Institute of Economic Development and Research
SCHOOL OF ECONOMICS
University of the Philippines

Discussion Paper No. 68-30

ECONOMIC INCENTIVES, INDUSTRIALIZATION AND EMPLOYMENT
IN THE DEVELOPING ECONOMIES

by

Gerardo P. Sicat, 1935

NOTE: IEDR Discussion Papers are preliminary versions circulated privately to elicit critical comment. References in publications to Discussion Papers should be cleared with the author.
ECONOMIC INCENTIVES, INDUSTRIALIZATION AND EMPLOYMENT
IN THE DEVELOPING ECONOMIES

by

Gerardo P. Sicat

Every agent of production, land, machinery, skilled labour, etc., tends to be applied in production as far as it profitably can be. If employers, and other business men, think that they can get a better result by using a little more of any one agent they will do so.

Alfred Marshall,
Principles of Economics
(8th Ed.), p. 521

"... the high capital-intensity of the modern sector reduces its capacity to offer employment. Too low rates of interest and of foreign exchange combine with too high wages to make it profitable to substitute machinery for labor."

W. Arthur Lewis,
Development Planning
(1965), p. 77

I. INTRODUCTION

Almost a quarter century of overt industrialization policies is now in existence among many developing countries of Latin America and Asia. In spite of some relatively promising cases, there has been general disenchantment with the accomplishments of these policies as we assess them in the

*I am grateful to John H. Power, Harry T. Oshima, George Rosen, John G. Gurley, and Dean A. Worcester, Jr. for their helpful comments and suggestions on the preliminary draft of this paper. Earlier discussions with J. Encarnación Agustín Kintanar, Jr, and J.G. Williamson have also been useful. A grant from the Rockefeller Foundation provided financial support for this research. I release all the above for the views expressed below.

1Reference is made only to underdeveloped countries which do not belong to the sphere of socialist centrally-planned economies.
late sixties. The growth of output in many of these countries has not been impressive. Population growth in these regions, especially the ones in Asia, has almost cast a Malthusian spectre on the future especially considering the evidence that industrialization has not brought along with it the effective transfer of the excess agriculturally dependent labor into industry. The shortcomings of import substitution as an industrialization strategy, at least the failures of specific brands of strategy, have been the subject of vigorous discussion and reassessment.

This paper focuses on the relationship between industrial attraction policies in the developing economies, their peculiar characteristics in respect to factor use, and their effects, specifically, on generating new employment. The policies which promoted industrialization in these economies have been directly based on investment incentives, usually in the form of tax incentives combined with monetary, foreign ex-

---


change and tariff policies. The sixties have brought relative
disfavor to foreign exchange control policies. Research on the
structure of tariff protection in these economies has also em-
phasized the bias against domestic integration and export growth.

Industrial promotion laws have continued to exert a
popular appeal, with greater emphasis especially more recently
on generous fiscal incentives to private industry, usually in
the form of tax exemptions to new investments. While granting
these concessions, some of these countries have also busily at-
ttempted to modernize their labor laws by imposing minimum wages,
encouraging labor unions, and setting up elaborate social secu-
rit y systems. This phenomenon has been observed in differing
varieties, of course, among different countries. An examina-
tion of their relative resource endowments will reveal that
many of the countries adopting these combinations of policies
are of the "labor-surplus" types.

We shall try to emphasize in this paper that the in-
ability of the industrial policies of many of these countries
to realize relatively more employment is basically, although

"See Power, op. cit. and R. Soligo & J. Stern, "Tariff
Protection, Import Substitution and Investment Efficiency,"
Pakistan Development Review (vol. V, no. 1, Summer 1965). The
general pattern of tariff protection is the same as those of
the Western Industrialized nations. For the summary of the
recent studies on tariff structure of the advanced countries,
see H.G. Johnson, Economic Policies Towards the Less Developed
Countries (Brookings Institution, 1967).
certainly not wholly, due to a defect in the structure of the economic incentives concerning industrial promotion.

II. TOWARDS A CLASSIFICATION OF ECONOMIC INCENTIVES IN RELATION TO FACTOR USE

In the literature on production functions and technological change, there is a useful distinction between different types of technological change in relation to factor use: factor augmenting (or factor-saving) and neutral technological change. It will be extremely useful to have a similar classification of development incentives.

