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Marcel Knight
Managing Director
PAMCO
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Contributing Authors:

Merlyn Kettering
Bruce Brooks
Conrad Smikle
Lascelles Dixon
Michael Farr
Marjorie Humphreys

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MODULE 27

ECONOMIC ANALYSIS OF PROJECTS
(including Border Pricing)[1]

Bruce Brooks

A. *PREREQUISITES:*

MODULE 20	-	Cash Flow Analysis
MODULE 21	-	Discounting
MODULE 22	-	Net Present Worth
MODULE 24	-	Benefit-Cost Ratio Analysis
MODULE 25	-	Internal Rate of Return

B. *DISCUSSION:*

Economic analysis will determine the size of the income stream likely to be generated over the costs of inputs, but it is neutral to income distribution and capital ownership, i.e., it does not specify who actually receives the income. For example, if there is a surplus income, part of it may be taken in the form of a tax for use outside the project, part is usually used to compensate capital owners for the use of their capital, part may become an income transfer in the form of a subsidy to the poor who purchase the products or services which are produced as a result of the project. None of these is identified by the economic analysis.

The tools used in economic analysis are essentially the same as those used in financial analysis. These tools are:

MODULE 20	-	CASH FLOW ANALYSIS
MODULE 22	-	NET PRESENT WORTH
MODULE 23	-	COST BENEFIT ANALYSIS
MODULE 24	-	BENEFIT-COST RATIO ANALYSIS
MODULE 25	-	INTERNAL RATE OF RETURN

The mechanics of calculating the above measures are essentially the same regardless of whether economic or financial analysis is being done. There are adjustments in the entries, in an attempt to reflect more nearly the true value of the project to the country in terms of the national objective criteria.

There are three important distinctions between economic and financial analysis:

1. The term "Border Pricing" is essentially the same as "Shadow Pricing" and both are used interchangably in this Module.

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1. Taxes and subsidies are treated as transfer payments in economic analysis. Taxes coming from the new wealth generated by the project is a part of the project "benefits" which are transferred to the society as a whole, to be spent in whatever way the recipients wish to spend these benefits. Therefore they are not treated as a project cost but as a benefit But if a subsidy *is provided out of the returns* to the project it is a cost, because it uses resources which the economy has allocated to operate the project. In financial analysis, taxes are treated as a cost and subsidies as a benefit.

2. Another difference between economic analysis and financial analysis is the manner in which interest on capital used on the project is treated. When doing economic analysis, interest on capital *is not separated out as a cost* and deducted from gross returns, but is considered to be a part of the total return to invested capital to the society as a whole. It is therefore the total return on all resources used on the project on behalf of the society, that the analysis concerns itself. In contrast, in financial analysis interest paid to outside suppliers of money is a cost and is deducted from the flow of income. Interest that is paid to the project, e.g., interest on stock, is a benefit because it is a result of the capital used on the project, and is added into the flow of income.

3. The third difference between economic and financial analysis lies in the manner in which certain prices may be altered to reflect more closely, more realistic economic and social values. The altered prices are called "border prices". But, when a financial analysis is done market prices are always used, including taxes paid and the prevailing market value of subsidies.

The analyst must remember that the same methodology is used to do financial analysis as is used to do economic analysis, viz., CASH FLOW, DISCOUNTING, NET PRESENT WORTH, BENEFIT-COST RATIO, and INTERNAL RATE OF RETURN are all used in both instances. The difference lies not in the analytical tools used but in the factors put into the analysis and the manner in which the factors are priced to arrive at the cash flow stream for the project.

In order to get a clear picture of the differences between financial analysis and economic analysis it is necessary to understand clearly what is included in the estimated cost and benefits to arrive at the cash flow of each. Refer to ILLUSTRATION 1A and B which summarizes the differences between financial and economic analysis.

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ILLUSTRATION 1

DIFFERENCE IN COMPUTATION TO DERIVE CASH FLOW WHEN DOING ECONOMIC ANALYSIS AND FINANCIAL ANALYSIS OF PROJECTS[2]

A. IN ECONOMIC ANALYSIS some prices used to compute costs and benefits may be border/shadow prices.

Gross Return	Less Capital Items and Imports	Less Labour and Management Costs	= Cash Flow
Gross Benefits	Capital Items and Inputs:	Remuneration for Labour and Management:	Remuneration for all of the Society's Capital Used:
Cash payments from buyers	Capital equipment	Wages	Return of Capital:
Less Subsidies	Fertilizer	Salaries	Depreciation
Value of subsistence production	Electricity	Bonuses	Amortization
Value of unsold production	Machinery	Manager's salary	Return *to* Capital:
	Maintenance supplies etc.	Consultant's	Interest
	(All of the above excludes sales taxes)	Social Security	Dividends
		In kind payments	Re-invested earnings
	Add value of subsidies		
			MVP of Labour*
			Income Taxes customs duties Sales taxes

* In Agricultural projects

2) Both Illustration 1A and 1B were taken from: *Economic Analysis of Agricultural Projects*, J. Price Gittinger, A World Bank Publication. Johns Hopkins U. Press, 1974, p.68.

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B. In FINANCIAL ANALYSIS all prices are market prices including taxes and subsidies.

Gross Benefits	Capital Items, Taxes and Inputs:	Remuneration for Labour and Management	Remuneration for the entitities own Capital Used:
Cash payment from buyers including value of subsidies	Capital equipment	Wages	Return of entities own capital:
	Fertilizer	Salaries	
Value of subsistence production	Electricity	Bonuses	Depreciation
	Machinery	Manager's salary	Amortization
Value of unsold production	Maintenance supplies, etc.	Consultants	Return to entities own Capital
Inputs of borrowed capital	Income Taxes	Social security	Interest
	Sales Taxes	In kind payments	Dividends
	Customs Duties		Re-invested earnings
	Payment to Outside capital suppliers:		MVP of labour*
	Interest		
	Principal		

* In agricultural projects.

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C. *PURPOSE:*

The purpose of an economic analysis of a project is to incorporate into the analysis of a proposed project other considerations, such as, the equity of distribution of project benefits and the increase in employment of certain sectors of the society or in selected geographic areas. Economic Analysis concerns itself with the measurement of the benefits from a proposed project to the society as a whole rather than to a particular economic entity in the society.

D. *USE OF ECONOMIC ANALYSIS:*

Economic Analysis is used to appraise projects for the purpose of selecting those project that will best allocate inherently limited resources. The same is true when financial analysis is done. But there is the "distribution of benefits" aspects of economic analysis which are also used to determine the society's return from a project.

