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# Problems of Industrial Costing

by Professor Dr R. C. J. von Gersdorff, Campinas \*

**"Managerial technology" is as important as "medium", "labour-intensive" and other technology in the LDCs. This article describes the situation and some of the problems in the field of industrial costing, giving suggestions for solutions and exemplifying with research results obtained in Brazil.**

There is a growing need for improvement in costing techniques and cost reduction in all countries at the present time when world inflation and its cause, the raw material crisis, continues unabated and competition in many branches is getting fiercer and fiercer. Particularly the LDCs' situation is characterized by a number of deficiencies:

□ One can observe an astonishing absence of efforts to standardize cost accounting and accounting in general. Various systems are used in LDCs, imported from the USA, Europe, and Japan. This runs contrary to endeavours, for instance in the EC, to harmonize accountancy of multinational and other companies<sup>1</sup>.

□ Although some efforts have been made by US, AID, and UNIDO, cost profiles of the right kind are still not available in LDCs.

□ Endeavours to revitalize capital markets in LDCs, to overcome the present bearish situation, are more difficult because accountancy data are not standardized and disclosed – and if disclosed, at shorter intervals – with more completeness and trustworthiness. They are still too apocryphal. For e.g. in Brazil, up to now, only "open" stock corporations are obliged to elaborate balance sheets and profit and loss statements according to the standards issued by the Central Bank, the controlling institution. Not only for costing but also for industrial accountancy in general, for investment planning, credit applications, etc., it is absolutely necessary that this standardization be undertaken as soon as possible for all types and sizes of companies.

□ The lack of comparability of these data hampers research: similar industrial establishments, national and foreign, should be compared so that variances could be discovered and investigated.

Firms must be able to compare their own cost data with those of their competitors.

□ The profession which is mainly responsible for industrial costs are the engineers. Yet, no textbooks on costing techniques are available until now which are written specially for engineers.

The most important public institution that influences costing and pricing in LDCs is the price control authority. In the Brazilian region Campinas our sample survey (54 industrial firms) in 1974 revealed the following points regarding the CIP (Interministerial Council for Price Control):

□ Decisions on applications to CIP for authorization of price increases generally suffer a delay of 2 months. This causes reductions of profits or even losses because higher costs due to increases of raw material prices and prices of other inputs cannot be passed on to the consumers via immediate price increases of the finished products.

□ Price control by the CIP is a small brake on the pace of inflation but it does not really solve the problem. Some firms even ask for higher price increases than are strictly necessary, exaggerating cost hikes. Such kind of fraud has been going on with the corporate income tax when fictitious or "cold" invoices were used as proves for not really incurred expenditures or costs, diminishing taxable profits considerably.

□ CIP may allow, in certain cases, cost decreases by reductions of import tariffs, sales and turnover taxes (ICM and IPI).

□ If the CIP forces the firms to cut profits too much, foreign investment could be discouraged to a large extent although the Brazilian Government, at present, wishes to encourage foreign investment<sup>2</sup>.

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<sup>1</sup> For instance elaboration of the "Industrial Accounts Framework" (Industrie-Kontenrahmen, IKR) in 1971 in West Germany designed as model for the other EC-countries.

<sup>2</sup> cf. Finance Minister D. Netto, cited by D. Kebschull: Die ökonomische und politische Macht multinationaler Unternehmen (The Economic and Political Power of Multinationals), in: D. Kebschull/O. G. Mayer: Multinationale Unternehmen. Anfang oder Ende der Weltwirtschaft? (Multinational Enterprises. Beginning or End of the World Economy?), Frankfurt/M. 1974, p. 151.

□ Nevertheless, Brazilian industry is much more "cost-conscious" now than before due to the work of the CIP to which information on costs must be given on special forms, broken down into present and previous costs.

