The Canadian Journal of Program Evaluation Special Issue 1997 Pages 67–82
ISSN 0834-1516

EVALUATING THE SOCIAL COST OF JOB CREATION

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Abstract: This article discusses the principal labor market distortions and their effects on the social cost of jobs created in industrial projects. Two alternative approaches, a partial and a general equilibrium analysis, are put forth as ways to measure labor's opportunity cost in a systematic fashion. The general equilibrium approach provides a more sophisticated analysis because it takes into account labor migration between regions and the multiplier effect of job-creation projects on the project region.

Résumé: Cette communication expose les principales distorsions du marché du travail et leurs effets sur les coûts sociaux des emplois créés dans des projets industriels. Deux méthodes alternatives, une analyse de l'équilibre partiel et de l'équilibre général, ont été avancées en tant que manières de mesurer systématiquement le coût des possibilités de travail. La méthode de l'équilibre général permet d'effectuer une analyse dynamique et globale, car elle prend en considération les migrations de la main-d'oeuvre entre les régions et les effets indirects de la création d'emplois dans la région du projet. L'analyse de l'équilibre partiel, pour sa part, donne une estimation pratique et directe des coûts sociaux des emplois directs créés par le projet.

For years, governments in many countries have actively promoted job creation in slow-growth areas to mitigate their relatively high unemployment rates. Private investors seeking government financial assistance may also claim that their investment will create jobs. The promoters of such initiatives often exaggerate the employment benefits, claiming not only that direct jobs will be created, but that hundreds of indirect jobs will also be generated through an employment multiplier effect. Large multipliers are sometimes asserted, with dramatic, but dubious, effects on the estimated outcome of the project or program. (A similar comment was made by Harberger [1988]; see also Grady and Muller [1988].)

For any project or program to be justified economically, the net present value of the net economic benefits of the project or program must be positive. One of the most important benefits is the labor externality from the creation of jobs, which can be estimated by the difference between the wage paid on the project or program and the social cost of labor. The main purpose of this article is to show how economic theory can be empirically applied to estimate the social cost of job creation for industrial projects or programs.

THEORY, DATA, AND APPROACH TO ESTIMATE THE SOCIAL COST OF LABOUR

The social cost of labor is a measure of the value society attaches to the various activities forgone as a result of employing this incremental job on a project. The forgone value should be viewed as the individual's welfare rather than the individual's marginal product forgone elsewhere. For example, hiring an unemployed worker does not result in any forgone product, but this worker certainly has a reservation price below which he or she is unlikely to work. The social cost of labor would be the amount that worker values his or her leisure time. Thus, the competitive supply price at which labor of a particular type will make itself available for employment in a specific area becomes the fundamental determinant of the social cost, or the social opportunity cost (SOC), of labor (Harberger, 1971, 1985).

The SOC of job creation is equal to the sum of the expected economic values of employed and unemployed time in a given labor market. These values are, in turn, influenced by labor market distortions such as personal income taxes, unemployment insurance benefits, and product taxes. (A detailed analysis of labor market distortions can also be found in Evans [1978].)

When a person is employed in a market where a personal income tax exists, the SOC of labor is determined by the value this individual receives by supplying his or her labor services, which would be measured by wage net of personal income taxes. In addition, suppose an unemployed person is hired to the project. The social cost, as was pointed out earlier, would be the value this unemployed person gives up in non-labor-market activities. One must take into account, in the Canadian context, unemployment insurance benefits (UIC) and other transfer payments that the person will no longer receive. For an unemployed person to give up non-labor-market activities, the market wage net of personal income tax must be at least

greater than the UIC this individual receives when not working plus the value of time spent on non-labor-market activities.

The supply price used as the prime determinant of the SOC of labor becomes much clearer in an open economy that allows migration to take place between regions. A person may require a significantly higher wage to work in remote and isolated regions than in central cities in order to derive equal utility. This is due to the fact that working conditions, costs of living, and locational preferences differ between regions.

To estimate the SOC of labor, one needs information about the project's demand for labor and the sourcing of these workers. For the project's demand, one must acquire:

- the number of labor-years required by skill and by year over the life of the project;
- the wage rate of each type of skill as well as the annual growth rate of wage rate over the life of the project; and
- the permanency of jobs. This latter is an issue of whether the jobs created by the project will provide continuous or discontinuous employment, also referred to as permanent or temporary employment. The distinction is important because the SOC per labor-year of permanent employment is significantly less than that of temporary employment under the system where UIC or other transfer payments are provided to unemployed workers. (Details are discussed in Harberger [1981] and Jenkins and Kuo [1978].)