The criterion for accepting projects when economic analysis is used is no longer only the project that yields the greatest net cash flow over the life of the project, the highest benefit-cost ratio, and the highest internal rate of reuturn. The distribution of the project benefits are also given weight in determining the acceptability of projects when economic analysis is used. Some projects that may be acceptable on the basis of the financial analysis may be rejected on the basis of an adverse income distributional impact. In general, the significance of this kind of analysis is that it produces a bias in project decision making favouring projects that more equitably distribute the benefits of a project from a socio-economic viewpoint rather than being based solely on an economic growth consideration.

E. *DEFINITION OF TERMS USED IN ECONOMIC ANALYSIS:*

These definitions are based on the viewpoints advanced by the World Bank.

Economic Analysis[3] is a project appraisal method that includes techniques and practices which incorporate into a project appraisal the social and economic equity objectives along with the traditional objective of economic growth. Economic Analysis is not confined only to an assessment of the profitability of an investment in terms of money, as is the case for financial analysis. It also attempts to measure the effects of the project on other fundamental objectives of the entire economy, e.g., equity of income distribution; expansion of consumption opportunities.

(3) *Economic Analysis of Projects*. L. Squire and H.G. Van der tak. World Bank Research Publication, John Hopkins Univ. Press, 1975.

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There are several other terms that appear throughout this module that are defined below:

a) *Opportunity Cost*

In economic analysis, the cost of using a given resource is measured by what the country must do without in order to make the resource available to the project. This notion of foregone benefit is called the *opportunity cost*. A reasonable estimate of the opportunity cost is critical to proper economic evaluation just as it is for financial analysis. Many of the differences between financial and economic analysis arise from the fact that the price a firm pays for an item may be quite different from what the economy must forego to supply that same item.

Opportunity cost may be illustrated with the example of unskilled labour. A person employed in a project is paid a wage determined by a number of factors, including his prospective output, trade union pressures, and so forth. But the cost to the economy of employing the person may be quite different, as it is essentially determined by the value to the country of what he would have produced had he not been employed on the project. If, because of his employment in the project, production in his former occupation drops, then this drop - and not his wage in the new job - is the starting point for assessing his cost to the economy. If, to take the extreme case, a worker is drawn from the unemployment pool, his cost to the economy may be only a small fraction of his wage in the new job, and in fact it may be zero, because he was producing nothing and therefore there was no decrease in production when he was employed.

b) *Traded Commodity*

A *traded commodity* is defined as an item which the country either presently trades internationally or is expected to trade without quantitative restrictions during the life of the project. A key characteristic of such commodities is that their use as an input in a project may normally be expected to have the net effect of adding to the country's level of imports or subtracting from the supplies available for export. Extra project output similarly may be expected to reduce imports or boost exports.

In both cases, the economic values can appropriately be gauged by *border prices*. Depending on whether an item is imported or exported, these border prices are c.i.f. or f.o.b. prices, adjusted for domestic handling, transport, and selling costs. For example, there may be a project that is expected to produce synthetic fibre. The economic benefit of producing fibre would be valued by its import prices excluding handling, transport and selling costs, since the country would save this amount by not having to import the project's output any longer. A similar line of reasoning applies to items which a country exports: the economic benefit is the revenue which the country obtains by exporting. This revenue would be valued at f.o.b. prices, net of taxes or subsidies and adjusted for domestic handling, transport, and selling costs.

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It should be emphasized that the use of border prices does not imply that the project will actually result in purchases and sales at border prices. On the contrary, it is likely in practice that the project will have to pay tariffs (or receive subsidies) throughout its life. The essential condition is not that tariffs (or subsidies) are expected to disappear, but that the effect of the project's purchases (or sales) of an item shows up in decreased imports or increased exports of the item rather than in the level of local production or price of the goods. As a practical matter, it will not always be clear whether a particular item meets these conditions. One of the key simplifications proposed in these guidelines is that border prices can be used to value a tradeable good unless there is clear evidence that the effect of the project *will not be* to increase or decrease imports (or exports) of the item. In other words, when the situation is unclear, assume that border prices are appropriate.

A number of items in the financial accounts of the project will not be valued at border prices in the economic rate of return calculations. Some items, such as labour, construction costs, domestic transport, etc., are not tradeable goods. There may also be some relatively unimportant traded goods for which the effort involved in obtaining appropriate border prices is disproportionate to the expected gain in accuracy of the calculation through use of border prices. Finally, there is the category of potentially tradeable goods for which border prices are not appropriate since there is clear evidence that the effect of project purchases (or sales) will not show up, directly or indirectly, in the country's trade accounts. These guidelines will not try to describe appropriate valuation procedures for potentially tradeable (but not traded) goods, since a number of different procedures may be appropriate, depending on the precise circumstances which prevail.

c) *General Conversion Factor*

The other two categories -- costs of non-tradeable items and relatively minor traded goods -- should in principle be treated separately. As a shortcut, however, it may be permissible to treat them both in the same fashion, using what is called a *general conversion factor*. Since the use of a conversion factor is not required in the simpler of the two calculations proposed, (First Approximation) in these guidelines, further discussion of it may be deferred until after the simpler calculation is described.

d) *The Numeraire*

Finally, the question of the numeraire needs to be discussed, i.e., which currency is to be used in representing input and output values. In principle, it makes no difference whether US$ (or any other foreign currency) or local currency is chosen as the numeraire. However, it will normally be more convenient to use the local currency as numeraire. Consequently, these

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guidelines have assumed that the analyst will choose the currency of the country in which the project is located as the numeraire.

e) *Transfer Costs*

Some costs and revenues that appear in the accounts of a project merely reflect transfers of income within the economy. Examples of transfer payments include direct taxes on the profits of the project, tariffs and subsidies. So long as these payments do not cause any loss with respect to the objectives the country considers important, their opportunity cost is nil and they should not be considered as a cost in the economic rate of return calculation. It should also be noted that some transfers may not affect the total output currently available to the economy, but, by influencing the amount of savings done currently, and hence the amount of investment, they may have a marked effect on the future volume of output. This, in fact, is one of the principal ways in which transfers of income may influence a project's overall contribution to the country's development objectives.

