

Capital Assistance and Small Growth: Implications for Regional Economic Welfare

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Abstract

This paper analyses the role of finance capital in regional economic development. A cost-benefit approach is invoked in order to estimate the welfare impacts of a regional loan and guarantee program for small firms in Israel. Program-created employment is treated as a benefit and an employment account that separates net from gross employment, is presented. An estimate of net wage benefits is then derived. This involves adjusting wages across different earnings classes in order to account for the variation in opportunity costs of labor at different levels. The estimation of costs includes the opportunity costs of capital, administration, default and tax-raising costs. Results point to substantial regional welfare effects. We stress the need to account for changing regional economic structure in this kind of evaluation framework.

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1. INTRODUCTION

The provision of finance capital to small firms (in the form of loans, grants, guarantees etc.) is a standard prescription for jump-starting regional economic growth. Assessments of this approach to regional growth are usually couched in terms of the employment gains, increased investment and income that ensue in the region. Cost-effectiveness analysis is often invoked in order to evaluate the impact of this kind of assistance and cost-per-job or subsidy-per-job indices are invariably estimated (Miller et.al. 1969, Hart et. al. 1993, Bangsund and Leistritz 1997). Welfare impacts and distributional issues however, are often over-looked because the standard assessment frameworks are exclusively efficiency-driven. This paper presents a new cost-benefit method and then applies it in an empirical evaluation of a capital assistance program for small firms, highlighting the implications for regional economic welfare.

We distinguish between regional economic 'growth' and regional economic 'development'. The former is measured in terms of an increase in regional product, employment and income. The latter refers to who benefits from that growth, the extent to which local welfare is really improved, and how this change is distributed across sub-sections of the local population. It is their welfare impact that constitutes the real regional benefit. Taking this perspective, the analytic framework has to go beyond cost-effectiveness analysis to a cost-benefit approach. Cost-benefit is a particularly appropriate tool in this instance. The capital program under consideration here is focused on small firms in peripheral (and high unemployment) regions in Israel. Due to the presence of imperfections (information asymmetries) in the capital market, small firms are denied access to funds despite the fact that they might have viable business projects (Binks et. al. 1992). In such a case, a cost-benefit approach would seem suitable for assessing a program that supports projects that may not seem

viable when valued at market prices but are viable when valued using their alternative or shadow price.

The paper proceeds in the following manner. The role of capital assistance to small firms is discussed and its effects on job creation and regional welfare are analyzed. This discussion serves to highlight the importance of the structural characteristics of the regional labor market in determining the extent to which regional welfare is really changed by a capital subsidy. The particular program under consideration and the analytic method are then presented. This involves going beyond the attention paid to the 'deadweight', 'displacement' and indirect effects which form the staple ingredients of impact assessment. The proposed cost-benefit method represents a significant advance on the cost-effectiveness approach used in previous work (Felsenstein et. al. 1998). It calls for discounting the opportunity cost of labor from any regional income calculation and further adjusting this to account for the occupational distribution of the employment created. In this respect, our cost-benefit account deals with both issues of efficiency and distribution. This approach is warranted as the program has well-defined equity objectives in addition to achieving greater efficiency in the market and redressing imperfections. The measures of costs and benefits are discussed and the paper concludes with some of the implications for regional development policy that arise from a specific focus on welfare effects.

2. CAPITAL ASSISTANCE PROGRAMS : A ROLE IN REGIONAL ECONOMIC WELFARE ?

The starting point for any discussion of the welfare impacts of a capital assistance program is to address the question whether this form of support does in fact have any affect on employment (Buck and Atkins 1976, Harris 1991). Ironically, capital subsidies rather than labor subsidies are those most generally adopted for regional economic development. The effect of capital assistance on job

generation can lead on the one hand to a substitution effect. Capital utilization increases at the expense of labor and no extra employment is generated. On the other hand, the outcome of the capital assistance can be that the firm operating efficiently at a fixed cost level will reduce costs, allowing for a higher level of output at a given cost level (the output effect). Job generation will only take place if the output effects of the capital assistance program are greater than the substitution effects. Even if this is the case and capital assistance is employment-generating, the question still arises as to whether a labor subsidy of an equivalent monetary value would result in even more employment creation (Layard and Nickell 1980).

