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CORRUPTION AND INDUSTRIAL GROWTH UNDER ARTIFICIAL EXCHANGE RATES

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Corruption and Industrial Growth under Artificial Exchange Rates

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Much of the corruption in Pakistan industry stems from an unrealistic official exchange rate. The dollar sells for Rs. 4.75 in the official market but for two to three times that much in the free market, allowing handsome profits for those who can trade in both. This paper describes how corruption works through overinvoicing of capital equipment imports.[1] Moral dimensions of the problem are ignored; the central question is how overinvoicing affects the allocation of investment and therefore the structure of industry -- how (and by how much) overinvoicing changes the costs of capital to the men who make investment decisions.[2] The logic of the problem can be

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[1]With an artificial exchange rate, the government establishes a set of prices that make certain transactions highly profitable. At the same time, it establishes laws making those transactions illegal. We call it "corruption" when people follow the government's price incentives instead of its contradictory legal incentives.

[2]After completing this paper I discovered Bhagwati's excellent analysis of the statistical and financial problems created by faking of foreign trade declarations [1]. It is nicely complementary, both in generalizing the devices and incentives for faking invoices -- over and under invoicing of imports and exports -- and in analyzing their impact on real and apparent balance of payments accounts. On the subject of this paper, however, Bhagwati does not touch.

developed with simple equations but an understanding of over-invoicing and its consequences does not depend on algebra. The reader who finds equations more a hindrance than a help can omit them and still get a clear sense of the shape and magnitude of the problem.

For those unfamiliar with the system, overinvoicing works like this: An industrialist whose new factory has been sanctioned (i.e., approved officially) will arrange with a foreign supplier to sell him equipment at a fictitious invoice price, higher than the price he actually pays. Presentation of the partly fictitious invoice to the foreign exchange authorities entitles the industrialist to buy the full invoice amount of foreign exchange at the official rate of Rs. 4.75 to make payment. The portion of the invoiced amount that represents overpayment is then deposited by the supplier to the industrialist's account in a foreign bank and, because of the disequilibrium exchange rate, it can be sold for rupees at the higher black market rate. Therein lies the foreign exchange profit to the industrialist. The deception of overinvoicing, of course, is necessary because the government makes it illegal for anyone openly to trade foreign exchange between the official and the black markets.

Part I devises a way to measure the incentive effects of overinvoicing by computing the financial -- foreign exchange market -- profits that reduce the real costs of capital equipment to the industrialist. The size of these financial profits can be estimated for Pakistan to see if they are large enough to

influence behavior -- they will affect investment only if they are not trivial. In Part II, the impact of overinvoicing profits is expressed, alternatively, in the effective exchange rate for capital imports that includes both tariff and the subsidy of overinvoicing profits. Finally, in Parts III, IV and V, the simple analysis is made more realistic by considering the price distortions that overinvoicing creates among capital goods and what these imply for industrial development and performance -- foreign capital intensity, capital utilization, and employment and output growth.

The facts and estimates in this paper are Pakistani, but the forces described apply to any underdeveloped country with an effectively overvalued domestic currency. Overvaluation creates the incentives to overinvoicing capital imports and competition among foreign equipment suppliers guarantees dissemination of the techniques of overinvoicing. So misallocation of investment due to overinvoicing of capital imports is one among the many development problems of distorted incentives created by an artificial exchange rate [2, 3, 11].

I. The Foreign Exchange Profits of Overinvoicing

In overinvoicing, a real transaction (the purchase of equipment[3]) is used as the vehicle for a financial transaction

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[3]"Equipment" is used to emphasize that the analysis deals with real capital investments. But it applies equally to non-

(the purchase of cheap dollars for resale in the black market). These are two sides of the same coin, of course, but it is helpful at first to separate them and look only at the financial transaction -- at the profit earned through the foreign exchange purchase and sale. It is important to note that we are completely disregarding any profit the industrialist may expect to earn on products made by the equipment. In order to see the magnitude and effects of the financial incentives alone we are explicitly ignoring what is usually taken to be the only reason for importing capital equipment -- expected operating profits.[4]

The amount of financial profit (in rupees) from an over-invoiced capital goods import is, simply, what the industrialist earns by selling his Swiss bank deposit on the black market, less what he paid for it. So,

$$(1)\quad P^r = E_b(C_i^{\$} - C_a^{\$}) - (1+t)\, E_o\, (C_i^{\$} - C_a^{\$})$$

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tangible imports of services that go into an investment budget -- consultant and engineering services being the most obvious.