F. *LIMITATIONS:*

The limitations to economic analysis of a project are:

(a) the accuracy of the coefficients used to alter the prices of inputs and outputs. It is possible that the coefficients used to alter the prices are ill-conceived and more inaccurate than the actual market prices which prevail at the time;

(b) the difficulty of ascertaining the project costs of certain inputs and the benefits realised from certain outputs; and

(c) the difficulty of quantifying the output necessary to meet certain country wide criteria for acceptance of a project such as equity of income distribution.

G. *ASSUMPTIONS TO SIMPLIFY THE ANALYSIS:*

Comprehensive economic evaluation, which takes into account the multiple objectives which a country hopes to achieve through its development processes is undeniably difficult and probably not practical for most developing countries except perhaps for the largest projects they might consider. Since the aim of these guidelines is to outline a method of evaluation which can be applied to a wide range of projects, a number of simplifying assumptions have been introduced. The section which follows briefly describes these assumptions and indicates the conditions under which they will be appropriate.

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1. *The first assumption concerns objectives.* The techniques proposed in these guidelines focus on a single objective, namely, that of increasing levels of real consumption in the country as a whole. The attention given to increasing consumption does not mean that this is the only objective relevant in assessing the economic or social desirability of a project. But, given the practical difficulties faced in trying to quantify contributions to such an important objective as improved income distribution, it is suggested that it be handled in a qualitative way. Reference to these other objectives, may provide a "special justification" for projects which do not have an attractive economic rate of return.

2. *The second assumption concerns the prices used to value internationally traded commodities which are called border prices or shadow prices.* This simplification can easily be abused, so it is important to understand the circumstances in which it is appropriate.

H. *OUTPUT:*

The output of the economic analysis of a project is the evaluation of a project's contribution to the development of the total economy based on the national criteria that the project's contribution is measured against. It may include a quantification of changes in consumer incomes and consumption, changes in sector and national employment, and other factors not examined and evaluated when only a financial analysis is done. The output of an economic analysis of a project gives the project planners a broader basis for project acceptance or rejection of projects than the financial analysis permits.

I. *GUIDELINES FOR CALCULATING ECONOMIC RATE OF RETURN ON PROJECTS*[4)]

The only measure for appraisal purposes that is derived in this section is economic rate of return. Other measures could be computed (those listed above) from the data appearing in the tables at the end of this section of this Module, but the economic rate of return measure is considered to be the most important and reliable measure for evaluating the economic worth of a project.

STEPS IN CALCULATING ECONOMIC RATES OF RETURN WITH BOTH A FIRST AND SECOND APPROXIMATION

1. *Introduction*

It is assumed in these guidelines that the techniques for calculating a

4) These guidelines were taken from: Economic Development Institute, CN-174, Dec., 1976. *Guidelines for Calculation of Economic Return on DFC Projects* by Joseph D. Wood & Ernest Loeschner.

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financial rate of return using a discounted cash flow approach are known. (SEE MODULES 20, 21, 22, 24 and 25 of this Manual). Hence, no explanation is given for several key concepts which are common to both the financial and economic rate of return calculations. In particular, all references to outputs and inputs are meant to apply to incremental quantities; that is, to amounts which correspond to levels of production over and above those which would have been attained if the project had not gone forward. Some projects are cost-saving and the level of production in the country are unaffected by the project. In this case the increments of production are the amounts of inputs saved.

Depreciation and interest charges are not deducted from the stream of benefits in economic rate of return calculations. If you are computing a financial return to equity it would be necessary to deduct interest payments and depreciation from the stream of benefits. This transfer of income from equity holders to creditors of the project can have an effect on the extent to which social objectives are attained by the project. The same is true of other income transfers brought about by the project, e.g., transfers to Government through various taxes. The mechanics for computing the Internal Rate of Return for projects is also the same in both financial and economic analysis after the adjustments on cash flow of each has been determined.

Financial analysis measures the returns from a project accruing to the firm. Economic analysis measures the effect of the project on the whole economy. The transition from one measure to the other may be accomplished by adjusting some of the costs and benefits entries in the financial rate of return calculation. The major adjustments involve changes in the prices used to value the firm's purchases and sales.

2. *STEPS IN CALCULATING THE ECONOMIC RATE OF RETURN*

There are numerous degrees of refinement which can be attempted in analyzing the economic costs and benefits of individual projects. It it perhaps best to regard these guidelines as a description of the initial steps in a process of evaluation that is capable of ever increasing refinement. How far one goes in this process will depend on the costs of further refinement and on the expected gain from greater accuracy. The presumption here is that even fairly crude approximations will be sufficient to guide decision makers in making sensible decisions as to whether or not a project is likely to be attractive on economic rate of return grounds.

2.1 *First Approximation*

For many projects, particularly smaller ones, it should be sufficient to rely upon what may be called a first-approximation economic rate of return. In this calculation, the only adjustments made to the annual financial cash flow of the project is the valuation of traded commodities in terms of *border prices*. Special problems which may arise include the following:

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a) *Machinery and equipment*

(i) Imported equipment should be valued at its c.i.f. price, plus local handling, transport and selling cost but excluding tariffs, taxes and subsidies. Prices expressed in terms of foreign currency should be translated into domestic values using the official exchange rate.

(ii) Locally procured equipment, if a relatively small part of total investment, may be valued at the price actually paid by the project. If this component is greater than 15 per cent of total investment, its international traded price should be determined. If this proves to be exceedingly difficult, other price adjustments should be undertaken. Readily identifiable tax and tariff components in the local price should be excluded.

Occasionally there may be cases in which locally manufactured equipment is quite different qualitatively from equipment which can be imported. In such a situation the analyst should make a judgement as to what the local machinery would have to sell for to compete with duty-free imports of equipment with the difference in quality considered. This hypothetical price then becomes the "border price" for locally manufactured equipment.

b) *Land*

(i) In rare cases, land may be an important part of total investment cost. If it accounts for more than 20 percent of total investment, it should be valued at its opportunity cost, i.e., the net value of output likely to be produced by the land if the project were not to go forward.

(ii) In most cases, land will be relatively unimportant and should be recorded at the prevailing domestic price for the same or a similar amount.

c) *Installation and other expenses*

Interest paid during construction should not be counted as a cost.

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d) *Working capital*

(i) Increases in inventories of raw materials, work in progress and finished goods should be valued at the same prices used in valuing current purchases and sales. (SEE SECTION (e) below). These increases should be entered in the year in which inventory build-up is expected.