A classification is therefore proposed which emphasizes the relation of the economic incentives to factor use and unambiguously points to the factor that benefits from the particular incentives. Two specific distinctions that may be used among investment incentives are: (1) the factor-use biased incentives and (2) the factor-neutral incentives. In a production function having as inputs capital and labor, the factor-biased incentive may be either capital-use biased (CUB) or labor-use biased (LUB). In contrast to a factor-biased incentive, a factor-neutral incentive will not induce directly the relative utilization of one factor as against the other.

In a profit maximizing setup (or its dual, the cost minimization procedure at all levels of output), the factor price ratio and the shapes of production isoquants are critical.
The following figure will help to illustrate the classifications which are proposed. Suppose that the ray from the origin indicates the expansion path of output at a specific factor price ratio that would be obtained in the absence of any economic incentives. The expansion path will reflect equilibrium capital-labor configurations as the firm, or industry, moves from one output level to another (e.g., from $Q_1$ to $Q_2$) at which the firm achieves least cost optima at specific output levels, given the input prices.

Since the incentives often affect factor prices, it will be useful to classify incentives in terms of their effects on the relative factor prices. An incentive instrument which does not affect the factor price ratio of capital and labor, that is, one which stays along the expansion path, is factor-neutral (for instance Point A). Incentive instruments which affect the prices of the inputs disproportionately, also shift the factor price ratio from the factor-neutral expansion path. Thus, if we assume entrepreneurs take advantage of them, as indeed they must if the incentives are to be of use to policy, they result in a factor-use biased incentives, since there is encouragement for the use of the factor the price of which is relatively cheapened. Point B is more capital-intensive than C, as one can easily verify from the diagram by taking the implied capital-labor ratios.
Disincentives which affect the price of any of the two inputs can also be treated likewise. For instance, the imposition of a tariff on capital imports, other things equal, will work against capital-use; it will therefore be labor-use biased. On the other hand, a minimum wage law becomes an incentive for capital-use, that is, it is an incentive which is capital-use biased. This argument rests on the existence of substitution possibilities between capital and labor, to which we shall make reference later.

The distinction we have just made will assume crucial importance for the following discussion.
III. ECONOMIC INCENTIVES (AND DISINCENTIVES) IN THE DEVELOPING ECONOMIES

The economic incentive instruments often find themselves appearing in the following areas of policies designed to stimulate industrial development: (1) fiscal, (2) monetary in the sense of commercial bank and long term lending, (3) foreign exchange, (4) tariff, (5) regional, and (6) export. We may also add to these policies those connected with improving the labor welfare and the area of policy known as manpower development. A brief survey of these incentives will be made in this section, pointing out their effects on factor use. We should be more interested in the emerging net structure of economic incentives after considering all these policies.

✓ The recent Philippine investment incentives act of 1967 provides a wide-ranging introduction and contains many features of recent incentive taxation in effect in many developing countries.

A significant list of 8 specific incentives are provided for enterprises which are allowed to register under this law. These are as follows:

(1) Deduction of organizational and pre-operating expenses from taxable income

(2) Accelerated depreciation

Two types are available: (a) for fixed assets having less than 10 years in life, not more than twice the rate of "normal" depreciation; and (b) for fixed assets having more
than 10 years of life, depreciation may be over any number of years between 5 years and expected life.

(3) Net operating loss carry-over

A net operating loss incurred during the first 10 years may be carried over as a deduction from net taxable income for the six years immediately following the year of the loss.

(4) Tax exemption on imported capital equipment

(5) Tax credit on domestic capital equipment

(6) Tax credit for withholding tax on interest

(7) Employment of foreign nationals

(8) Deduction for expansion and reinvestment

(9) Anti-dumping protection

(10) Protection from government competition.

In addition to the benefits given to registered enterprises, "pioneer" enterprises are allowed the following incentives:

(1) Income tax exemption that graduates in diminishing rates from the date of Effectivity of the Act to 1981 as follows:

(a) 100 per cent up to December 31, 1972;
(b) 75 per cent up to December 31, 1975;
(c) 55 per cent up to December 31, 1977;
(d) 20 per cent up to December 31, 1979;
(e) 10 per cent up to December 31, 1981.