[4] A more general analysis of allocational distortions of overinvoicing would have to recognize, in addition to financial profits and operating profits, the trading profits possible from reselling license-restricted imports at a domestic price higher than landed costs plus tariff [8, 10]. If trading profits were sufficiently large and licenses were issued for a limited value of import, there would be an incentive to underinvoice the imports and buy black market foreign exchange to pay the excess of actual overinvoiced value [1]. The reason for ignoring this possibility here is simply that a small part of industrial investment in Pakistan can be resold, hence trading profits don't figure prominently in investment allocation decisions.

where the first term is proceeds (the amount earned by selling the overinvoiced dollars ($C_i^{\$} - C_a^{\$}$) at the black market exchange rate E_b and the second term is costs (the amount paid to buy the ($C_i^{\$} - C_a^{\$}$) of dollars at the official exchange rate E_o, given that he has to pay the tariff t, on the fictitious part of the import too). The invoiced value of the import is $C_i^{\$}$ while the amount actually paid to the supplier is $C_a^{\$}$ so the difference is the amount accumulated through overinvoicing. Superscripts indicate dollars ($) or rupees (r). If the amount of overinvoicing is expressed as a fraction of the invoice value, we can deal with

$$(2)\quad m = \frac{C_i^{\$} - C_a^{\$}}{C_i^{\$}}$$

and in these terms, financial profits can be expressed simply as

$$P^r = m\, C_i^{\$} \left[E_b - (1 + t)\, E_o \right]$$

or in rupees,

$$(3)\quad P^r = m\, C_i^r \left[E_b/E_o - (1 + t) \right]$$

This is a most useful result. The industrialist's profit depends (quite sensibly) on the fraction of the invoice that is fictitious; on the size of the equipment order; on tariffs; and on the spread between black market and official rates of exchange. Notice that if the government did not

maintain an artificial exchange rate, overinvoicing for profits would be eliminated -- an official exchange rate within (1 + t) of the black market rate (so $E_b = (1+t)E_o$) would make equations (3) equal zero.

Profits affect behavior. It is unimportant to analysis of overinvoicing whether industrialists in an underdeveloped country "maximize" profits in some purists' sense. What is important is that the promise of higher profits creates incentives -- pressures -- to which some industrialists may well respond all the time and all industrialists will respond some of the time. We can understand important, perhaps dominant pressures on industrialists' investment behavior and therefore something about the structure of industry if we understand what influences profits. So at each step we will look carefully at the pressure of profit incentives. Among the determinants of profits we shall discuss, some apply to areas within the firm's discretion; some apply to industry as a whole; some work only through government policy, and the incentive of the industrialist is to influence that policy.

Incentives

On the simplified level represented by equation (3), the drive for profits through overinvoicing creates among industrialists incentives for the following behavior:

Industrialists will try to

1. Make the amount of sanctioned investment as large as possible. This has two corollaries:

a. Encourage inflows of foreign aid, discounting high social cost since these largely determine the amount of total industrial capital imports and

b. For any one individual or firm, increase his share of sanctioned investment.

2. Increase the fraction of overinvoicing on capital imports. Even if we assume at this stage that this fraction is determined by "common business practices" and is constant between different kinds of capital imports (an assumption examined below), there is still an incentive to increase the overinvoiced proportion over time. And competition among suppliers will contribute to this.

3. Maintain or increase the disparity between the official and black market rates of exchange. This has two elements, that

a. devaluation should be resisted by whatever argument has political appeal (national pride [2], threat to industrial development, inflation) and

b. the black market price should be maintained or increased by encouraging enforcement of foreign exchange controls on other suppliers of black market dollars.[5]

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[5]How this works depends on the interaction between official and black markets -- whether the total supply of dollars is fixed or whether the black market itself is price elastic [1]. If the supply of available foreign exchange is increased

4. Discourage tariffs on capital imports since they directly reduce financial profits by increasing the cost of getting dollars through overinvoicing. The most persuasive argument within the compass of the industrialists would be that there is a severe limit on the ability to create projects that will use available foreign exchange -- an "absorptive capacity limit" -- so that higher tariffs will radically reduce industrial development.