(ii) Increases in accounts receivable (or accounts payable) are a reflection of the expected timing of project receipts (or payments). If, as is commonly the case, projections are made in physical terms (i.e., expected annual sales volume and corresponding input requirements), care should be taken to adjust expected receipts (and payments) in line with expected credit terms. If inputs and outputs are valued at "spot" prices, there is no problem, But if, for example, project sales are to replace imports sold on a deferred payment basis, then the foreign exchange savings attributable to the project will only be realized after a lag in time.

An example may help illustrate the point. An import-substitution project is expected to produce 100,000 widgets in a given year. The expected import price, c.i.f., plus handling and transport, is $1.00 each. But this is a price for payment within ninety (90) days. Hence the savings attributable to the project are $75,000 in the year of sales and $25,000 in the subsequent year. The same principle applies to inputs purchased on credit. The essential point is that the forecast timing of receipts be consistent with the price and credit-term assumptions which are made.

e) *Current inputs and outputs (other than labour)*

(i) In principle, all traded inputs and outputs should be valued at border prices. If, however, there are items which are relatively unimportant in the total cost and revenue picture (accounting for less than 10 percent of annual costs and sales respectively), their border prices may be approximated in light of what the analyst knows about the trade protection accorded to similar commodities.

(ii) International prices prevailing at the time of project appraisal may be temporarily depressed because of "dumping" from abroad. If this is thought to the the case, upward adjustment reflect real changes in relative prices and not general inflation.

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In practice most analysts will probably make projections into the future at constant prices. However, there may be instances (e.g., dumping prices) when such price changes are allowed, although the analyst should be careful to distinguish between absolute and relative price changes. For example, it may be reasonable to expect that the price for a certain item will rise in absolute terms by 10 percent per annum. But if prices generally are expected to rise by 5 percent per annum, the *relative* increase in the price of the identified item is only about 5 percent per annum. It is the relative price change which should be used if the basic projections are in constant prices.

(iii) Whether domestic handling, transport and selling costs should be added to the c.i.f. price (or subtracted from the f.o.b. price) in valuing a particular traded item depends on whether the costs would be incurred in the absence of the project. Transport costs need to be treated with special care. If, for example, the site in an import-substitution project is the same distance from the intended market as the country's only port, the project may not save any transport costs.

f) *Labour*

In the first approximation, labour costs may be valued in the calculation at the levels actually paid by the project. This will tend to bias the calculation in a downward direction.

g) *Deciding On the Life Of a Project*

Taking into account these difficulties, it should be possible to construct a new stream of annual net benefits (or net costs) in which traded goods are valued at border prices. If financial projections have only been made through the year in which full capacity is expected to be reached, it will be necessary to extend the projection for the expected life of the project. In most cases, this extrapolation will consist of nothing more than repeating the net benefit realized in the first year of full capacity utilization. The life of the project, and hence the discounting period, is the number of years during which the capacity established under the project is expected to remain operative, taking into account both physical constraints and probable competitive conditions. If, for example, probable modernization in the industry is expected to make the proposed project capacity obsolete before its physical ability to produce is exhausted, the shorter expected actual period of operation should be taken as the life of the

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project. Replacement investments which are not so large as to constitute a new investment decision should be entered in the year when they are expected to occur.

h) *Complementary Investments*

One problem which has not been mentioned because it is likely to arise only rarely for manufacturing projects is the problem of complementary investment. Occasionally an industrial project will require complementary investment in infrastructure which is not reflected in the accounts of the firm. One example might be the construction of a new road to the plant site. If the road is to be constructed in any case, then it should not be regarded as part of the project cost in question. If, on the other hand, the road will only go ahead if the project does, then it should be taken into account. In principle the costs and benefits of the road should be added to those of the project, but, in practice the same effect may be roughly approximated by attributing to the project a share in the costs of the road corresponding to the project's expected share in the benefits to be generated by the road. Such an approximation is admittedly quite imprecise and can only be justified if the cost of the road (or other infrastructure) is small relative to that of the project as a whole.

Occasionally problems of definition may arise when more than one important productive asset is financed in a project. The general principle is to identify a project with this period of investment decision. If replacement of any machinery is sufficiently expensive to require a basic reappraisal of business prospects before it is undertaken, then that replacement would be regarded as a new project. Other assets such as buildings, which retain some value at the time of a new investment decision, are entered in the cash flow at their residual values.

i) *Depreciation and Residual Value*

The residual value of fixed assets and working capital should be entered in the final year of the project's expected life. The residual value of fixed assets may, for the sake of convenience, may be estimated on the basis of straight-line depreciation, unless the analyst has a better method for estimating salvage value. Some assets, such as land and inventories, may not depreciate at all and should be entered at their full value in the final year of the project.

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2.2 *Cautions About Using First Approximation*

The economic rate of return computed on the basis of the foregoing adjustments to the financial cash flow should in nearly all cases be an *underestimate* of the result likely to be obtained through more refined calculations. The reasons for this is that the major adjustments omitted in the first approximation normally reduce the costs of the project. Non-tradeable costs, of which the most important are likely to be buiidings and labour, are not adjusted on the first approximation. When they are adjusted total costs -- valued in economic terms -- will usually be lower in the second approximation than in the first and as a result the economic rate of return will be higher.

If the most important non-tradeable costs are subsidized, as might be the case, for example, with electric power costs, the adjustment may actually lower the economic rate of return. The assumption underlying the use of the first approximation is that this situation will arise only very infrequently in the type of projects considered.

Similarly, concerning current costs and benefits, the first approximation will tend to understate the attractiveness of projects which use a significant proportion of non-traded items are recorded at prices which are likely to exceed their value in economic terms. On the other hand, the first approximation will overstate, for the very same reason, the attractiveness of projects which produce a signigicant portion of non-traded outputs by using mostly traded inputs. Therefore, the analyst has to be particularly careful in interpreting the result of a first approximation calculation when most of the output is in non-traded items. It is assumed, however, that this will occur infrequently in the type of projects usually financed in developing countries.

2.3 *Computation of the Second Approximation Using Conversion Factors*

When the first approximation yields an ambiguous or unsatisfactory result, it will be necessary to refine the calculation a stage further. What is involved in this second stage is rough adjustment of the values used to account for non-tradeables. For non-tradeables other than labour, this rough adjustment is accomplished through use of the general conversion factor. For unskilled labour, the financial cost to the firm is replaced by an estimate of the opportunity cost of employing such labour. Each of these adjustments requires some further comment.

Just as the use of border prices to value traded commodities may be abused if the underlying rationale is not understood, so too is the use of a general conversion factor subject to a similar danger.