(2) Additional privileges to employ foreign nationals under certain conditions (not covered in privileges to other registered enterprises).

(3) The application of additional tariff, with certain limits, after the operation of the enterprise.
One will note that, in general, the incentives are CUB in characteristic.

We shall now have a brief review of the incentives and their classification in terms of resource use for most of the developing economies. As this brief survey covers a complex field requiring much knowledge (of which this author confesses enormous limitations), one can only hope to make comments on facts or judgments either based on secondary sources or on my more limited experience with respect to the Philippines and some Asian countries.

1. Fiscal incentives. The catalogue of tax incentive policies for underdeveloped countries is an impressive, long, and varied list. Heller and Kauffman have made a review of tax incentives for industrial promotion among the developing countries. Recently, a study of the fiscal system in Asian countries devoted a chapter to tax incentives for encouraging industries in the Asian countries.


The Heller-Kauffman study surveys tax incentives legislation over a wide class of countries, including Argentina, Ghana, India, Jamaica, Mexico, Pakistan, Peru, Philippines, Puerto Rico, Italy, Taiwan, and Vietnam. Tax incentives are classified by Heller-Kauffman into two general categories: (1) exemptions from a variety of taxes and (2) special allowances through the income or corporate income tax that reduce investment costs through reinvestment and depreciation benefits.\(^7\)

The first category of tax exemptions include exemptions (a) from the income tax for a specific period during the early life of the enterprise, (b) from the income tax of dividends earned by shareholders, and (c) from customs duties which apply to the importation of machinery, equipment or raw or semi-finished materials needed for the manufacture of commodity being produced. We note that these varieties are present in the Philippine investment incentives act referred to.

Under the second category of special allowances, the two most popular deductions are formulas for accelerated depreciation\(^8\) and reinvestment allowances. These schemes appear

\(^7\)Heller and Kauffman, op. cit., pp. 24-36.

\(^8\)It can be argued, of course, that so long as the depreciation methods have the same effective tax rate on taxable income, accelerated depreciation will not discriminate between alternative investments. I have a hunch that many
in several forms in the investment incentives laws of Taiwan, India, and a number of countries. Accelerated depreciation is of special importance because it discriminates in favor of the earlier years of the acquisition of capital equipment. Thus, it may disproportionately favor capital-intensive investments. When complemented with generous reinvestment allowances as well as early loss write-offs, the incentives to purchase capital-intensive machinery are certainly reinforced.\footnote{A point which is of interest here concerns the effects of certain types of investment incentives when differing profitability calculations are made to bear on decisions affecting capital-intensity. A recent theoretical study has come to the conclusion that calculations based on the "pay-off period or present-value" criteria result in more capital-intensive techniques. The "accounting rate of profit" criterion has no effect on capital-intensity. See G.C. Harcourt, "Investment-Decision Criteria, Investment Incentives and the Choice of Technique," \textit{Economic Journal} (vol. LXXVIII, No. 309, March, 1968), pp. 77-95.}

In conclusion, most of the fiscal incentives considerably help to cheapen the cost of capital equipment (and other imported inputs) and are in effect CUB.
2. Monetary policy, or commercial and long term lending policies. Monetary policy differs for different countries. In the inflation-ridden developing economies, interest rate policies may have been allowed to float with prices, but there is one element of monetary policy in inflationary situations which is probably generally applied. Preferential access to loans were generally given to industrial activities, and such access had the effect of cheapening the price of capital. To what extent wage levels move in relation to the price of capital in preferred industrial undertakings is vital to our assessment as to whether interest rate policy in general has been factor-biased or not. The redistributive effects of inflationary policies which presumably work against wage-earners also tilt income redistribution in favor of entrepreneurs.  