□ It would be very useful for industry itself, for instruction and research if the CIP would put at the disposal of the public "cost profiles" on the most important sizes of industrial establishments and branches of industry. Such profiles are for instance missing for investment planning and exercises at universities. What is available now are profiles of small and medium-sized American establishments<sup>3</sup> and of rather too big-sized establishments located in various LDCs, except Brazil<sup>4</sup>.

□ Increases of raw material prices, for instance, should be an incentive to cut costs in other cost centres so that cost increases can be compensated by these cost cuts. As examples for this the following cost reductions can be mentioned: advantageous purchases of other raw materials substituting those which became more expensive, increases of labour productivity and increase of sales. The latter can increase total profits by reduction of profits per unit sold. This should be the real *raison d'être* of capitalism. In fact, e.g. Brazilian entrepreneurs are still considered as having a "high unit profit mentality"<sup>5</sup>, a kind of mercantilist, pre-capitalistic spirit.

Government planning also has an influence on industrial costs, mainly on locational costs. Many data on industrial costs, including taxes, municipal services and others such as transport, health, education and training, tax incentives, land and factory buildings which are available, legislation, research institutions, etc., the interested entrepreneurs should be able to find in an "operations room" of the Planning Authority, avoiding losses of time with the search for such data at various places as is still necessary today. The above mentioned cost and investment profiles should be put at the disposal of the public in the operations room. They would serve also for the systematic identification of projects<sup>6</sup>.

The lack of long-term planning in LDCs is certainly due to erratic or irregular inflation which accustoms the firms to plan only for short- and medium-term periods. But once the Government succeeds to eliminate the erratic nature of infla-

tion — without being disturbed by inflationary pressures from abroad such as the recent oil crisis — many more firms can pass over to long-term cost and investment planning. Anyhow, at least three cost projections should be made: one conservative (projection of the historic trend), one optimistic and one pessimistic.

Whereas the technique of flexible budgeting (budgets for various levels of utilization of production capacity) is hardly used in LDCs, the technique of revolving budgets or rolling forecasts is quite common, a constant, periodical (mostly monthly) revision of the foregoing (or previous) budget, also because of the erratic nature of domestic and imported inflation. Some companies practise the projecting of the medium-term plan every month one month ahead. The non-use of flexible budgeting may be due to the fact that there is still a sellers market today, demand still exceeding supply. However, in case this situation changes to a buyers market, the use of flexible budgeting may expand.

Actually, four types of plans should be elaborated: Strategic plan (about 10 years), commitment plan (3 years), measurement plan (2 years) and resources plan (1 year).

Closely linked to the question of planning is the question of the use or non-use of break-even point analysis as a very valuable instrument for discovering the profit potential at the various levels of capacity utilization or size of production. Firms in LDCs, except multinationals, make break-even point analyses only sporadically, not regularly, periodically. Only in rare cases engineers also study this type of analysis although this would contribute to a closer cooperation between production, sales, accounting and the directors in general. Engineers should become not only "cost-conscious" but also "profit-conscious".

One advantage of this technique is that the information required already exists: the engineers should be able to supply the data about direct costs and indirect costs of production, the salesmen the sales costs and the accountants the other indirect costs.

Flexible budgets should be elaborated by all the firms, being indispensable in times of inflation. As these budgets are a series of fixed budgets for different volumes of production, the information required for break-even point and cost-profit-volume analysis is only a by-product of the current flexible budget.

The necessary division into fixed and variable costs — also for direct costing — is in some cases rather arbitrary because the firms have no guidelines and standards in this field. It should there-

<sup>3</sup> cf. USAID: Industry Fact Sheets, Washington, D. C., various editions.

<sup>4</sup> cf. UNIDO: Profiles of Manufacturing Establishments, 3 vols., Vienna / New York 1967-71.

<sup>5</sup> cf. Book Review of the present writer on R. Kahil's book: Inflation and Economic Development in Brazil, 1946-1963, Oxford, England 1973, in: KYKLOS, Vol. XXVI (1973), Fasc. 4, Basle, p. 895.