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The *general conversion factor* is an average ratio between domestic prices and border prices for the same (or equivalent) items. A financial institution involved with development projects will quickly acquire a "feel" for this relationship through its experience in establishing border prices for the important traded goods for projects which it finances. If, for instance, the domestic sales prices of intermediate inputs into industry customarily exceed the corresponding border prices by 20 to 50 percent, an average figure of 35 percent would lead to a coversion factor of $\frac{1.0}{1.35}$ or 0.74.

Exactly which items are used to construct a conversion factor depends on the use that is to be made of it. If it is to be used to adjust the domestic prices of minor traded goods, which are mainly intermediate industrial goods, then the price ratios for these intermediate goods should enter the average.

Use of a general conversion factor to adjust prices of non-tradeable goods is based on the assumption that the project's purchases of non-tradeables induces extra production of these items. Extra production requires inputs of various types:labour, traded inputs, non-tradeables. Each of these inputs could in principle be re-valued in light of its appropriate opportunity cost. For traded goods this would involve use of border prices; for labour, an estimate of foregone production could be made; for non-tradeables, a further breakdown into the component inputs might be attempted. In addition, account would have to be taken of taxes (or subsidies) reflected in the sales price of the non-tradeable. To undertake such a detailed analysis for each non-tradeable would be very time consuming, therefore a general conversion factor is used.

Given the fact that non-tradeables other than labour are usually only a small part of total costs in most country wide projects, it seems justifiable to seek a short-cut approach. This is where the general conversion factor comes in. A general conversion factor based on intermediate industrial goods should be a reasonably appropriate means to adjust the costs of traded inputs used in the production of non-tradeables. As a short-cut it can be used as a rough approximation to the correction required for other inputs (i.e., labour and minor tradeables) as well.

It should not be necessary to emphasize that this simplification ought not to be applied thoughtlessly. If, for example, a particular non-tradeable is subject to very high subsidies, this ought to be allowed for explicitly by adding the subsidy to the cost of the non-tradeable. Similarly, large readily identifiable taxes should be subtracted from the cost.

The principal problem likely to arise in using the general conversion factor to adjust the prices of non-tradeable is that (since it is a short-cut) the conversion factor will be inappropriate in some specific instances. The analyst may therefore hesitate to apply it. There is no issue of principle at stake here. Clearly, specific conversion factors are preferable to a general conversion factor. But it can be time-consuming to estimate specific conversion factors, and the gain in accuracy may not be worth the effort.

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If a non-tradeable is relatively important in the total cost picture, say accounting for more than 10 percent of total operating costs, the effort required to construct a specific conversion factor may be justified.

Perhaps the most likely candidate for such special attention is the construction cost of factories. To estimate a conversion factor for a certain type of factory, it is first necessary to break down the cost paid by the project into its component parts: labour costs, traded inputs, non-tradeable material inputs, administrative overheads (including depreciation), and taxes. Taxes (or subsidies), if they are only transfer payments and not compensation for services performed, may be eliminated as not involving any real opportunity cost. Traded inputs would be valued at their border prices; labour at its estimated opportunity cost and administrative and non-tradeable components would be adjusted using the general conversion factor. The resulting ratio $\left(\frac{\text{adjusted cost}}{\text{financial cost}}\right)$, then becomes a specific conversion factor for this type of construction. If substantially different from the general conversion factor, it can be used in other projects where the same type of construction is employed.

Adjustments for unskilled labour have been the subject of much debate. But experience with evaluation of medium-scale industrial projects strongly suggests that economic rates of return are not normally very sensitive to the assumption made about the appropriate economic value to be placed on labour. Accordingly, the approach recommended here is for the country to accept the fact that a high degree of uncertainty will surround its estimate of labour's economic cost. The aim therefore should be to estimate a plausible value for the output lost elsewhere in the economy when an unskilled worker is drawn into an industrial job. If the analysts feel they lack the basis for making such an estimate, the problem may often be circumvented by carrying out two alternative calculations: one using unskilled labour at its actual cost to the project and the other is to value it at the value of the products one unit of labour would produce if it were used elsewhere in the economy. If the two results are close together, uncertainty about the appropriate value for labour need not inhibit decision-making. For unskilled labour it will normally be sufficient to use the same costs as are shown in the project's projected financial accounts.

The second approximation calculation makes no *explicit* allowance for the value of foreign exchange. Values for traded inputs and outputs are expressed in local currency at the official exchange rate; non-traded goods are adjusted with either a general or special conversion factor. Nowhere is there a direct reference to any form of "shadow" exchange rate. The reason for this is that the conversion factor implicitly takes account of it, i.e., by translating the costs of producing non-tradeables into the foreign exchange equivalent (at the official exchange rate) of the inputs required for the manufacture of these non-tradeables. Thus all items are valued on the same basis and no additional exchange adjustment is required.

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The second approximation rate of return can easily be calculated if the project costs and revenues for each year are divided into three categories: traded goods; labour; other non-tradeables. Traded goods will require no further adjustment than what is determined in the first approximation. Labour is divided into skilled and unskilled components. The former is left unchanges and the latter is re-valued at its approximate opportunity cost. The net non-tradeable figure (i.e., non-tradeable revenues less non-tradeable costs) is adjusted by use of the general conversion factor. If some particular non-tradeable is unusually important, it may be handled with a specific conversion factor in the manner suggested previously.

J. *INTERPRETING RESULTS OF THE ANALYSIS AND THEIR LIMITATIONS*

The calculations described in these guidelines are intended as an aid to judgement, not a substitute for it. They ought not to be used mechanically. Still, it is reasonable to expect some general guidance as to how they might be used in practice to help managers of development projects make decisions.

The first approximation gives a likely lower limit to the expected economic rate of return. If it is above 10 percent, there would normally be a strong presumption that the project would meet minimum standards of economic attractiveness. This does not mean, of course, that all consideration of alternatives may be neglected. But it should serve as a signal to management early in the project cycle that an economically sound project is likely to emerge.

If the economic rate of return is below 10 percent but still positive, a somewhat more cautious approach may be called for. Much will depend on the significance of unadjusted non-tradeable items in the overall cost picture. For larger projects it may be worthwhile to have a second approximation calculation done early in the appraisal process. If the first approximation yields a negative result, a manager should certainly be concerned. Consideration of alternatives becomes not merely desirable but imperative. A second approximation should probably be carried out to help in deciding whether, after further appraisal, resources should be committed to the project.