As to the sourcing of the workers, one has first to understand the nature of the regional labor market where the project is located. For example, one should know the types of workers that are likely to be available in the local market, the wage rate prevailing in the market, the relative size of unionized workers in the area, the unemployment rate, and the general migration flows between the region and the rest of the country. This information provides a good indication of the private supply price of the workers. Second, one should identify if there is a shortage of specific skilled workers, especially if there are projects competing for the same kinds of workers. This is important because a project may sometimes be delayed or even cancelled if inadequate skilled labor is available. Third, if the undertaking of a project coincides with a general recession in the economy, one would expect to source a greater proportion of the workers from the unemployed pool, and the SOC of labor will ac-

cordingly be lower. This may be a short-run phenomenon, and a short-run adjustment to the SOC of labor can be made to account for such a situation. In contrast, if the project is undertaken during an economic upturn, a reverse adjustment to the SOC of labor may be required.

Some of the data requirements for estimating the SOC of labor depend on the analytical approach undertaken. In general, there are two different approaches: a partial equilibrium model and a general equilibrium model.

A partial equilibrium analysis is concerned only about those workers actually employed on the project. This approach does not take into account the impacts on the employment prospects of other workers in the regional labor market, nor does it consider the regional multiplier effects; it is a partial analysis and is static in nature.

A general equilibrium approach assumes that the creation of new jobs disturbs the long-run equilibrium in the regional labor market and sets in motion a short-run adjustment process that alters the employment prospects and labor supply decisions of workers in the regional economy. Thus, when the project jobs are filled by bidding away workers from other sectors in the region, the improved short-run employment prospects affect the regional labor force participation rate as well as the regional inflows and outflows of migrants. The adjusted flows of migration, in turn, feed back into the region's employment prospects and on the regional participation rate until a new long-run equilibrium is established. Furthermore, the general equilibrium analysis takes into account the regional multiplier effects, which arise from the extra spending out of the incremental regional income earned on the project (Schwartz, 1982). This analysis is dynamic in nature.

The data required for a general equilibrium analysis are much more than that for a partial equilibrium analysis. In the next two sections, a partial equilibrium analysis is used to estimate the SOC of labor for a northeast British Columbia coal project and the general equilibrium analysis is used for a newsprint project in Quebec.

A PARTIAL EQUILIBRIUM ANALYSIS

In 1977 the federal and provincial governments jointly undertook an evaluation of a coal project proposed for northeast British Columbia. The project was similar to many other projects undertaken

to develop natural resources. It was situated in a remote area, approximately 450 miles northeast of Vancouver. It was expected to have a substantial impact on the local economy in terms of newly created direct jobs in mining and indirect jobs in activities linked to mining operations.

There were several mine properties yet to be developed in the project region at that time. However, one scenario that was seriously considered by both the investor and governments was Denison's Quintette project: this project could produce metallurgical coal at five million tonnes per year, and production was expected to start in 1979 and last through to the year 2000. The main features of the project were the development of mines, the construction of wash plants, the construction of a new branch railway line and the upgrading of both the British Columbia railway and the Canadian National railway to transport coal to Prince Rupert, and the rebuilding of the Prince Rupert port to handle coal for export to Japan.

The construction labor requirements were provided by engineering consultant firms, and were broken down by year and into types such as driller, driller's helper, blaster, shovel and front-end loader, heavy truck driver, light truck driver, grader and bulldozer, mechanist, electrician, carpenter, plumber and pipefitter, welder, crane operator, iron worker, and general laborers. These workers, with the exception of driller's helpers and general construction laborers, were highly skilled tradespeople and accounted for three-quarters of the total workers. Labor requirements and SOCL for the project are summarized in Table 1.

The regional economy depended heavily upon resource-based activities such as coal mining, lumber industry, oil and gas industry, and tourism. Construction activity in the region was highly seasonal, normally reaching a peak in the summer and falling off to a very low level in the winter. Because of the cyclical and seasonal instability of employment, it was found to be very hard to hire and retain skilled tradespeople in the area. Any incremental demand for construction workers would have put a great stress on the local market for skilled workers. Given the shortage of skilled workers in the region, it was not unreasonable to assume that most of the skilled tradespeople required for the project would have to come from other parts of the country.

