tax receipts

would increase R1.039 billion for the 12-month period during which the R3 billion program expenditure occurred. This means that approximately 1/3 of the funds borrowed to finance the program could be repaid within that period of time without increasing taxes or reducing any other government spending. Only about R2 billion in net borrowing actually would be required each year to maintain a jobs program funded under these conditions even if the jobs program produced no lasting economic benefits.

As these examples illustrate, the tax effects of a jobs program depend significantly on its displacement effects. The greater the displacement effects the less likely the program is to generate a positive flow of additional tax receipts. The smaller the displacement effects, the more substantial the share of program costs likely to be covered by additional government tax receipts.

Direct and Indirect Savings in Public and Private Sector Budgets: We already have noted that little if any *direct* job displacement effect would be produced by a reallocation of public funds from the provision of transfer benefits for unemployed persons to the provision of jobs for the same beneficiary population.[3] Another way of saying this is that the establishment of a jobs program would save governments funds that otherwise would be needed to provide transfer benefits for the same population, and that these savings would reduce the net cost of establishing the job-creation program. A jobs program could be expected to generate other, less direct savings by governments as well.

Unemployment is expensive for governments. Studies in developed countries have shown that unemployment has significant negative effects on both physical and mental health, and it also is implicated in the full range of social problems associated with poverty – from increased rates of family dissolution and mental illness to increased criminal activity (Harvey, 2002, pp.398–400). There is no reason to believe that the harms attributable to unemployment are any less pronounced in developing countries, and these harms impose positive costs on governments far beyond the expense of providing income transfer benefits to the unemployed. Budget items as varied as health care and criminal justice spending are affected.

Moreover, in addition to imposing positive costs on governments, these harms impose opportunity costs on all members of society. These latter costs can be measured, of course, in terms of the harms unemployment imposes on the unemployed themselves and their families. But more prosperous members of society also pay a price in the form of such items as increased property crime, longer waits for poorer quality public services, and the positive costs people incur responding to those harms.

To the extent a job-creation program reduced the amount or severity of unemployment in a society, it would produce indirect savings in both the public and private sectors that could be used to help pay for the program. These savings are not as

[3] *Direct* job displacement in this context refers to the direct public-sector hiring that otherwise would occur using the funds in question. The only public-sector hiring funded from transfer program budgets consists of administrative positions, and only a small part of program funds are used for this purpose in most well-run transfer programs. The *indirect* job displacement effect of a transfer of public funds from the provision of transfer benefits to a job creation program will be much the same as for other reallocations of funds within the public sector budget. This is because expenditures of transfer benefits by those who receive them is likely to have the same *indirect* job creation effect as expenditures of program wages by those hired by the jobs program.

obviously available for reallocation to a job-creation program as the transfer benefits that unemployed individuals and their families currently receive, but they nonetheless could be tapped to help pay for a job-creation program without reducing the public's real income or the quality of the public services they receive from government. In the case of government savings, funds could be reallocated to the jobs program with the consequences we have discussed. In the case of private savings, taxes would have to be increased, even though the public's real after-tax income would not be diminished. In this way, national income currently allocated to treating the negative effects of unemployment could be reallocated to the prevention of unemployment.

An Accounting Model: With an understanding of these factors in mind the cost of a job-creation program and its net employment effect can be estimated based on the following set of relationships. First, the program *net* job-creation effect will equal the sum of its *direct* and *indirect* job-creation effects less any *displacement* effect it may produce. This relationship is shown in the following expression

$$J_{Net} = J_{Direct} + J_{Indirect} - J_{Displacement} \quad (1)$$

We have seen that it is the last two elements in this expression – the program's indirect job-creation effect and its displacement effect – that pose the greatest analytic challenge, but we also have seen that analytic tools exist permitting us to perform this task.

It also bears emphasis that the net job-creation effect of a job-creation program is not the only benefit it produces. Because of the "twofer effect" of such programs, a full accounting of the benefits they produce would have to include the value of the public goods and services comprising the program's tangible output. A general accounting of the value of those benefits is beyond the scope of this discussion, but we have noted that these benefits can generate both savings and revenue that will reduce the net cost of operating a job-creation program.

Turning to the cost side of the ledger, we shall define the net cost of a government-funded job-creation program as a residual – the portion of the program's total operating cost that will have to be funded by raising taxes, engaging in additional deficit spending, or by reallocating existing government expenditures. These are the elements of cost that most concern taxpayers.

The net cost of a job-creation program defined in this way will equal its gross cost (the total expenditures required to operate the program) less any savings it generates in other categories of government spending, any additional tax revenue it generates by virtue of its economic impact, and any additional revenue it generates through the direct or indirect sale of its output to either the public or private sector. This relationship is shown in the following expression.

$$C_{Net} = C_{Gross} - S_{Gov} - R_{Tax} - R_{Sales} \quad (2)$$

Our discussion of the elements included in this expression has shown that each of them can be further subdivided, but the level of detail shown here is sufficient to explain the overall cost structure of a job-creation program.

As mentioned above, there are several funding mechanisms a government can use to pay the net cost of operating a job-creation program, but because these different mechanisms are associated with markedly different displacement effects, the selection of

a funding mechanism in turn will effect both the program's net job-creation effect and the tax revenues it will generate. This means that meaningful estimates of both the net job-creation effect and the net cost of a job-creation program must include a specification of the funding mechanism used to pay the program's net cost. This approach is exemplified by the McCord and van Seventer analysis which assumes that the job-creation program they model will be funded by reallocating resources from conventional public works budgets. If a different funding mechanism were used, their analysis would have to be adjusted to account for the different displacement effect of the alternative funding mechanism and any consequent differences in tax revenue generated by the program.

Once such an analysis is completed, it should be possible to estimate the net cost of a job-creation program on either a program-wide basis or, more usefully, a per-job basis that includes both the program's indirect job-creation effects and its job displacement effects.