<sup>6</sup> cf. R. v. Gersdorff: Project Identification, United Nations Economic Commission for Africa, Addis Ababa 1967, UN Document No. E/CN. 14/CAP/10.

fore be a task of the Association of Manufacturers, the Chambers of Commerce and/or Government authorities to suggest such standards for the various branches of industry, production processes and sizes of establishment. This would, among other objectives, facilitate negotiations with development and other banks, price control and industrial development authorities.

Although the elaboration of budgets without the use of standard costs is not conducive to a real budget control system, many industrial firms in LDCs which practise short- and medium-term planning do not work with some sort of standard costing. However, the use of the American Methods Time Measurement (MTM), which serves the purpose of standard labour cost elaboration, is ever more expanding in LDCs. Even German affiliates, which were accustomed to the REFA system, use MTM now. Cost structures should actually be analyzed every month.

An interesting feature in the LDCs is that affiliates of multinational companies often apply standard costs there, which were calculated by them in their home-country. This can be done in the beginning of a firm's activities but the foreign standard should be gradually adapted to the conditions in the respective region of the LDC. As regards women labour, for instance, there are cases in which Brazilian women surpass the foreign standard but the great majority does not succeed to do this and remains well below the foreign standard (e.g. electronics industry). It is an urgent task for the private associations and the Governments in the LDCs to inform the firms about the absolute necessity to elaborate standard cost systems.

Although cost analysis is also required for the engineer's data control, engineers do not yet cooperate, on their own initiative, with the accountants. In some firms cost analysis is only done because of the price control authority's regulations. Even those firms which make cost analyses do not have a well defined, well organized and simple system. It seems thus desirable that a standardization should be elaborated for better information of engineers, accountants, directors, shareholders, creditors, price control, etc. This could be done by Government authorities in cooperation with industrial associations and universities.

Cost effectiveness defined as measurement of the most efficient production, following a certain standard, at lowest costs for maximum profit is not yet used in LDCs by non-multinationals; only a few multinationals use this concept and also profitability accounting. On the other hand, all the firms use the distinction between direct and indirect

costs in order to arrive at the cost prices, except a few small enterprises which are almost on the handicraft level. All engineers are required to make this distinction which is much more elaborate and detailed in the West German (RKW) system than in the others. There are quite a number of affiliates of foreign firms which, although not being multinationals, also get some 3 p.c. or more of the value of each order (on cost price) as "technical assistance fee". A comparison is made between estimated and real hours worked, reasons for variances are found out and corrected or, if errors in price calculations occurred, adjustments are requested from customers.

It is surprising to note that also the distinction between fixed and variable costs is widely used by industrial enterprises in LDCs, but this is not done systematically as in the case of direct and indirect costs. An explanation of this attitude may be that break-even point analysis and direct costing is also not used in an organized way and that inflation seems to permit making a profit anyway because demand and prices are rising constantly. As the distinction between fixed and variable costs has to be quite arbitrary, in certain cases, the issue of guidelines is highly desirable.

As the method of production in LDCs is mainly to order or series (batch) to order, the order of production costing is much more in use than production process costing. Calculation of costs by individual piece of equipment is not yet widely used in LDCs but it is expanding. Some firms use it for groups of certain types of machines. As they are composed mostly of different makes such calculation loses a large part of its utility. Japanese firms use to calculate an index number for their affiliates in LDCs regarding all costs, including costs per machine but excluding costs of materials. It is changed only after every 1½ or 2 years. The production is multiplied by the index (production process costing), and after addition of the materials costs, total and unit costs are computed. For the calculation of the index indirect costs, including depreciation, are distributed or allocated to the departments. The index is established according to the productivity of the machines so that the costs per machine are included in it. Production costs plus materials used are then compared month by month, also per unit of production, with the help of tables and graphs. Important is that engineers meet the accountants, at least once per month, in Japanese affiliates.