When a second approximation calculation shows a return much below 10 percent, there will often be cause for concern. No longer is there any presumption that further refinements will improve the picture. The problem shifts from being one of anticipating the effects of refinement to one of knowing that higher economic returns can be expected on other investments in the development projects in the country.

The whole idea of economic analysis is to avoid committing resources to projects when there are better opportunities available. From the financing institition's point of view, of course, there may not be any obvious alternative claimant for its funds at the time a decision must be made. But,

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from the point of view of the economy as a whole, there will normally be alternatives, even if the alternative is nothing better than holding reserves. Alternative opportunities may generally be expected to offer positive real returns. So, in the absence of any alternative that offers returns greater than the project being considered the decision makers may be led to accept a project that is not much below 10 percent. In all such cases the developing country should seek to satisfy itself that there are special justifications which outweigh the quantitative assessment provided by the economic rate of return. Such special justification may consist of contributions made by the project to objectives other than increasing total consumption, as, for example, when a project that aids development of a backward region or gives greater equity in the distribution of income. There may also be certain benefits attributable to the project, such as training or demonstration effects, which can be identified qualitatively but not precisely measured. These too will be relevant in assessing the overall attractiveness of a project.

Earlier PDRT working papers relevant to this topic include
"Criteria to test Project Worthiness: Project Analysis and Appraisal", M. Kettering, 1977. (25 pages).

"Economic Analysis", M. Kettering, 1976. (32 pages).

"Economic Analysis", B. Charles, 1977. (7 pages).

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APPENDIX 27.1

AN EXAMPLE OF THE COMPUTATION OF ECONOMIC RATE OF RETURN

UNITED ASSEMBLY COMPANY

(J$1.00 = US$0.60)

Background

UNITED ASSEMBLY COMPANY (UAC) was established in 1974. Its initial activity consisted only of assembly of prefabricated umbrella parts into finished umbrellas, but in 1976 the company commenced production of most of the parts in addition to the assembly operation. The firm's production, sales and profits have been growing steadily. UAC now has over 90 percent of the domestic umbrella market.

UAC has approached the National Development Bank (NDB) for a loan of J$775,000 to help finance a new factory for the manufacture of dry-cell batteries. Three types of batteries are to be produced to compete with imported brands. Technical know-how for the project is to be supplied by a Japanese technical partner (JTP).

Estimated project investment costs are as follows:

	J$
Land	40,000
Buildings	400,000
Machinery & Equipment	788,000
Cost of Know-how	92,000
Establishment Expense	30,000
Permanent Working Capital	435,000
Contingency allowance[1)]	-
	1,785,000

[1)] No contingency allowance is shown because firm quotations are available with two exceptions: (a) real wages for labour are assumed to rise at 5 percent per annum, and (b) real salaries are assumed to rise at 3 percent per annum. These assumptions are in line with experience in the country over the past few years. All sales will be in the domestic market. A study commissioned by the project promoters had estimated a rapidly growing market for batteries in the country.

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The information on expected investment and operating costs shown in Table 1 is converted into an internal financial rate of return in Table 2. Most of the adjustments are straightforward. Depreciation, amortization and interest payments are added back to the cash flow. The residual value shown for year 13 represents recovery of inventories (J$435,000) plus the depreciated value of buildings (J$2,000,000) and the original value of land (J$40,000). Sales of output to distributors are to be made on a 30-day payment basis. Since the projections for sales were prepared on an accrual basis, expected cash inflows are adjusted to reflect the anticipated 30-day lag in payment for sales. The item designated as "inventory increase" represents raw material purchases over and above those shown in Table 1 for actual costs of sales. No income tax is shown because the firm has been granted a Government concession which provides exemption from income tax for 15 years from the time of investment.

The useful competitive life of the production equipment is expected to be about 12 years, with only minor re-investment required in year 5. Establishment expenses and the cost of know-how are to be written off over 5 years. Although expenses have only been forecast for the first five years, it was considered reasonable to maintain a constant net cash flow estimate for years 6 through 12. While it is true that certain costs are expected to increase in real terms during years 6 through 12 (i.e., labour and salaries), sales may also expand moderately (say 3 or 4 percent per annum). Hence the net effect of maintaining constant cash flows is probably to underestimate slightly the financial rate of return. On the basis of these assumptions the financial rate of return is approximately 18 percent.

Economic Rate of Return: First Approximation

The first step in calculating an economic rate of return for this project is to establish the character -- and hence the appropriate border prices -- of the project's major outputs. At present, the total supply of dry-cell batteries in the country in question is made up of imports, of which there are three types. All three types have found consumer acceptance; however, model "A" is more versatile in its application and has gained about 80% of the market, although it is more expensive than the other two models. Model "A" is sold at a price (before distribution margins) of J$220 per 1000. The cost breakdown for model "A" is as follows (in J$):

C.I.F. cost (per 1000)	126.4
Import duty (45%)	56.9
Transportation tax (15%)	19.0
Clearing and transport costs	7.6
Bank charges (3%)	3.8
Municipality tax	6.3
	220.0

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Since the project intends to use the same wholesale/retail distribution system as is currently used for imports, there is no need to investigate the distribution costs.

It is difficult to say with confidence whether the three models manufactured by the project will be qualitatively the same as current imports. The technology envisaged is not the most modern. On this count it is reasonable to expect project output to be of somewhat lower quality. On the other hand, the long transport and storage period that the imported battery must go through shortens its shelf-life. A domestic producer thus has the advantage of freshness; that is, part of the product's power is unlikely to be lost through leakage. For each model, the border price as equal to the c.i.f. price plus clearing and transport costs and bank charges. This gives a price of 126.4 + 7.6 + 3.8 = about 138 J$'s per thousand for model "A". Similar analysis yields border prices of 119 and 77 J$'s per thousand for models B and C, respectively. It is true that the clearing and transport costs and bank charges may overstate the real opportunity cost of these services, but they are sufficiently unimportant so that there is no need to worry about any correction in the first approximation calculation.

On the cost side the major element is imported raw material. There are numerous raw material components, so that it is impractical to forecast individual purchases for separate items. The method employed was to take input costs, f.o.b. Japan, for a purchase lot of reasonable size and to derive from these costs an approximate c.i.f. raw material cost per thousand units of output. This exercise is shown for model "A" in Table 3 for a lot of 3.15 million pieces. The figures for models B and C are not available, but the technical partner has advised the firm that raw material costs as a fraction of sales volume for those other less popular models will be somewhat less than for model "A", and has suggested 70 and 44 J$'s per thousand respectively. Domestic handling and transport costs are assumed to be 6 percent of the c.i.f. value. Both raw material and output prices are current quotations for cash payment.