When the relative rise in wages is not commensurate with the rise of profits, LUB incentives result. But this is a tricky question. Consider the Philippine case where the apparent fall in real wages in the last decade has been due to rise in the prices of wage goods, notably food. Lower real wages to the workers here have not resulted in lower real wage

---

10 These comments are supported by the experience of Brazil, at least, where inflation has been interpreted as the reallocating mechanism for economic resources. See W. Baer, Industrialization in Brazil (Homewood, Ill., Richard D. Irwin for the Yale Economic Growth Center, 1965), pp. 116-35.
costs in industry. The exchange liberalization program after 1960, which eventually led to devaluation, resulted in higher local prices for imports and import substitutes. The fall in real-wage rates was a fall in real wage costs in manufacturing, and consequently resulting in LUB effects. (We may add, however, that these effects were negated by an increase in the minimum wage rates, tariff policy, and continued low-interest rate policy for long term loans).

In many Latin American economies, the real interest rate has been very low, if not negative, and the fall in real wages has been in the form of increasing prices of wage goods, followed by upward pressure on money wage rates, thus resulting in CUB.

In economies with moderate inflation, interest rate policy was in general favorable to capital-use. Preferential access to long term funds at relatively low interest rates of 8 per cent per year has been characteristic of the development of the import substitution industries in the Philippines, although quite a few of the industries which could not get access to long term funds were able to secure financing from commercial banks at much higher interest rates. In general, therefore, monetary policy for industries promoted by the state was generally favorable to capital-use, due to a relative cheapening of capital. Since monetary and long term lending policy
was administered often without basic reference to, say, the utilization of labor, any direct effects on the cost of capital was to reduce it, the incentives tended to be CUB.

3. **Foreign exchange policy.** One of the justifications used by countries that resorted to foreign exchange controls was to have a means of allocating scarce foreign exchange resources. In countries where the import substituting industrialization programs were spawned by foreign exchange controls and balance of payments crises, the imports of the new industries received preferential treatment. Since they could buy foreign exchange cheaply, at the official rates, they were able to obtain enormous windfalls in the system. If the imports are capital goods, the acquisition of capital at low exchange rates definitely shows a capital-using bias in the policy. If the imports are raw material imports for the industries, the bias is one in favor of foreign inputs against domestic inputs including labor.

Where foreign exchange policies are liberal, the exchange rate essentially exercised a neutral role in regard to factor use. One can add, however, that only a few developing economies would qualify under this description -- perhaps, the notable exception is Hongkong. In all the rest of the developing world, different degrees of foreign exchange policies are also altered by the structure of tariff protection. Despite
the gradual movement towards liberalization in the sixties, there are still degrees of foreign exchange controls being exercised everywhere.

4. **Tariff policy.** With exchange controls, tariffs play secondary roles in industrial promotion policies. In many countries where some form of liberalization from foreign exchange controls has taken place, tariffs have assumed an important role. This is, for instance, the case of the Philippines. The tariff structure in this country has reassumed the pattern of incentives which allowed the early industrialization pattern to flourish, in general, being biased against backward integration and against export expansion.\(^{11}\) This pattern of protection, although emanating from output-price relations, encourages those industries which were earlier the beneficiaries of foreign exchange control allocations. The low tariffs on parts and raw material inputs create an inducement in favor of foreign inputs. Low tariffs -- if not duty-free arrangements -- on capital goods cheapen them. On balance, tariff policies when they acquire the structure of bias against backward integration or export expansion, as they still appear to be among many developing economies, tend to lead also to a capital-biased incentive pattern.

\(^{11}\)J.H. Power, *op. cit.*
5. Regional development policies. Many developing economies have paid only lip service to regional development, although we now have outstanding experiments in the industrial estates, especially in the Asian region, in Taiwan and Singapore.

In the early fifties there was a relative neglect of this branch of policy among many developing countries. Locational decisions were not consciously promoted by development policy.

There is at least one variant of regional development policies which was used in inducing regional growth in Southern Italy. The policy is a tax incentive which allowed exemptions from the income tax of up to 50 per cent of declared profits for any Italian company that invested in Southern Italy. We have argued previously that this form of tax incentive used to attract investments in a less developed region has a CUB characteristic.

What about the industrial estate experiments that have been set up in some countries, notably, in Asia, the Jurong estates in Singapore and Kaushung in Taiwan? Apart from the availability of good industrial lands with relatively cheap power

and excellent harbor facilities -- which would tend to be factor-neutral in themselves -- the other incentives are capital-biased tax incentives which have been described already. In India, firms in industrial estates had the advantage of easier access to cheap foreign exchange allocations.