Furthermore, because the project was located in a fairly isolated area, the construction work force was likely to be housed in con-

struction camps where food and accommodation were provided. As these camps were to be some distance from the area's town, little of the income earned by the workers would be spent directly in the town of the project. In contrast, the unskilled workers from surrounding areas could also be housed in the camps, but the incomes they earned would likely be spent in the region.

The labor requirements of operating labor were also estimated and provided by the engineering consultant firms and were broken down by skills and year over the life of the project. The hourly workers were further broken down into unskilled, semiskilled, and skilled workers, and the salaried workers were separated into clerical, technical, and managerial groups. Because the regional labor market was small and remote, most of the skilled and semiskilled miners, managerial, and technical jobs had to be recruited directly from other parts of British Columbia and Alberta. The clerical jobs could be filled by local workers because of a great number of unemployed workers in the region. The third group of jobs were for unskilled miners and less-skilled technical employees. These jobs were as-

Table 1
Labor Requirements and SOCL for the Northeast British Columbia Coal Project

Type of Labor		Labor Requirements (worker-years)							Weekly Earnings ($)	SOCL/ Wage* (%)
		1978	1979	1980	1981	1982	1983	1984+		
Construction Phase:										
Unskilled Laborer		60	115	50					327	42.9
Skilled Tradesperson		215	300	105					442	84.1
Total		**275**	**415**	**155**					—	**75.4**
Operating Phase:										
Production:										
Hourly:	Unskilled		55	120	325	500	450	250	327	85.1
	Semi-skilled		55	100	235	455	505	155	385	87.1
	Skilled		25	135	400	500	450	300	423	88.0
Salaried:	Clerical			10	25	25	25	25	250	54.2
	Technical			10	25	25	25	25	327	84.2
	Management			30	55	80	90	70	519	88.0
Administration:										
Clerical		30	30	30	30	30	30	30	250	55.3
Technical		55	55	55	55	55	55	55	385	87.3
Management		25	25	25	25	25	25	25	577	88.6
Total		**110**	**250**	**520**	**1,200**	**1,705**	**1,655**	**935**	—	**85.9**

*** Refers to the ratio of the SOCL to the project wages over the life of the project.**

sumed to be filled by induced migrants, who were the people with some skill and experience but potentially mobile. They would remain in the region or would return when the employment prospects of the local economy improved.

THE SOC OF LABOR SOURCED LOCALLY

As was described earlier, the unskilled construction and clerical jobs would likely be filled by the local workers. The unskilled construction jobs were not year-round employment and were temporary in nature. These jobs would be performed by contracted workers. The proportion of his or her total time an individual would spend on the project was estimated at approximately 70%. The remaining 30% was spent on non-labor-market activities. The social opportunity cost of labor (SOCL) per worker is measured by the value of time a worker would spend on alternative activities if this project did not take place, less the value of time while not working on the project. That is:

$$SOCL = pW + (1-p)V - (1-p^*)V^*$$

where p is the proportion of time spent employed in other activities in the project region; W is the wage rate earned in other activities in the project region; V is the value of non-labor-market activity in the project's region; p* is the proportion of time employed in the project; and V* is the value of non-labor-market activity while temporarily employed in the project.

Using the data from a 10% sample of all the individuals who claimed at least unemployment insurance benefits within the project region of British Columbia during the period July 1972 to June 1976, the expected duration of unemployment in the temporary sector has been estimated to be about 42.2 weeks, and the workers who have experienced unemployment have had, on average, 1.7 periods of unemployment over the four years. This suggests that the workers in the temporary sectors spent about 35% of their time not working and 65% working (p = .65). The other parameters were estimated to be: W = $179/week, V = $61/week, p* = .70, and V* = $146/week. (The values of V and V* were derived from the assumption that the marginal personal income tax rates were 15% and 25% for the workers not working and working on the project, respectively.) The SOC of construction labor was then estimated to equal $94/week per worker and $134/week per worker-year job. One worker-year of temporary jobs can be filled up by (1/p*) temporary workers.

The clerical jobs were considered to be permanent employment. Thus, p was equal to unity. The SOC of a clerical job would be approximately $138/week. The last column of Table 1 shows that the ratio of the SOC of labor to the project wage was higher for clerical workers (55%) than for construction workers (43%). This is due to the fact that the project paid a lower wage rate to clerical workers. Clearly, a substantial amount of labor benefits would be attributable to the employment of unskilled workers in the project.