Cost-estimating and pricing with machine-hour rates is not yet widely used in LDCs for computation of the indirect cost index although this method is considered to be the most exact one for allocating indirect costs to products or depart-

ments<sup>7</sup>. In view of the increasing use of capital-intensive production processes a standardization of cost-estimating and pricing with machine-hour rates in LDCs seems to be indicated.

Surprising is the absence of incentives for labour, including group or team labour, to increase man-hour productivity, even in multinationals, although the use of MTM is expanding rapidly from multinationals to nationals in LDCs. It is often argued that labour is "cheap" in LDCs, but if high social security and other extra costs (58 to 76 p.c. of total labour costs in Brazil) and low productivity of labour is taken into account there is a case for establishing incentive schemes so that too low take-home pays and purchasing power can be increased. Almost nothing is done to give incentives to those workers who reached the standard or planned production per group or man and to those who made suggestions which can be used. No effort can be observed to introduce profit sharing schemes, for instance coupled or merged with incentive schemes.

Unit costs are widely used in LDCs for analysis of cost structure and unit cost prices, even by medium and small firms. In some countries this is necessary anyhow for getting the approval of the price control authority to which also the profit per unit produced must be reported. The monthly cost composition of the unit price charged must be analyzed. These authorities should publish not only the unit prices approved but also typical cost profiles which are considered desirable, mentioned above. The use of increment, differential, or marginal cost calculations is increasing in LDCs. In order to avoid additional accounting costs engineers should be trained already at college to work with this type of calculation.

All industrial firms, multinational and national, in LDCs accustomed themselves to use cost ratios for analysis. Lack of space does not permit to give a list here<sup>8</sup>. Comparisons in time (month by month, year by year, etc.) are widely used but the lack of standardization of accounting does not yet permit comparisons by plant, establishment or enterprise, for comparisons with competitors, for research, etc. The use of cost and other ratios should also be standardized as soon as possible in LDCs so that especially medium and small firms as well as research institutions can take advantage.

Firms in LDCs should make more use of physical parameters such as man-hours, machine-hours, etc. The percentages would serve to explain

costs better to foremen and supervisors, for instance maintenance and cleaning costs increased by x p.c. and not only by x monetary units.

There is some effort in LDCs, but no *systematic* cost reduction has been introduced yet, except by some very few multinationals. A couple of firms, specially in the heavy inflation-ridden countries, introduced cost reduction because of the price control authority. Firms which have organized already a Cost Reduction Commission admit that it is still (or again) not working at all. In LDCs, which have "mild" or "moderate" or no inflation, cost reduction is necessary because of increased competition. Some multinationals already introduced "value analysis", i.e. analysis of the function, cost and quality of each part of a competitor's product in order to discover weaknesses and strengths of own product as well as possibilities to economize without reducing quality.

Incentives for cost reduction are rarely given in LDCs and some national firms even reduce quality in order to reduce costs. There should be, in each firm, a permanent Cost Reduction Section, with at least one engineer and one accountant, and one Cost Reduction Commission. Only a few multinationals established such a Section which plans cost reductions and supervises the execution of these plans, using Savings Calculation Sheets and Cost Improvement Reports. Very few multinationals run courses and distribute papers in the form of programmed or ordinary learning on cost reduction. Simplifications of bureaucratic as well as production processes and layouts are seldom made in LDCs. Impressive is the negligence with accident avoidance in LDCs. One can easily observe dangerous machines without security or protection devices which could be installed without great costs and advantage of trade-off with expenditures and diseconomies because of accidents. The same is true in regard to hygiene.