Intuitively, a capital assistance program for small firms would be expected to contribute to regional welfare by creating jobs and income. When a subsection of the population have work and income at their disposal, their economic well-being has become enhanced. However the link between regional jobs and regional welfare is by no means obvious (Courant 1994). Programs for employment and income generation are only positive if the costs of stimulating this growth are less than the benefits arising from it.

Framing these benefits in a coherent way means recognizing that labor arising from an assisted program should be treated as a benefit and not a cost. This is justifiable in high unemployment areas on grounds of both efficiency and distribution. The efficiency objective is to mobilize labor in a productive way. The distribution issue means recognizing that not all the income benefit arising from a job can be credited to the program. The traditional economic view is that labor is a cost. Workers demand wages as a compensation for leisure forfeited. They will supply their labor to the point that the wage equals the marginal rate of substitution between income and leisure. However, the welfare gain to the worker from having the program-assisted employment will not be the remuneration paid (i.e. the wage). It is the difference between the wage and that offered in the next best alternative, i.e.

the opportunity cost of the labor. The wage thus indicates the value of alternative production forfeited. For this reason, wages represent both a private and a social cost. As such, simply counting jobs or payrolls may not reflect the benefits of the assistance program. What in fact is needed is a method that looks at the level and distribution of local welfare arising from the program. Empirically, the opportunity cost of labor is often equated with its 'reservation wage'. This refers to the minimum wage acceptable for entering into employment. High reservation wages suggest low welfare gains and low reservation wages imply high considerable welfare effects. Both imply a shadow price for labor different to the market price. Estimates of these wages vary greatly; from over 90 percent of the real wage (Jones 1989, Sridhar 1996) to 65 percent (Swales 1997a).

New job creation can also be considered a benefit in terms of the chain reaction that it sets off in a regional labor market (Felsenstein and Persky 1998). For example, a worker moving into new job, 'A', vacates his previously held job, 'B'. This becomes available to another worker who frees up his previous job, 'C'. A chain of jobs is thus set in motion with the creation of new employment. The welfare effect of the new job is the sum of the incremental gains at each link in the chain.

The structural characteristics of the regional labor market also play a major role in determining whether an assistance program will have a welfare impact. Typically, regional economies are small and open systems. We can outline a three-fold typology of regional labor markets and the likely effect of a capital assistance program on their welfare. First, if the regional economy is closed and self-contained, then a capital assistance program that generates employment will not enlarge the size of the economic development cake. It will simply shuffle the proportionate size of the pieces. Opportunity costs of newly generated employment will be equal to wages achieved in prior employment. In such a situation there will not be any real welfare gain (Haveman 1976).

If, and more probably, the regional economy is an open system with inter-regional trade flows, then a capital subsidy program that creates jobs in the region sets in motion a different dynamic. Inter-regional migration will start to take effect as high demand locations receive factors of production from places with over-supply. Regional product will start to grow. However, a rise in local product does not necessarily mean a rise in local welfare, especially if new employment opportunities are taken up by in-migrants. If the local labor market conditions are tight (full employment), then it is likely that the in-migrants will be highly mobile workers with high opportunity costs. The net impact on regional welfare will therefore be marginal.

Finally, in a Keynesian-type of labor market characterized by substantial unemployment and under-employment, program-generated employment is likely to be taken up by labor whose opportunity cost is low. These costs are often equal to unemployment benefits and transfer payments. In this case the program-generated employment could genuinely be creating a large regional welfare gain for that segment of the population whose alternative is transfer payments. Regional labor market conditions are therefore important in determining the level of regional welfare.

The above typology has also implied the importance of the occupational distribution of program-generated employment. Highly skilled jobs are likely to have high opportunity costs. At this level there are many other alternative opportunities in the labor market. Labor markets are likely to clear at wage levels close to the national level and workers compete nationally for jobs. They may be indifferent to the actual location of the job itself. As such we cannot say that their welfare has been considerably improved through program-generated employment. Jobs are more likely to go to in-migrants for whom labor markets are national and not regional. Regional welfare effects are thus likely to be limited.