Estimated Profits

Just how strong these pressures are likely to be on Pakistan industrialists depends on how much these variables affect actual profits. Quantities have to be substituted for the symbols of equation (3). We can estimate two figures: the rate of profit that business overinvoicing practices created in Pakistan four years ago (1966); and the rate of profit that business overinvoicing practices now generate (1970).

a. The typical magnitude of overinvoicing (m) that prevailed in 1966 was ten percent of the invoice price; the black market rate of exchange (E_b) was about ten rupees to the dollar for these highly liquid funds;[6] and the official exchange rate

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by increased black market activity, then "too much" black market activity will lower the profit of overinvoicing. There is always an "optimum degree of enforcement" for the law breaking firm [12].

[6]Which sell in large amounts, are untraceable, and are not subjected to any national capital flow restrictions. So they are more valuable than London or New York dollars.

(E_o) was Rs. 4.75. The average tariff rate on capital equipment imports was 34% [7]. Substituting these values into (3), the rate of purely financial profit on a capital import[7] in 1966 was 5.8%. This is solely profit from overinvoicing and foreign exchange market manipulation. On the import of an invoiced Rs. 1,000,000 of foreign capital equipment, the financial profit earned by an industrialist taking advantage of overinvoicing was Rs. 76,514. An investment "worth" Rs. 1,340,000 would be recorded officially (that is, $(1 + t)C_i^r$) but it would represent an actual import of Rs. 900,000 of equipment.

b. In 1970, both the typical level of overinvoicing and the black market rate for highly liquid dollars have increased significantly. Estimates of 20% overinvoicing (m) and a free market exchange rate of 15 rupees to the dollar (E_b) are not extreme. The official exchange rate (E_o) still stands at Rs. 4.75. Average tariffs on capital imports have risen to about 40%.[8] Substituting these values into (3), the rate of financial

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[7]It isn't clear what the denominator of a profit rate from overinvoicing should be. The absolute amount of profit is as stated in (3), but should this be measured against the actual value of the capital (C_d^r), against the invoiced value (C_i^r), or against the total resources the industrialist has to commit to the transaction including invoice payment and tariffs on it all $[(1 + t) C_i^r]$? The estimates in the test are conservative; they are based on the largest of these defensible denominators (the last) so the reader who would choose a different base for calculating profit rates will increase the estimates (significantly).

[8]There have been no careful estimates of the average tariff on capital goods since those for 1966. The rate on most capital goods has risen since then from a nominal 40% to a nominal 50% at the same time that the number of exceptions for which a 30% rate applies (to spread regional distribution of

profit from overinvoicing becomes a remarkable 25.1%. Now importing Rs. 1,000,000 of invoiced capital goods earns a financial profit of Rs. 351,540. The investment worth Rs. 1,400,000 in the official record represents capital goods with an actual pre-tariff value of Rs. 800,000.

Despite reservations about their accuracy, these estimates of overinvoicing profits suggest that opportunities for over-invoicing capital goods may be terribly important in under-developed countries in creating conflicts of interest, political pressures, and incentives that lower the price of industrial capital, systematically affecting its allocation and encouraging its waste. We shall explore this further below.

II. The Effective Exchange Rate for Capital Imports

An alternative way to describe the distorting effect of overinvoicing is through the implicit exchange rate that applies to imports of capital goods when overinvoicing profits reduce the real rupee costs of capital. Tariffs increase the implicit exchange rate; overinvoicing profits reduce it. The real rupee cost of imported capital is

$$(4)\quad C_f^r = (1+t)\, E_o\, C_a^{\$} - \left[E_b(C_i^{\$} - C_a^{\$}) - (1+t)\, E_o(C_i^{\$} - C_a^{\$})\right]$$

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investment) has increased. The net effect of these contradictory movements is estimated as 6%, raising average tariffs on capital goods imports to about 40%.

The first term describes the gross costs of the real transaction (buying the equipment) while the bracketed term describes the (offsetting) financial profits. Simplifying this expression gives

$$(5)\quad c_f^r = \frac{c_a^{\$}\left[(1+t)\,E_o - m\,E_b\right]}{(1-m)}$$

as the real rupee cost of capital to the industrialist.