6. Export promotion policy. The successful export-oriented countries of Taiwan, South Korea, Hongkong have taken full advantage of tax-related incentives already mentioned which are generally CUB. But in addition, aggressive export and long term credit assistance has been part of the scheme for exports. But all these countries have not been hampered by labor laws which sanction higher wage floors which are out of line with equilibrium wage rates. In short, very cheap labor had played probably a forceful role in preventing the CUB incentives into playing their full influence. In the case of Pakistan, an export bonus scheme which is factor-neutral but completely tied to export performance has been the key to the success of new exports from that country. Taiwan and Korea are also particularly distinguished in the sense that they have emphasized agricultural growth and productivity and tied most of their early development to this fact.

7. Labor and manpower policies. At the beginning, it was mentioned that many developing countries have attempted
to modernize their labor laws. Through the imposition of minimum wage legislation, regulation of working hours, social security system, encouragement of labor unionism and many other "modern" labor laws, some of these countries were able to push up the legal price of labor. We emphasize here the word legal because these laws tend to be effective only for enterprises which are able to attain sufficient scale to be organized on a factory basis. The organizational requirements of larger scale enterprise expose the firm to the necessity of greater compliance with ill-advised labor laws. In a labor surplus economy, the imposition of minimum wages for instance need not cause an increase of the average wage rate paid to labor. Since many workers find themselves unable to gain employment at the legal minimum wage, they seek other employment (including self-employment) at much lower wages. If the economy is characterized by underutilization of existing labor resources, minimum wages are extremely difficult, if not impossible, to enforce.

But the existence of such labor laws combined with the presence of the different policies just mentioned tend to increase the bias of CUB incentives. In other words, the labor laws have worked against more employment. The cost of this incentive against labor becomes clearer if we examine the

---

An interesting analysis of minimum wage policy in the setting of a growing labor-surplus economy has been made by Llyod G. Reynolds, "Wages and Employment in a Labor-Surplus Economy," American Economic Review (vol. LX, no. 2, May 1965), pp. 19-39. Reynolds has found that the attempts to increase
effects of these laws on the choice of techniques among foreign investments. Being outsiders, foreign investors have to be more careful than perhaps indigenous entrepreneurs in complying with all labor laws of the host country.\textsuperscript{14} The modern labor laws in a setting of CUB policies and of relatively high unemployment or of labor underutilization, cause foreign investments (and the organized manufacturing sector) to utilize relatively more capital per unit of labor than would have been called for otherwise.\textsuperscript{15}

A discussion of manpower development policies, in contrast to labor welfare policies, and the issues involved would carry us into an intricate problem. There has been generally

the minimum wage in Puerto Rico "has stimulated management responses which have restricted the rise of employment," p. 35.

\textsuperscript{14}Of course, foreign investors have not necessarily been completely law abiding. Myrdal has recently observed in the context of Asian countries:

"Western business representatives ... in private conversation ... are frank to admit that it is necessary to bribe high officials and politicians in order to get a business deal through and to bribe officials both high and low in order to run their business without too many obstacles. They are quite explicit about their own experiences and those of other firms. These bribes, they say, constitute a not inconsiderable part of their total costs of doing business in South Asian countries...."


\textsuperscript{15}For experience in India, which is relevant to this point, see G. Rosen, Industrial Change in India (The Free Press, Glencoe Ill., 1957), especially Chapter 7.
comparative neglect of the positive aspects of manpower development in the sense of planning development for vocational and higher skills. The general impression one gets -- from a cursory study of the economic plan documents of the 1950's -- is that the promotion of economic development would automatically take care of employment and other manpower problems. Thus, aside from some brief lip service paid to manpower development and employment projections, development plans would proceed to other problems of public and investment expansion.

Yet an important cost of employment creation, aside from the wage rate (which as we have seen has already been artificially jacked up by welfare policies affecting labor) consists of the marginal costs of hiring, training, and developing skills, which are often borne by industrial firms. A wellconceived manpower development program should be able to shift part of these costs to the public sector, so as to make employment creation relatively attractive, perhaps in the form of incentives tied to investments. This point also necessarily leads to an assessment of the educational system and its responsiveness to development objectives. The conclusion we reach is that the area of manpower development policies, which are essentially LUB, is less developed com-

pared to the laws which artificially raise the price of labor in the hope of improving labor's welfare. This makes us conclude that the net effect of labor and manpower policies is to produce a CUB incentive.