On the other hand, at lower skill levels, few alternative opportunities exist. Labor markets often do not clear either nationally or regionally. The opportunity cost of labor is expected to be low and jobs generated are likely to serve the local population. Regional welfare gains are therefore assumed to be high. Workers for whom the only other viable alternative is unemployment may have their welfare considerably improved through project-generated employment. The distribution of welfare impacts therefore cannot be ignored.

A final issue affecting the regional welfare implications of the capital assistance program relates to the supposed efficiency of small firms in generating employment. When the small firm is the target of capital assistance this is intuitively perceived as a welfare-inducing due to employment benefits assumed to ensue. This is especially the case where the program is aimed at redressing discrimination in the capital market which results in private market decision-makers overlooking businesses on the basis of characteristics unrelated to business viability such as ethnic origin and business location. The roots of this are probably the disproportionate amount of minority, low-income and female-owned businesses amongst this sub-population (Dewar, 1991 Bates 1993). Much of this perception is a product of political rhetoric and Birch's early findings on the centrality of small firms in the 'job-generation process' (Birch 1979). However, empirical evidence to the contrary over the course of the late 1980's and early 1990's (White and Osterman 1991, Harrison 1994) has done much to remove some of the gloss from this image.

3. THE CAPITAL ASSISTANCE PROGRAM

This empirical findings presented here arise from a cost-benefit study of a capital assistance program aimed at promoting regional entrepreneurship (henceforth the REP program) in peripheral areas in

Israel. The study looks at funds disbursed over the period 1993-1995 to over 800 projects. The program itself was inaugurated in the aftermath of the mass Jewish immigration from the former Soviet Union to Israel at the beginning of the 1990's. At the outset, it was designated as a form of public assistance with a particular welfare function and was focused on the small business population likely to be excluded from other sources of small-firm funding such as commercial banks and the national small business assistance program.

The particular capital assistance instrument used was a loan and loan guarantee program. This was funded in the main by one of Israel's largest NGO's (the Jewish Agency) through its department for Rural and Urban Development and was administered jointly by that organization in conjunction with a leading commercial bank. The loan component of the program was subsidized (2-3 percentage points below market rates over the course of the study period). The guarantee portion covered up to 40 percent of the loan and was essentially a measure of perceived risk. A higher level of loan guarantee was demanded for projects that were perceived as higher risk. Over the period of analysis, while loan guarantees could cover up to 40 percent of an individual loan, the funding organization made sure that its guarantee commitment for all loans at any given time was not larger than 25 percent. For each loan, personal capital backing of 25 percent (liquid deposit in the bank) was desired and loans disbursed were linked to the cost-of-living index or to the dollar.

As noted elsewhere, this form of capital assistance is market-failure led (Binks et.al. 1992, Felsenstein et.al. 1998). The case for public subsidies to promote economic development is usually made when the private market fails to provide public goods, or where externalities or natural monopolies are created (Bartik 1990). A further case where public subsidy can improve inefficiencies is in the presence of information asymmetries. These can be great for small firms who can be screened out of the financial institution's credit 'decision rules' on the basis of location, age of firm,

origin of founder and so on. In all these instances an information failure may have occurred that causes discrimination against small firms in the capital market. This can affect firms that are located in the 'wrong' locations (i.e. in remote areas about which they have little knowledge) are the 'wrong' vintage (i.e. too young) or are started by the 'wrong' population (i.e. new immigrants who are an unknown quantity). Another 'failure' here is that of the firm that fails to distinguish itself from the pool of credit applicants (Felsenstein et.al. 1998).

In contrast to this fund, a national small business assistance program also exists. This offers a loan and guarantee package in which the loan is at market rates while the guarantee can cover up to 100 percent of the loan in certain cases. The REP program is thus a niche-oriented capital assistance scheme aimed at those small firms excluded from the national program due to market imperfections.