The implicit exchange rate for capital imports is derived simply by dividing the real rupee cost by the actual dollar cost of the same equipment. Thus

$$(6)\quad c_f^r/c_a^{\$} = \frac{(1+t)\,E_o - m\,E_b}{(1-m)}$$

is the effective exchange rate for capital imports that should be compared to other exchange rates in the economy (those applying to consumption goods and raw materials) and to other prices (labor, domestic materials) to judge the relative price of foreign capital. Notice again that in the absence of an artificial exchange rate, $(1+t)E_o = E_b$ and the right hand side of (6) reduces to $(1+t)E_o$, making the implicit exchange rate the same as the official exchange rate plus tariff. The overinvoicing distortion (and incentive) vanishes.

Estimated Effective Exchange Rate for Capital Imports

As with financial profits, two sets of estimates of the

effective exchange rate are possible, one for 1966, one for 1970.

a. Using the figures that describe 1966 practices, equation (6) gives an effective exchange rate of Rs. 5.96 per dollar. So the industrialist taking advantage of overinvoicing in 1966 paid for imported capital at an exchange rate lower than the one derived from tariffs alone -- Rs. 6.37 was used by Lewis [7].

b. But using figures describing 1970 practices, the effective exchange rate for capital goods falls to Rs. 4.56 per dollar, and this of course includes the 40% average tariff rate. So despite tariffs, the effective exchange rate for capital goods imports in Pakistan appears to be below the official rate. The subsidy effect of overinvoicing is larger than the tariff -- the "net tariff" is minus 4%.

Because devaluation is an obvious way to eliminate overinvoicing profits (directly or through generalizing the export bonus system), it is interesting to ask what amount of devaluation is implied by these estimates. Mechanically applying the conditions of 1970 to equation (3), a devaluation to Rs. 10.71 would completely eliminate the profits from capital overinvoicing. But this is an overestimate of the required devaluation for two reasons: (1) the existing black market rate is probably higher, given restrictions on exchange transactions, than an "equilibrium rate" would be and (2) there are administrative costs of overinvoicing that we have (properly) ignored. So it

Table 1

The Impact of Overinvoicing on the Cost of Capital Goods Imports (for Rs. 1,000,000 of imports)

	1966	1970
1. Invoiced value (C_i^r)	1,000,000	1,000,000
2. Nominal cost $[(1+t)C_i^r]$	1,340,000	1,400,000
3. Financial profit from overinvoicing (P^r)	76,514	351,540
4. Payment to supplier (rupees) (C_a^r)	900,000	800,000
5. Payment to supplier (dollars) ($C_a^\$$)	189,474	168,421
6. Real rupee cost (C_f^r)	1,129,265	768,000
7. Effective exchange rate ($C_f^r/C_a^\$$) Rupees per Dollar	5.96	4.56
8. Tariff (+) or Subsidy (-) re Official Exchange Rate	+25.5%	-4.0%

seems reasonable to suggest that a devaluation to somewhat less than Rs. 10.71 might well eliminate capital overinvoicing.

These estimates of parts I and II are summarized in the Table 1 for Rs. 1,000,000 of invoiced imports.

III. The Effect on the Choice between Imported and Domestic Capital Goods

Not all capital is imported, of course, and the industrialist always has some choice in the import content of his

investments, either through choosing the way a product is made or, if not there, simply in the choice of which products to make.[9] So the proportion of imported capital is variable and can be increased by choosing to invest in the most import-intensive techniques to make a given product and/or by choosing the most import-intensive industries or sectors of production.

Using the subscript d to indicate domestically supplied capital, the total nominal cost of an investment project (or a group of investments making up an investment budget) with both foreign and domestic components is

$$(7)\quad C^r = C_d^r + (1+t)\, C_i^r$$

If we describe the choice between imported and domestic capital goods by the relative size of the imported component of investment,

$$(8)\quad f = C_i^r / C_d^r$$

then

$$(9)\quad C^r = C_i^r \left[(1+t) + \frac{1}{f} \right]$$

Equation (3) shows profits as a function (among other things) of the nominal value of foreign capital, C_i^r, so we can solve