THE SOC OF LABOR FOR INDUCED MIGRANTS

Induced migrants are defined as people with few skills but who are highly mobile. They had left the region but would have returned had the local economy improved. The SOC of labor for an induced migrant can be measured by the private supply price of a migrant to the region plus economic externalities created by the process of labor migration. The private supply price refers to the value of time the worker would have received from alternative labor and non-labor-market activities in the project region. It includes the net-of-tax wage for the proportion of time the person is working, the net-of-tax income received from UIC for the proportion of time unemployed, plus the value of time spent on non-labor-market activities. The externalities created by the migration process are equal to forgone income taxes that would have been generated had the person not moved to the project region, minus the amount of UIC that would have been paid to this individual while living elsewhere.

This can be expressed as follows:

$$SOCL = pW(1-t) + (1-p)V + U(1-t) + p_oW_o - (1-p_o)U_o(1-t_o)$$

where p, W, and V are defined as before; U is the amount of UIC in the project region; t is average personal income tax rate in the project region; and the variables with subscript "o" stand for those rates in other regions.

Using the same temporary labor force as indicated earlier, the values of the above parameters were estimated at: p = .65, W = $345/week, U = $132/week, t = .15, V = $160/week, p_o = .70, W_o = $280/week, U_o = $132/week, t_o = .13, and V_o = $118/week. The SOC of an induced migrant would be about $277 per week. The ratio of the SOC of labor to the project wage for these workers was estimated at approximately 85%.

THE SOC OF LABOR FOR DIRECT MIGRANTS

Owing to its remote location, the region has for many years experienced a shortage of skilled construction workers. In 1977 there was speculation that the Alcan gas pipeline might be built in the same time period as the project. A shortage of some tradespeople would become even more severe, and those workers would have had to be recruited elsewhere. It was, therefore, assumed that all skilled construction workers required for the project would come from other parts of Canada. They would only move to the region if they were guaranteed full-time employment. The same phenomena were observed in the operating phase for skilled or semi-skilled miners and managerial staff.

The measurement of the SOC of labor for these workers was similar to that for induced migrants. The only difference is that the direct migrants would not move to the project region unless they had full-time jobs. The private supply price became the project's net-of-tax income. As a result, the ratios of the SOC of labor to the project wages would range from 84 to 89%, which implies that 16 to 11% of the project wages were counted as labor externalities.[1]

The NPV of labor externalities over the life of the project for construction and mining operation was approximately $24 million, using 10% of the social discount rate for Canada. These externalities were about 14% of the total project wage.

The net economic benefit of the project is the sum of incremental financial cash flow, the economic cost of public-sponsored infrastructure, and a series of economic externalities over the life of the project. The NPV of the financial cash flow to the total capital was estimated at negative $76 million, meaning that the project would not generate a 10% private real rate of return on the total capital. Additional infrastructure costs for new rail branch line, highway, port, airport, and townsite were not costs from a private perspective, but were economic costs. All economic externalities had to be taken into account. The net economic benefit for the project was negative $85 million. This indicates that the resources used in this project could have been put to better use elsewhere in the economy. As a result, the project was rejected in 1978. However, the project combined with another mine, Mullmoose, went ahead five years later. It did not perform well because of the persistent weak international market for steel and metallurgical coal.

A GENERAL EQUILIBRIUM ANALYSIS

In this section we use a general equilibrium approach to estimate the SOC of labor, using the example of a newsprint mill project located in Amos, Quebec. The project was a private initiative in 1979, and had requested government assistance of around $40 million. The project was expected to produce newsprint at 80% of the capacity in the first year, 1982, and build up to a full capacity of 160,000 tonnes by 1986. The market for the product was identified to be the northeastern U.S.

The labor requirements by skill/occupation for both construction and operating phases were obtained from the company itself. The construction of the mill would take two years. To ensure an adequate supply of wood chips for the newsprint mill, an additional 100 worker-years were required in the sawmill operation. It was estimated that another 100 worker-years in forest operation would also be created in Amos and the surrounding areas. These are all shown in Table 2. The gross-of-tax weekly earnings per worker were also estimated by the company, as well as the proportion of each type of workers likely drawn from outside of Amos.

In a general equilibrium analysis, the project demand for various workers in the construction phase would have a direct impact on migration and the region's unemployment. For example, unskilled workers were hired locally, and so the local employment prospect had to improve and affect the region's unemployment rate. And because skilled construction workers were recruited elsewhere and moved into the region to work on the project, regional income increased and so did regional activities. A similar impact could be observed for the project demand for operating labor.