Over the period studied, while the loan ceiling of the REP program stood at \$75,000 the average loan was closer to \$25,000 (Table 1). The maximum loan period was 6 years with a grace period of up to 2 years. Table 1 outlines further performance indicators for the program. As can be seen all tail off over the period reflecting a decline in funds at the disposal of the program. In terms of the welfare function at the basis of the fund, both new firms and those belonging to new immigrants consistently received over 40 percent of approvals for funding. These firms created 2696 jobs of which 40 percent (1088) were new immigrants jobs. Using a difference-of-means test for the volume of funding by year, earlier work has shown that the geographic distribution of approved assistance seems to be consistently and significantly biased towards the more peripheral northern and southern regions of the country; they received over 70 percent of funds in each of the three years (Felsenstein et. al. 1998). In these regions unemployment rates ranged from 7 to over 14 percent, compared to a national average of around 4-6 percent over the study period. The other 30 percent of approvals went to pockets of deprivation in the more prosperous central region of the country. Ostensibly then,

the fund can be viewed as meeting its niche-market mission and catering to those types of projects for which a market failure can be said to exist.

Table 1 here

4. ANALYTIC METHOD AND DATA

There are various justifications for subjecting this capital assistance program to a cost-benefit test. First, in view of the emphasis in the REP program on alleviating market failure, cost-benefit would seem to be an appropriate analytical method. Second, the welfare focus of this study makes cost-benefit a suitable technique as it looks at the social and not just monetary account (Schofield 1987). Furthermore, some of the welfare objectives of the REP program such as employment creation for new immigrants may only be viable when valued at non-market prices. These kind of projects would not normally yield a market rate of return and public support for this type of program would be considered inefficient if measured in these terms. However, when the opportunity costs of the objective (such as the opportunity costs of new immigrant labor) are considered in a welfare framework and are measured, for example, by reservation wages, this is likely to yield a very different result. This also points to the centrality of any opportunity cost parameter in determining the final cost-benefit account. Finally, a further justification is the labor homogeneity issue (Swales 1997a). Cost-effectiveness analysis as commonly used in impact studies, is predicated on the assumption that 'a job is a job'. No consideration is made of the fact that labor is not a homogenous input. The opportunity costs of the various occupational levels of labor need to be differentially discounted in a cost-benefit account.

Accounting for this heterogeneity also leads to the distributional consequences. If welfare effects do in fact differ across occupational groupings we can see who benefits and who loses from any program-induced employment. In all these respects the cost-benefit account is an improvement on the more limited cost-effectiveness analysis. While accounting for 'deadweight' or 'but-for-the program' impacts, displacement effects and indirect impacts, the latter makes no account for the opportunity costs of labor, differential skill levels in employment creation and distributional implications. Even though much of the standard calculus of cost-effectiveness analysis can be

incorporated into the cost-benefit account, the latter is more than just an expanded method of cost-effectiveness analysis. Conceptually and practically, an extra dimension to the analysis is added through the incorporation of social and welfare effects.

The cost-benefit account is constructed in the following way. First the jobs account is constructed. This takes total program reported employment (TE) and adjusts it downwards in order to account for deadweight and displaced employment. Deadweight employment is subtracted first and from the remaining employment, a displacement adjustment is calculated. This procedure avoids 'double discounting'; i.e. employment that is excluded from the analysis (as it is not 'truly additional') is not available for reconsideration when calculating the displacement impacts. An employment multiplier is then applied to this decreased figure. The construction of the deadweight (w) and displacement (d) parameters has been described elsewhere (Felsenstein et.al 1998). Deadweight effects are estimated by modeling the additional employment in the i th project as a function of a variety of indicators, such as capital intensity of the project, total investment and amount of assistance. This estimation procedure is performed twice; once with the assistance term included and once without. Summing the differences between these two estimations for all cases gives an indication of the extent of the deadweight employment. In this instance it is estimated as $w= 0.24$ (Table 2). Similar parameter values have been reported in studies estimating the deadweight employment impacts of regional policy assistance in Britain (Wren 1987, Swales 1997b).