We do have the impression from our sample research in Brazil and elsewhere in LDCs that the firms want progress in cost accounting and engineering economies. The engineer and cost accountant in LDCs should therefore have knowledge and expand it in the following areas:

#### Costs

- ☐ costs in general, direct-indirect, fixed-variable costs,
- ☐ physical (non-monetary) proposals must mention the costs, including labour and social costs,
- ☐ effects of changes of physical items on total, unit, and other costs,
- ☐ solving problems created by price control,

<sup>7</sup> cf. S. A. Tucker: Cost-Estimating and Pricing with Machine-Hour Rates, Englewood Cliffs, N.J., 1968.

<sup>8</sup> See list in R. v. Gersdorff: Industrial Costing in the Region of Campinas, Brazil: Situation and Problems (version in Portuguese), Universidade Estadual de Campinas, I.F.C.H., Campinas, S.P., 1974, p. 56.

- ☐ cost estimates and business analysis from the financial point of view,
- ☐ knowing industrial costs, cost categories, structures and analysis,
- ☐ reduction of costs,
- ☐ increasing batch sizes,
- ☐ knowledge in industrial economics,
- ☐ know-how in budgetary control,
- ☐ thinking in technical alternatives and economies, considering costs of each alternative,
- ☐ working with "make" versus "buy" or "lease" considerations,
- ☐ familiarity with market and with costs elsewhere and in competing enterprises, cost and profit thinking<sup>9</sup>,
- ☐ making cost budgets,
- ☐ distributing overhead on direct costs, overhead cost absorption,
- ☐ standard costing and increase of standards, measurement of variances not only in physical

units (quantities and labour time) but also in monetary units.

#### Investments

- ☐ project identification, elaboration, implementation and control<sup>10</sup>,
- ☐ discounted payback period and cash flow analysis,
- ☐ technical and economic feasibility studies<sup>11</sup>,
- ☐ technical alternatives in terms of costs,
- ☐ making projections and risk analyses,
- ☐ break-even point analysis,
- ☐ purchase of equipment which does not create bottlenecks,
- ☐ substitution of machines and equipment in view of costs.

<sup>9</sup> cf. G. Nowak: Das Kostendenken des Ingenieurs (The Cost Thinking of the Engineer), Düsseldorf 1973.

<sup>10</sup> cf. R. v. Gersdorff: Suggestions for the Elaboration of an Operations and Office Services Manual for Plan Control and Implementation, United Nations Economic Commission for Africa, Addis Ababa 1967, UN Document No. E/CN.14/CAP/25.

<sup>11</sup> cf. R. v. Gersdorff: The Making of Feasibility Studies, in: International Handbook of Management (New York: McGraw-Hill Book Co., 1965).

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### Foreign Capital

# Legal Aspects of Private Foreign Investment

by Dr Günter Wiedensohler, Hamburg \*

**The marked dependence of the safety and commercial success of direct investments upon regulations enjoined by law or treaty poses a problem of topical significance.**

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There is less scope today for financing development projects inside the countries of the Third World than there has ever been. International private initiatives are for this reason of growing importance in addition to the public capital aid, and the legal position deserves being given particular attention in this context because commitments in overseas areas by foreign firms depend largely upon the extent to which such activities are protected and encouraged by legislation. It is understandable that private investors avoid transferring capital to states where undue restrictions are imposed upon independent commercial activities through economic enactments.

To create a climate for successful investment a fair balance has to be struck between the interests of the capital owners and those of the host country. The status of foreign investors is governed by a wide spectrum of legislative measures:

regulations about administrative procedures, taxation and public charges, employment of local labour, ownership and transfer guarantees, injunctions against discrimination, price controls, social security contributions, etc.

The main impediment to the increased investment of foreign private capital is fear among business firms that their assets may one day be expropriated or nationalized without compensation by the country in which the investment is to be made. Various warranties for their security are in fact offered by the laws of overseas countries for the encouragement of foreign investments but few of them give absolute protection — for a certain period or all time — without qualifications against measures of this kind. Most legislators assume *a priori* that private foreign property rights may be infringed by sovereign acts when, although only when, these acts serve a public interest, and guarantee fair compensation which may be trans-

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