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[9] The usually weak assertion that there is no choice of import coefficients in industrial development is indefensible unless all industries have fixed coefficients, all are identical, and all operate at the same level of utilization [6, 15].

for C_f^r and substitute the result into (9) to get a total investment cost of

$$(10)\quad C^r = \frac{p^r \left[(1+t) + \frac{1}{f}\right]}{m \left[E_b/E_o - (1+t)\right]}$$

in turn, can be solved for p^r so that total financial it from overinvoicing becomes

$$(11)\quad p^r = \frac{C^r\, m \left[E_b/E_o - (1+t)\right]}{(1+t) + \frac{1}{f}}$$

It is clear that total profit depends, as before, on the size of the investment budget, on tariffs, on the amount of over-invoicing and on the black market rate of exchange relative to the official market rate. What is added by equation (11) is that profit depends, too, on the amount of imported capital. For any given investment budget, the industrialist's profit is higher the larger is the proportion of imported capital that can be used -- i.e., the less is the use of domestically produced capital goods.

Incentives

In addition to the profit incentives described in Part I, industrialists will try to

5. Increase their use of imported capital equipment

which can be done both

a. by selecting foreign-capital-intensive techniques of production and

b. by investing in those industries that use much foreign capital at the expense of those that use little.

Estimates

For the Second Plan period (1960-65), Naqvi has collected data on total sanctioned private investment and the amount of it that was made up of foreign capital [9]. So from these, f can be computed for equation (11) and the effect on profits of changes in f can be illustrated. It should be remembered that the same rupee profits that were earlier expressed as a percent of the cost of foreign capital alone (see footnote 7) are now expressed as a percent of total capital cost so the percentage on this larger base must necessarily be smaller.

Using the values for 1970, the rate of overinvoicing profit on total investment is 16.4% in West Pakistan and 15.4% in the East. The sensitivity of these profit rates to changes in the proportion of foreign capital is illustrated if we assume a change from half imported capital and half domestic (f=1) to two-thirds imported and one-third domestic (f=2).[10] Such an increase in imported capital would cause the rate of financial profit on total investment to rise from 14.6% to 18.5%. So in

[10]These bracket the values of f from Nawvi's figures, which are 1.35 for the West and 1.13 for the East.

this range, doubling the proportion of imported capital increases the financial profit rate by 3.9 percentage points. Profits are about a fourth higher.[11]

IV. The Effect on the Choice between Expanding Capital or Utilizing Existing Capital

The last steps in the analysis recognize that the amount of overinvoicing depends on what kinds of capital equipment the industrialist imports. Earlier we accepted the fact that this fraction (m) changes over time; now we consider different fractions of overinvoicing among different classes of equipment at one point in time. The fictitious portion of an invoice will vary because of differences in bargaining power between buyer and seller for different goods and because of differences in the effectiveness of surveillance by the foreign exchange control authorities between different capital goods. The first of these is treated here; the second in Part V.

Capital equipment can be bought either to build new plants or, alternatively, to maintain and balance existing plants increasing the level of their utilization. For any

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[11] Since the elasticity of the profit rate with respect to f is $\frac{1}{(1+t)f + 1}$, the sensitivity of profits to f declines as tariffs rise and as the proportion of foreign capital increases. "Early" increases in the import coefficient of investment, therefore, are more powerful than the same proportional increases from a larger base.

industrialist (beyond the neophyte with his first investment) there is a choice to be made in dividing an investment budget (C^r) between expansion (C_e^r) and utilization (C_u^r),

$$(12)\quad C^r = C_e^r + C_u^r$$

The result of the investment allocation can be described by the size of investment spending on utilization relative o spending for expansion,

$$(13)\quad u = C_u^r/C_e^r$$

so that

$$(14)\quad C^r = C_c^r(1+u) = C_u^r(1 + 1/u)$$

These two types of capital goods should be treated differently as regards overinvoicing profits because of the very different competitive position of the industrialist, <u>vis a vis</u> the equipment seller, in the two purchases. A new investment is typically self-contained, technically independent of existing capital except through product flows. If these are pretty much the same from different brands and configurations of equipment, the industrialist is free to choose among suppliers, and this freedom will lead to competition among suppliers appearing in part in the amount of overinvoicing. In contrast, the industrialist seeking balancing equipment has less freedom among suppliers since the equipment must fit into an existing plant, maintenance organization and parts inventory, and this relative