Displacement effects are calculated on the basis of branch-level location quotients (L.Q.). The assumption is that those sectors for which $L.Q.<1.0$ serve local markets and therefore displacement of existing demand can be expected. The overall effect is estimated here as $d= 0.64$ (Table 2). While displacement parameters reported in other studies are somewhat smaller (for example, 0.40 in Hart et. al. 1993, and 0.33 in PACEC 1993), the reason for the larger adjustment adopted here is due to

the fact that much REP program assisted activity is in the service sector which serves local markets. Displacement is therefore likely to be high. The resulting net employment is then expanded by an average regional employment multiplier ($m_e=1.66$), generated by the Israel MRIO (multi-regional input-output) model (see Freeman et. al. 1990). Taken together, net employment (NE) is expressed as;

$$NE = TE (1-w - (1-w)d) m_e \quad (1)$$

The main benefit of employment growth is increase in regional earnings. The next step is therefore to convert job generation into wage gains. This increase is disaggregated by wage classes so that the distributional effects of the REP program can be assessed. The opportunity cost adjustment for these wage groups credits the highest earners (Group 1) with 25 percent of wage gain, the intermediate level (Group 2) with 50 percent and the lowest earners (Group 3) with 100 percent.

The justification for these particular weights is grounded in opportunity cost theory that equates higher unemployment levels with lower reservation wages. On the basis of the National Survey of Incomes 1994 data file we estimate monthly wage as a function of socio-economic variables and the and unemployment rate, as follows;

$$Y_j = \mathbf{a} + \mathbf{b}_1 \mathit{MART} + \mathbf{b}_2 \mathit{EDUC} + \mathbf{b}_3 \mathit{SEX} + \mathbf{b}_4 \mathit{AGE} + \mathbf{b}_5 \mathit{AGESQ} + \mathbf{b}_6 \mathit{UNEMP} + \mathbf{e}$$

where, Y_j is monthly wage for the i th individual, MART is a binary dummy variable for marital status (the reference group is 'married'), EDUC is a binary dummy for higher education (the reference group is 'university educated'), SEX (reference group is 'female'), AGE (in years) and UNEMP is the unemployment rate at the respondent's place of residence.

The estimated full form for the above model is:

$$Y_i = 254.8^* + 257.11MART^{**} + 431.8EDUC^{**} + (-669.8SEX^{**}) \\ + 858.9AGE^{**} + (-89.9AGESQ^{**}) + (-44.3 UNEMP^{**})$$

*= t-values for coefficients significant at the $p < 0.05$ level

**= t-values for coefficients significant at the $p < 0.0001$ level

$n = 6832$; $R^2 = .20$; $F = 238.24$ (signif. $F = .0000$).

All coefficients are highly significant and with signs pointing in the expected directions. For our purposes, it is instructive to note that the unemployment coefficient yields a remarkably consistent (negative and significant) result for all reduced forms of the above model. Thus we can state that a 1 percent increase in unemployment will yield a reduction in monthly wage of roughly \$44. This represents slightly over 3 percent of average monthly wage (\$1278). The REP program is targeted at regions with above average unemployment rates. For the study period, average unemployment was around 4 percent and the REP program was geared to those places with unemployment in the 4-14 percent range (that represented nearly half of all wage earners). Assuming an unemployment average of 12 percent in these locations, leads us to the conclusion that wages are roughly 25 percent less than elsewhere. We therefore assume that while reservation wages equal actual wages for wage Group 1 nationally, in REP targeted regions they are 25 percent less. The two other wage groups are then scaled accordingly with 50 percent of the earnings of wage Group 2 being counted and the full earnings of wage Group 3. This approach was felt to be preferable to using a general shadow wage coefficient that obscures differences across wage classes.