The workers employed in the project received higher wages than they previously had from alternative employment and/or unemployment compensation, which had an indirect effect on activity in the secondary sector and a further impact on the region's unemployment rate. Using an export base model approach, the employment multiplier for Amos was estimated at 1.70. That is to say, for every worker employed in the newsprint mill, sawmill, or forest operations in Amos, employment in the secondary sector would increase by .7 workers.

In reality, there would be a dynamic labor market response to an investment project. A regional economy such as Amos can be seen

as a two-sector model economy that consists of a base and secondary sector. (Details of the dynamic model can be found in Jenkins and Kuo [1978].) The base sector produces goods and services whose demand is determined by forces exogenous to the region. The demand for the secondary sector's output is determined by the economic forces within the region. The total labor force in the region can also be broken down into base and secondary sectors.

On the other hand, the total labor force in Amos can also be divided into permanent and temporary sectors. The permanent sector, which is similar to a union sector, refers to those who, because of their choice of occupation or their seniority, are almost never unemployed. The temporary sector refers to those individuals who are either unemployed or are employed in jobs that are not expected to provide continuous employment (e.g., fishing, tourism, construction). The temporary work force that is used in this analysis was all the

Table 2
Labor Requirements and SOCL for the Quebec Newsprint Mill Project

Type of Labor	Labor Requirement 1980	1981	1982+ (worker-years)	Weekly Earnings ($)	Direct Migrants (%)	SOCL/ Wage* (%)
Newsprint Mill						
Construction:						
General Labor	214			526	0	
Tradespeople		427		526	50	
Total						51.5
Operating:						
Hourly: Semi & Unskilled			90	320	0	
Mechanics			60	400	50	
Operators			40	440	75	
Salaried: Clerical			18	231	0	
Technical			12	385	50	
Management			30	673	100	
Total						63.8
Sawmill Operation						
Unskilled			45	300	0	
Semi-Skilled			45	300	0	
Skilled			10	400	100	
Total						51.9
Forest Operation						
Semi & Unskilled			100	360	25	38.7

* Refers to the ratio of the SOCL to the project wages over the life of the project.

individuals who claimed UIC at least once in the project area during the period January 1974–December 1977. Once the total number of the temporary workforce was estimated, these workers were broken down into base and secondary sectors. The permanent labor force was then estimated by subtracting the temporary labor force from the total labor force in respective base and secondary factors.

The data in Amos indicated that the temporary workforce made an average of five claims of UIC over the four-year period. The average duration of unemployment for each claim was estimated at about 18.3 weeks. This suggests that the workers in temporary sectors spent about 44% of their time not working and 56% working. The 44% was regarded as the normal unemployment rate in the temporary sector. Because these people were employed only 56% of their time, the total work done in the temporary sector can be expressed in worker-years for base and secondary sectors, respectively.

When there are a number of permanent jobs created in the base sector, these jobs will be filled initially by either direct migrants (e.g., skilled) or local workers. The local workers employed in the newly expanded activities will come either from the ranks of the unemployed or from those employed in other activities. The hiring of workers who are already employed will create job vacancies that will be filled by the unemployed and induced migrants, who are all part of the temporary labor force.

Over time, there will be an additional impact on the activity in the secondary sector because of the increase in regional income that has resulted from the following: (a) workers hired from non-labor market will now receive wages instead of UIC; (b) when migration takes place, migrants will earn income and receive UIC; and (c) capital income in the region may also increase. These incremental incomes will be spent in the region and further increase the demand for secondary sector products and employment through the multiplier effect. Another crucial element of the model is the size of migration flows that would be determined by the current unemployment rate relative to the long-run unemployment rate in the temporary sector and the size of the temporary labor force.

A dynamic model developed to incorporate the above features can be solved to determine, for each period, the level of employment, the size of labor force, the number of workers employed in the secondary sector, and the flow of migrants. One can use this information

to estimate the SOC of employing the permanent workers in the base sector project. The SOC of labor basically consists of three principal components: the social cost of migrants retained or newly moved to the region, a decrease in the value of time spent on non-labor-market activities, and a negative value in terms of the gain of increased output in the secondary sectors.