8. Other policies. We shall briefly record here that other important policy areas have implications on resource use. For instance, policies toward smaller scale enterprise have, in general, LUB effects. Although many countries have paid some amount of attention to small scale enterprises, the policies which emphasized the CUB influences, as we have surveyed them earlier have swamped the amount of attention that smaller scale industries need. In India, it is stated that the major emphasis of industrial policy has been biased against the small scale enterprise. The major source of development finance in the Philippines -- the Development Bank of the Philippines -- has been more predisposed to large loans than smaller ones.

There is one strand of employment creation which we shall briefly mention here. Some writers have come to the conclusion that a large rate of absorption of labor into industry can come about faster from a high rate of expansion of smaller

---

17This is the conclusion of the report of an official study headed by P.C. Mahalanobis, cited in G. Myrdal, op. cit, p. 930. See also, G. Rosen, op. cit., p. 156.

18A bank for cottage industries is rendered inopera- tional due to lack of public funds to capitalize it.
Therefore, far greater policy attention should be given to smaller scale industries. However, the attention given generally to small scale industries (a desirable LUB policy), as the earlier pages will imply, is of secondary nature compared to the policies which have been emphasized to accelerate industrialization, which are in general CUB in orientation.

We conclude this section with the impression that the net structure of the economic policies have a capital-using bias. Many of these economic policies have a self-reinforcing effect in making for CUB biases. There has been on the whole a stress of economic policies in the developing countries which are overwhelming biased in favor of capital use. Such policies therefore have less emphasis on labor absorption.

IV. INCENTIVES NEED NOT BE CAPITAL-USE BIASED

We have shown that, on balance, the net structure of economic incentives are capital-use biased (CUB). The response of entrepreneurs to the incentive structure is a matter of fundamental value. Therefore, before a judgment can be rendered on the wisdom of this particular pattern of incentives, it is useful to examine what we know of entrepreneurial behavior.

What evidence there is about the industrialization attempts of the developing countries suggest that entrepreneurs respond positively to the net structure of incentives. Entrepreneurs in the developing countries have been induced into industries having relatively higher profitabilities as a result of the net structure of incentives. In countries where import substitution policies were stressed, import substituting industries heavily dependent on government protection have grown. This is particularly the Latin American case as well as that of India, Philippines, and even Thailand today. In the countries which stressed export-oriented development, entrepreneurs have moved into export related industries. Foreign investors have also responded in accordance with the structure of economic incentives. In the Philippines where import substitution was a major stress of all economic policies, they went into import substitution industries.\textsuperscript{20} We also have the following observation of Hirschman, especially with respect to foreign enterprise:

\ldots Foreign firms have been known to be quite adaptable in their manufacturing and export policies. Just as they have been coaxed by national policies to produce or procure domestically a larger proportion of their inputs,

\textsuperscript{20}See G.P. Sicat, "Economic Incentives and Foreign Investments" (Discussion Paper No. 68-15, April 22, 1968, Institute of Economic Development and Research, University of the Philippines).
so they could be induced to engage on export
drives."21

A recent study of Pakistan's development has also emphasized
the role that economic incentives played in shifting entrepreneur-
neural efforts from trade into manufacturing.22

However, while we can now say that the structure of incentives create a predictable response from entrepreneurs, still a significant question to ask is whether the net pattern of incentives is the desirable one.

In particular the heavy reliance on capital-use as a major tool of incentive policy among the developing economies raises an important question. Are there any strong theoretical reasons or empirical evidence to support the hypothesis that without CUB incentives investments would not have taken place? If the answer to this question is affirmative, then the emphasis on CUB policies is a correct one. Below, we shall try to show that both the theoretical and the empirical foundations of the effectiveness of CUB incentives are rather weak.

Experts have given a relatively unenthusiastic appraisal, at least, to the tax incentives which have become a vogue

21A.O. Hirschman, op. cit.