In addition, we make allowance for the running-in period for the projects supported under the REP program. Empirically, many of these projects have been found to have a rather long gestation period

(Felsenstein et.al. 1998). Consequently, wage benefits for all projects are taken as 25% in the first year, 50% the second and with full credit thereafter. Tax benefits are then added to wage benefits to complete the benefits account. Firm revenues (R) are estimated from a national survey with detailed sectoral information (CBS 1996a) and expanded by an appropriate output multiplier (m_o) generated by the MRIO model (as above). The value added tax rate (0.17) for this program-induced revenue is counted as the tax benefit. Overall benefits (B) of the program can therefore be expressed as;

$$B = (\sum_{i=1}^3 Y_i \tau_i) + R (m_o) \quad (2)$$

where τ_i = labor opportunity costs and $i = 1...3$; $\tau_1 = 0.25$, $\tau_2 = 0.50$, $\tau_3 = 1.00$

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The cost side of the equation takes the opportunity costs of capital into consideration. The opportunity cost of the loan (δ_l) is taken as the difference between the commercial interest rate and the subsidized program rate. Over the course of the study period the latter was on average 3 percent below market rates ($\delta_l = 0.03$). The opportunity cost of the loan guarantees was taken as the interest rate on long-term government bonds and thus $\delta_g = 0.05$. Consultations with the administrators of the REP program and the commercial bank through which the funds were disbursed, yielded an estimated program administrative cost (α) of 0.012. Empirically, program defaults have averaged slightly under 5 percent of loan disbursements. Estimations of similar magnitude for administrative and default costs, have been reported elsewhere (Swales 1997a). However, there is a sharp attrition effect over time and the average hides the fact that the risk premium for loans is much higher at the beginning of the borrowing period. For this reason the default parameter (β) is 0.10 for the first year, 0.07 for the second year and 0.048 thereafter. Finally, tax-raising costs, due to economies of scale are taken as half of the administrative costs of the program ($\lambda=0.006$). Costs can therefore be summed up as;

$$C = L (\beta_i + \delta_i + \alpha) + G (\delta_g + \alpha) + R (\lambda) \quad (3)$$

where β_i = the default rate and $i = 1...3$; $\beta_1 = 0.10$, $\beta_2 = 0.07$, $\beta_3 = 0.048$

The balance (Π) is simply benefits minus costs;

$$\Pi + B - C \quad (4)$$

Table 2 here

The data for the analysis is in the main program-generated. For each assisted project extensive data exists relating to the characteristics of the small firms and the loan such as employment, new immigrant employment, value of total planned investment, size of loan and guarantee, loan terms, economic sector, location and so on. Missing data and a rather strict screening process resulted in usable data on 443 assisted projects. This process has been dealt with elsewhere and is built on using the size of the loan guarantee as an indicator of risk and deadweight assistance, i.e. support given to projects that would have gone ahead anyway (Felsenstein et.al. 1998). In order to ensure that the welfare function of the program was met, firms that were not new and were not immigrant-owned were also excluded in the present analysis. With the exception of some prominent pockets of deprivation in the center of the country, firms located in the central region or in low unemployment areas were also omitted.

The data were then augmented to include income data by income class, unemployment rate by location and firm revenue data. These data were added for each project with income data coming from the National Insurance Institute data on wages by location (NII 1995). For each project, the place-based average was weighted by the national sector average. New immigrants incomes were

weighted on average as two-thirds of the wages of resident Israelis across all occupational classes (CBS 1996b). The three wage classes were derived from dividing the wage distribution according to those wages that were greater than one standard deviation above the mean (Group 1), those that fell in a band of plus/minus one standard deviation around the mean (Group 2) and those that were greater than one standard deviation below the mean (Group 3). Detailed data on firm revenues by economic sector were taken from the Central Bureau of Statistics Survey of Revenues (CBS 1996a). This source is rich in detail for the service sector (often at the 3-digit level). This is particularly useful for the analysis of a service-sector orientated program (such as the REP). This sectoral distribution was then weighted by the regional concentration of the sectors in the national distribution.

5. RESULTS

As can be seen from Table 3, the benefits of the REP program clearly outweigh the costs. This result is not really surprising considering that we are dealing with a loan program that has to be repaid (rather than a grant) and that has a reasonably low default rate. In addition, the inclusion of a large proportion of wages on the benefits side also serves to highlight the benefits. As we have argued however, this is perfectly defensible in view of the welfare focus of the program and the fact that the main benefit of employment growth is the increase in regional earnings. Finally, as Bartik (1991) has shown, program benefits are likely to exceed costs in areas where unemployment is reasonably high and program costs are relatively low. In these areas, the cost of leisure foregone is not really an issue. Local and regional economic development programs can redistribute employment and incomes to more needy regions to the extent that program benefits in these regions are greater than in other (wealthier) regions.