Other traded items are packaging materials and spare parts. Packaging costs consist of wooden crates and packaging paper. Crates make up about 30 percent of the cost; paper, 70 percent. Crates are neither protected, nor taxed; paper has a 75 percent duty. Roughly, therefore, packaging costs should be deflated by 30 percent. No detailed information is available on spare parts, but since the amount involved is small and the protection likely to be modest, no adjustment is made. Overhead costs consist mainly of salaries and insurances. For the first approximation calculation they remain the same as in the financial rate of return. These operating costs and benefits are summarized in Table 4.

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With respect to investment costs the treatment of most items is straightforward. Machinery imported for approved projects is exempt from all taxes and tariffs, so no adjustment is required. Cost of know-how is a direct foreign exchange cost. Expenses for buildings and establishment are mainly for non-tradeable items which may be left unchanged in the first approximation. Land is a minor component of investment and so may be accepted at its financial cost. Permanent working capital really refers to anticipated build-up of raw material inventories, at a rate approximately equal to two months' usage. These estimated inventory increases should be multiplied by the ratio, raw material costs at c.i.f. prices(2), raw material costs at actual prices, to net out tariffs and taxes on these raw materials. The same adjustment is appropriate to determine the economic costs of raw materials used in production. Since both output and raw material prices are those for cash payment, there is no need to adjust the timing of expected benefits or costs.

The net benefit stream used to calculate the first approximation to an economic rate of return is derived in Table 5. Most of the entries in Table 5 are transferred directly from Table 4. The net benefit in years 6 through 12 is assumed to remain constant for the same reasons as applied in the case of the financial rate of return. The residual value of fixed assets is the same as in the financial calculation, but the figure for terminal inventories is reduced in line with the adjusted economic costs of inventory build-up. The economic rate of return calculated on these assumptions is 7 percent.

Second Approximation

A first approximation return of 7 percent on a project involving nearly $400,000 of NDB funds is sufficiently low to merit a second look. Given the likelihood that 7 percent is an underestimate, it is nevertheless worth inquiring what a closer approximation might be.

The UAC project has a high proportion of traded inputs and outputs. To the extent these items have been valued at border prices in the first approximation calculation, no further adjustment is required. On the investment side, the only item which requires a second look is the J$400,000 for buildings. Recently, NDB had financed a similar factory (concrete block with metal roof) and, in the course of the appraisal process, had calculated a specific conversion factor for construction cost. This was done by breaking down the cost paid into its major components as follows:

(2) Using data from Tables 1 and 4, this ratio is about 63%.

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Cost Component	Percent of Total cost	Adjustment Factor	Contribution to Conversion Factor
Structural Steel	30	.74	22
Cement	10	.87	9
Aggregate (sand, gravel, etc.)	12	.80	9
Labour			
a) Local - unskilled	20	.50	10
b) Expatriate	5	1.00	5
Overhead (administration, depreciation, etc.)	23	.80	18
	100		73

Structural steel has a duty of 35 percent; cement a duty of 15 percent. Aggregate and overhead expenses were treated as non-tradeables and deflated by 20 percent (see below). Unskilled labour costs were deflated by 50 percent and expatriate labour was assumed to require no adjustment. This gave a specific conversion factor of .73. When applied to the UAC project, it reduced estimated investment costs by J$108,000 (i.e., J$400,000 x 0.27) and the residual value of fixed assets by half of this amount.

In terms of operating costs and benefits, there is no single item which is large enough to deserve the special attention required to derive a specific conversion factor. Accordingly NDB adjusted the several small non-tradeables (other than labour) with a general conversion factor. Based on its knowledge of domestic and international prices for a wide range of industrial commodities (e.g., cement, structural steel, fuel, chemicals and so forth), NDB has determined that domestic prices customarily exceed international prices by 15 to 40 percent. An unweighted average would give about a 30 percent excess, but since several major items have relatively low protection, NDB has adopted an average of 25 percent. This gives a general conversion factor of $\frac{1.00}{1.25}$ or 0.8. This factor is applied to all non-tradeables other than labour in the UAC project (Table 6). It is also applied to repair and maintenance expenditures -- which are small -- despite the fact that the bulk of this category (spare parts) is likely to be traded.

With respect to labour, the largest cost element is salaries for administrative personnel. Since able managers are scarce in the country, there is little reason to assume that the opportunity cost

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of managers is less than the wage they are paid. Accordingly, this item is left unchanged. Direct factory labour is different. The country has a moderately severe unemployment problem. NDB has no basis for estimating specific opportunity costs for the labour employed in the project, but in view of the unemployment problem, some adjustment is undoubtedly called for. Accordingly, an adjustment equal to half the wage cost of unskilled labour has been used in the full knowledge that this is very uncertain estimate.

When these "second round" corrections are taken into account, the estimated economic rate of return rises to about 10.5 percent. Further adjustments in the valuation of non-tradeables or labour would not alter the basic view of the project. The economic rate of return calculation can be no more accurate than the basic technical, managerial and market analyses upon which it rests. In this case, the margin of error in the forecast of prices for batteries and for key raw materials and in the forecast of output, growth is almost certainly off at least a few percent, so that the case for arguing that the UAC project is as attractive as other investment opportunities depends essentially on the realism of those forecasts.

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TABLE 1

UNITED ASSEMBLY COMPANY
FORECAST STATEMENT OF INCOME AND EXPENSES

(000 J. Dollars)

Project Year	0	1	2	3	4	5
Net Sales: Model A		777	1,596	1,995	2,100	2,163
Model B		102	204	255	272	272
Model C		30	60	75	75	75
		909	1,860	2,325	2,447	2,510
Cost of Sales						
Raw materials		607	1,242	1,553	1,635	1,679
Packaging		63	129	161	169	174
Direct labour		28	56	59	62	65
Repair and maintenance		24	24	24	24	24
Utilities		7	14	17	18	19
Depreciation		85	85	85	85	85
		813	1,550	1,899	1,994	2,046
Gross Operating Profit		98	312	428	455	466
Administrative Expenses						
Salaries		57	59	61	62	64
Insurance		17	17	17	17	17
Advertising		8	8	8	5	5
Miscellaneous		3	3	3	3	3
Depreciation of Establishment Expense		6	6	6	6	6
Amortization of Know-how		19	19	18	18	18
Interest		66	74	63	39	18
		176	186	176	150	131
Earnings Before Income Tax		(82)	122	247	300	330