The labor market response to job creation in the project can be extremely rapid, re-establishing the long-run unemployment rate. The ratio of the SOC of labor to the firm's annual wage bill would increase over time if the workers hired to this project initially were the unemployed in the region. In the longer term, induced migrants would have a greater social cost than unemployed workers.

When workers are drawn from employment in tradeable goods production, the country forgoes additional economic benefits of the foreign exchange associated with the product this labor would have produced. (Tradeable goods refer to either importable or exportable goods.) If the workers were previously employed in non-tradeable goods production, the sales taxes imposed on the product this labor had produced would be forgone. These product externalities should all be counted as additional economic cost to the project, and were estimated to be approximately 3% of the gross-of-tax wage component of the SOC of labor in Canada (see, e.g., Jenkins and Evans, 1977). The NPV of the total labor externalities for the project was estimated at approximately $45 million.

The net economic benefit from this project is the sum of the incremental net financial cash flow, infrastructure cost, tax and subsidy adjustment, and labor and foreign exchange externalities. Table 3 shows that a net economic benefit of approximately $92.5 million could be generated as a result of this project if it were totally incremental, that is, if the project did not displace any sales from other Canadian firms in the northeastern U.S. markets. The major benefits were those obtained from the net gain in foreign exchange and the increase in employment in the area.

However, there was a question at that time whether the sales of newsprint from Amos would displace sales from Ontario plants to northeastern U.S. markets. If it did, the foreign exchange benefits created by the project would be offset by the loss of foreign exchange in the rest of the industry. As well, the benefits received by operating labor in this project would presumably be more or less offset by

the loss suffered by operating labor within the rest of the industry. The only labor benefit obtained would be the portion generated by construction workers. In the operation phase, the positive cash flow generated from the project would also be offset by an equivalent loss of gross profits by the other firms in the industry. The capital cost of the plant would not be offset, however, and those costs would represent the major economic costs of the project if there was a complete displacement. This nonincremental case would make the project economically unviable, as is shown in the second column of Table 3.

It is interesting to note that there would be a zero net economic benefit if the project displaced 40% of the equivalent existing Canadian production. In other words, no government assistance should be given to the project from the viewpoint of economic efficiency unless one can be reasonably assured from the marketing analysis that production from the project is more than 60% incremental. In the end, the marketing analysis indicated that the sale of this project's product to the northeastern U.S. markets was at least 80% incremental from the Canadian viewpoint, and the project was accordingly supported by governments.

CONCLUSION

This article has discussed the principal labor market distortions and their effects on the social opportunity cost of labor. It has demonstrated how economic theory can be applied to the practical evaluation of industrial projects. Two alternative approaches — a partial

Table 3
NPV of Economic Benefits for the Quebec Newsprint Project
(Millions of dollars)

	Incrementality		
	100%	0%	60% Incremental
Net financial cash flow to total capital	(10.1)	(162.8)	(64.3)
Infrastructure cost	(3.8)	(3.8)	(3.8)
Municipal tax	2.9	2.9	2.9
Foreign exchange benefits	71.6	0	43.3
Oil subsidy	(8.0)	0	(4.8)
Labor benefits	39.5	8.0	27.0
Total net economic benefits	92.5	(155.7)	0

and a general equilibrium analysis — have been put forth in a systematic way to estimate the social cost of job creation. The general equilibrium analysis is comprehensive and dynamic in nature. In addition to allowing for labor migration between regions, it incorporates the multiplier effects of job creation projects on the project region. Compared to the partial equilibrium analysis, the general equilibrium model is a much more complicated approach with a significant amount of data required for evaluation.

ACKNOWLEDGEMENT

The author is indebted to Kenneth Watson for his comments and suggestions. Responsibility for any errors is solely the author's, and any opinions expressed herein are those of the author and not necessarily those of the department.

NOTE

1. The formula for estimating the social opportunity cost of direct migrants becomes:

$$SOCL = W^*(1-t^*) + poW_o t_o - (1-p_o)U_o(1-t_o)$$

The SOCL and the ratio of the SOCL to the project wage for various skilled workers are summarized below:

Occupation	W* ($)	W_0 ($)	P_0 (%)	U_0 ($)	t* (%)	t_0 (%)	SOCL ($)	SOCL/W* (%)
Tradespeople	442	324	80	132	20	15	370	84
Semi-skilled	385	325	80	132	17	15	336	87
Skilled	423	350	85	132	19	16	374	88
Production manager	519	435	85	132	22	18	455	88
Administration manager	577	495	90	132	25	20	511	89

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