The interesting observations relate to the employment and wage accounts. Both are adjusted downwards in order to reflect more faithfully the regional situation without the program. In the case of employment generation, this results in a 55 percent reduction in the program-reported figure. 1226 jobs are credited to REP support out of an initial figure of 2696. In the case of wages, gross wage impacts are reduced by 52 percent once labor's opportunity cost is accounted for. The largest adjustments are for wage groups 1 (high) and 2 (intermediate). For the former, adjusting for opportunity costs means a reduction of nearly \$1.4m and for the latter a reduction of \$3m. These opportunity costs adjustments also give some insight into distributional impacts. REP program benefits seem to be concentrated in wage Groups 2 and 3. The bulk of all welfare gain is in the former but it is also interesting to note that after the adjustment, the absolute size of the welfare gain of the latter is slightly larger than that of the highest wage category (Group 1). Welfare benefits do therefore seem to be addressing the target groups. In addition, the wage distribution is not normally distributed but is skewed leftwards. This bulk of earners are found in the lower reaches of the distribution while the bulk of earnings are in the higher reaches. It is precisely the former population that the program aims to address.

The estimated tax benefits are not inconsequential but in the case of Israel, they represent a pure form of transfer from the region to central government. In the absence of any local sales tax and in the presence of a highly centralized governance system, regional fiscal autonomy in Israel hardly exists. The tax account here refers purely to value added tax and does not include any measure of local property and land betterment taxes which are the only sources of local and regional fiscal independence.

The cost side of the balance sheet is rather more mundane. As the REP program is loan and guarantee-based the main cost is the opportunity cost of capital. This is of roughly the same magnitude as the other major cost factor which is the risk premium of the program as represented by

the rate of defaults. Once the small firm is 'up and running' (here considered as year 3 of operation and onwards), this premium reduces quite drastically.

Table 3 here

The summary decision criteria for the cost-benefit account appear in Table 4. The ratio of benefits to costs lies between 3.0 and 3.4 depending on the time span and discount rate adopted. The choice of the appropriate social time preference rate is a subjective issue and therefore three alternative rates are presented here. REP-supported projects are evaluated for five and ten-year time horizons. This basically means that the net jobs calculated are assumed to be maintained over this period. The magnitude of the present value of net benefits arising from these jobs, shows the program having a positive regional effect. The present value of the stream of future benefits is also divided by total jobs (1226) and direct jobs (738) in order to give a benefit-effectiveness indicator. These simple ratios again highlight the positive contribution of the project on a per-job basis over the given time horizon. A five year lifetime for a project will generate regional wage (and tax) benefits in the order of \$25-28,000 per job. As shown above, eighty-eight percent of this gain will be distributed amongst the middle and low income classes.

Table 4 here

6. CONCLUSIONS

This analysis has shed some light on the role of finance capital in regional economic development. It has attempted to move beyond simply counting increased employment, income and investment and has tried to capture the regional welfare gains of the REP program by differentially weighting jobs at different wage levels. This weighting system is not the result of any distributional preference. It

simply arises out of the fact that jobs at lower wage levels have lower absolute opportunity costs. The approach is therefore efficiency based; the distribution of jobs affects the net increase of regional welfare.

The distributional implications are important however. Regional economic development programs are often touted as having redistributive effects without any real capability of analyzing whether this is the case. Our analysis makes a first attempt at putting this argument on more solid footing. In many respects it is only partial. It only captures the welfare effects arising from the wage of the individual worker and not the household which might be the appropriate unit for a welfare-based analysis. In addition, the whole accounting system is rather sensitive to size of the opportunity cost adjustments made for the different wage classes. While the 'right' level of adjustment is ostensibly an empirical issue, in practice the few studies that have estimated these costs have produced wide-ranging results.