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TABLE 2

UNITED ASSEMBLY COMPANY

INTERNAL FINANCIAL RATE OF RETURN
(000 J. Dollars)

Project Year	0	1	2	3	4	5	6-12	13
Cash Flows								
Net Sales		909	1,860	2,325	2,447	2,510	2,510	-
Less: Receivables		(78)	(157)	(196)	(206)	(211)	(211)	-
Plus: Deferred Receipts		-	78	157	196	206	211	211
Residual Values		-	-	-	-	-	-	675
		831	1,781	2,286	2,437	2,505	2,510	886
Cash Flows								
Fixed Investment	1,325	-	-	-	-	25	-	-
Cost of Sales		813	1,550	1,899	1,994	2,046	2,045	-
Less: Depreciation		(85)	(85)	(85)	(85)	(85)	(84)	-
Inventory Increase	125	118	114	55	15	8	-	-
Administrative Expenses		176	186	176	150	131	107	-
Less: Depreciation of Establishment Expense		(6)	(6)	(6)	(6)	(6)	-	-
Amortization of Know-how		(19)	(19)	(18)	(18)	(18)	-	-
Interest		(66)	(74)	(63)	(39)	(18)	(18)	
Sub-Total	1,450	931	1,666	1,958	2,011	2,083	2,050	-
Cash Flow	1,450	(100)	115	328	426	422	460	886

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TABLE 3

UNITED ASSEMBLY COMPANY

DETAILS OF RAW MATERIAL REQUIREMENTS FOR MODEL A BATTERY

	Quantity	G. Weight	M(Cft)	FOB Japan
Natural MnO_2	50,000 kgs.	50,626 kgs.	1,065.-	US$ 8,003.15
Electrolyte $Mn^0{}_2$	16,800	17,010	453.6	7,219.01
Acetylene Black	9,600	9,984	3,543.-	7,398.16
Ammonium Chloride	21,525	21,758	1,032.-	2,370.49
Zinc Chloride	3,950	4,227	134.4	1,547.41
Corn Starch	2,700	2,754	172.8	626.13
Flour Starch	900	918	57.6	261.30
Flour	900	918	57.6	261.30
Grain Power	65	118	6.5	232.65
Mercuric Chloride	23			
Zinc Oxide	1,200	1,440	86.4	753.06
Zinc Can	1,050,000 pcs.	25,517	2,867.-	17,392.15
Carbon Rod	3,150,000	17,325	567.-	7,461.99
Wrapping Paper	3,150,000	531	52.2	1,497.90
Bottom Washer	3,150,000	2,025	360.-	896.91
Top Callar	3,150,000	2,025	360.-	896.91
Sealing Compound	8,200 kgs.	8,487	420.-	1,174.85
Brass Cap	3,150,000 pcs.	1,370	116.6	3,168.06
Vinyl Washer	3,150,000	702	63.5	1,585.31
Kraft Paper Roll	700,000 m.	5,390	542.-	2,065.93
Glue	300 kgs.	350	20.-	225.14
Bottom Steel	3,150,000 pcs.	5,343	337.-	4,042.79
Top Seal	3,150,000	4,725	450.-	4,796.10
Pointed Sheet	41,000	37,105	410.-	17,015.97
Zinc Pellet	43,000	-3,000		21,986.56
			F.O.B. Total	US$113,026.77
			Freight	22,960.--
			Insurance	1,497.--
		C.I.F.	Port of Entry	US$137,483.77

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TABLE 4

UNITED ASSEMBLY COMPANY

ECONOMIC OPERATING COSTS AND BENEFITS
(J. Dollars)

Project Year						
Benefits						
Imports Replaced:						
Model A @ 138 J dollars/thousand		511	1,049	1,311	1,380	1,421
Model B @ 119 J dollars/thousand		71	143	179	190	190
Model C @ 77 J dollars/thousand		15	31	39	39	39
Costs						
Raw Materials:						
Model A @ 90 J dollars/thousand		333	684	854	900	927
Model B @ 70 J dollars/thousand		42	84	106	112	112
Model C @ 44 J dollars/thousand		9	18	22	22	22
		384	786	982	1,034	1,061
Transport and Handling (6 percent)		23	47	59	62	64
Packaging		43	88	109	115	118
Direct Labour		28	56	59	62	65
Repair & Maintenance		24	24	24	24	24
Utilities		7	14	17	18	19
Salaries		57	59	61	62	64
Insurance		17	17	17	17	17
Advertising		8	8	8	5	5
Miscellaneous		3	3	3	3	3
Increase in Inventories	79	75	72	35	9	5
Sub-Total	79	669	1,174	1,374	1,411	1,445
Benefit (Cost)	(79)	(72)	49	155	198	205

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TABLE 5

UNITED ASSEMBLY COMPANY

ECONOMIC RATE OF RETURN: FIRST APPROXIMATION
(000 J. Dollars)

Project Year	0	1	2	3	4	5	6-12	13
Benefits								
Imports Replaced		597	1,223	1,529	1,609	1,650	1,650	
Residual Values:								
Fixed Assets								240
Inventories								274
Costs								
Fixed Investment	1,325	-	-	-	-	25	-	-
Operating Costs	79	669	1,174	1,374	1,411	1,445	1,440	-
Net Benefit (Cost)	(1,404)	(72)	49	155	198	180	210	514

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TABLE 6

UNITED ASSEMBLY COMPANY

ECONOMIC RATE OF RETURN: SECOND APPROXIMATION

(J$,000)

Project Year		1	2	3	4	5	6-12	
Benefits								
Imports Replaced		597	1,223	1,529	1,609	1,650	1,650	
Less: Adjusted Transport, etc.		(9)	(19)	(24)	(25)	(26)	(26)	
Residual Values:								
Fixed Assets								186
Inventories								274
Costs								
Fixed Investment	1,325							
Less: Adjusted Buildings (.8)	108							
Operating Costs	79	669	1,174	1,374	1,411	1,445	1,440	
Less: Adjustments for:								
Transport & Handling)								
Repair & Maintenance)								
Utilities)(.8)		(16)	(22)	(25)	(26)	(27)	(27)	
Insurance)								
Advertising)								
Miscellaneous)								
Direct Labour (.5)		(14)	(28)	(29)	(31)	(33)	(33)	
NET BENEFIT (COST)	(1,296)	(51)	80	185	230	214	244	460

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