What are the regional development implications of a targeted program such as the REP fund ? While the above results show all benefit-cost ratios well above 1.0, implying a real addition to regional welfare, the question still arises as to the permanence of this development in the region. We have assumed little inter-regional mobility and little influence of in-migrants. As the regions under consideration are relatively distant from the main centers of population and job opportunities, the local populations less educated and the new immigrant population still involved in 'settling down', these may be reasonable assumptions. Similarly, we assume that most employment goes to the local unemployed or new entrants to the labor force and very little to locals that are already employed. Again, this assumption holds for the specific circumstances of the study period, but may not be defensible in the future. The more the peripheral regions develop into open systems especially in labor market terms, the harder it become to capture welfare benefits regionally.

The challenge therefore is twofold. In the first instance, the aim of a regional finance capital program needs to be the stimulation and creation of regional value added. This may be easier to attain amongst a population of small firms who have a heavy service-sector representation and a strong regional orientation (the typical profile of a REP project). Second, the evaluation of such a program needs to be able to deal with structural change in the regional economy over time. Simply calculating present benefits over a five or ten-year time horizon while ignoring change in labor market dynamics over the same period, may not be sufficient.

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Table 1: Performance Indicators for the REP Small Business Loan and Guarantee Funds; 1993-1995

Performance Indicators	1993	1994	1995
	REP	REP	REP
No. of requests approved	490	251	103
Total value of approved loans (M \$)	11.1	6.8	1.7
Value of loans actually materialized (M \$)	2.5	4.0	5.1
Value of average loan (Th. \$)	22.5	27.1	16.8
Value of total investments for which approval requested (M. \$)	17.0 ¹	9.8	4.7
Geog. Distribution of approvals (%):			
Center	23	19	24
North	30	34	32
South	47	47	44
Sectoral Distribution of approvals (%):			
Agriculture	4	7	3
Industry	16	12	10
Services + Tourism	80	81	87
New firms as % of all approvals	47	30	43
New immigs. firms as % of all approvals	41	36	35
Rural-location firms as % of all approvals	22	26	20

1. This value is estimated from data in business plans.

Table 2: Variable and Parameter Definitions and Values

Variable	Definition
NE	net employment
TE	total employment
B	benefit
C	cost
Y	monthly wage
R	revenue
Π	balance (benefit minus cost)
L	loan value
G	guarantee value

Parameter	Definition	Value
m_e	employment multiplier	1.66
m_o	output multiplier	1.77
w	deadweight rate	0.24
d	displacement rate	0.64
α	administration cost	0.012
β	default rate	0.10; 0.07; 0.048 ¹
λ	tax raising cost	0.006
τ	opportunity cost of labour	0.25; 0.50; 1.00 ²
δ_l	opportunity cost of loans	0.03
δ_g	opportunity cost of guarantees	0.05

1. Risk premium taken as 0.10 for Year 1, 0.70 for Year 2 and 0.048 thereafter.
2. Opportunity cost-adjusted incomes for three wage groups: Group 1 (25%), Group 2 (50%), Group 3 (100%).

Table 3: The Cost-Benefit Account

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1. Discount Rate = 5%; estimated for project after 'running-in' period, i.e. from Year 3 onwards with incomes adjusted to account for opportunity costs only and default rate taken as 0.048.
2. Adjusted to account for deadweight, displacement and indirect effects.

Table 4: Cost-Benefit Summary Table

Criteria	Discount Rate		
	3%	5%	7%
<u>5 Year Estimate</u>			
NPV Benefits-Cost (\$ M)	14.7	13.5	12.6
Benefit-Cost Ratio	3.08	3.06	3.03
P.V. benefit per total job (\$)	17,360	16,338	15,404
P.V. benefit per direct job (\$)	28,839	27,141	25,589
<u>10 Year Estimate</u>			
NPV Benefits-Cost (\$ M)	29.7	26.6	23.9
Benefit-Cost Ratio	3.45	3.41	3.38
P.V. benefit per total job (\$)	34,110	30,722	27,799
P.V. benefit per direct job (\$)	56,665	51,036	46,181