absence of competitive flexibility will show up in lower over-invoicing. So the overinvoicing that can be had on new capital is likely to be greater than that which can be had on capital to increase utilization of existing plant, or formally,

$$(15)\quad m_e \geqslant m_u$$

An industrialist's financial profits from overinvoicing will thus be a weighted average of the profits from each kind of investment spending, the weights depending on the relative rates of overinvoicing on expansion capital (m_e) and maintenance-balancing capital (m_u) and on the distribution of investment between these two (u). Substituting from (14) into (11) for each type of capital investment separately and adding them together gives overinvoicing profits of

$$(16)\quad P^r = \left[\frac{1}{1+u}\, m_e + \frac{u}{1+u}\, m_u\right] \frac{C^r \left[E_b/E_o - (1+t)\right]}{\left[(1+t) + \frac{1}{f}\right]}$$

Despite the cumbersome appearance of (16), it is clear that if the rate of overinvoicing is higher for new, expansion investment, profits are increased by decreasing the allocation of investment for using the existing capital stock.

Incentives

Industrialists will try to

(6) Devote as much investment as possible to new

equipment to expand the capital stock and, as a concomitant, as little as possible to maintenance and balancing equipment to increase the utilization of existing capital. In fact, incentives in this direction are even stronger than implied since in Pakistan some spare parts are imported on bonus vouchers, increasing effective tariffs and likely eliminating all prospect of overinvoicing profits from these imports while leaving expansion investment largely unaffected.

Estimates

If we assume, arbitrarily, that new capital can be over-invoiced by 20% while maintenance and balancing capital is over-invoiced at 10%, then under the conditions assumed for 1970 the rate of profit would be 25.1% for the imported new investment and 12.6% for maintenance and balancing investment. If all other factors were comparable, an industrialist who spent nothing out of Rs. 1,000,000 of imports on maintenance and balancing ($u = o$) would earn Rs. 251,100 on overinvoicing profits, while another who spent half his investment budget on increasing utilization of existing capital ($u = 1$) would earn only Rs. 188,250. These are suggestive of the price incentives that induce firms to expand industrial capacity rather than increase its utilization.

Such price incentives -- along with the general cheapness of capital we've described -- may go far to explain why, in

capital-scarce West Pakistan, existing industrial capital is used 33% of the time while in the capital-rich U.S., it is used 50% of the time.[12] Where capital is scarce, it is wasted; where it is abundant, it is conserved. This is a paradox of no small significance for a poor developing country.

V. The Effect on Capital Complexity, Industrial Employment and Output Growth

Overinvoicing operates despite surveillance by the foreign exchange authorities. In Pakistan, engineering-price committees serve in the major agencies involved in capital import transactions[13] to scrutinize capital invoices and challenge the validity of those considered suspicious. If surveillance fell with an absolutely even hand on all capital imports, it would concern us only as part of the optimum enforcement of exchange control laws. But it cannot. These agencies have limited resources and must concentrate their efforts where they are most effective. This means that surveillance is heaviest where overinvoicing is most likely to be discovered, and this inevitably

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[12] Based on Foss' estimates of U.S. capital use [5], adjusted for comparability with my estimates for Pakistan [14]. The details of comparison are included in a forthcoming paper.

[13] Which are Customs, Pakistan Industrial Credit and Investment Corporation (PICIC), and the Industrial Development Bank of Pakistan (IDBP).

is on imports of standardized kinds of capital equipment for which there is a well-established world market. Surveillance is least effective on highly complex, modern plants that are tailored to a specific installation and user. For these, the task of accurately validating capital prices is beyond the competence of even the best intentioned price surveillance group.[14] What gives this economic significance is that the complexity of equipment that makes surveillance of capital imports more difficult involves a high proportion of capital relative to labor and relative to output, and in all likelihood a bias toward large-scale installations. So the overinvoicing attainable on new equipment imports (m_e) increases as the capital-labor ratio, the capital-output ratio, and project size increase.

Incentives

Industrialists will tend to

(7) Select investment projects and sectors that are as complex as possible though this typically involves more capital per laborer and per unit of output. Overinvoicing profit incen-

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[14]And scholars. Engineering complexity of capital imports combines with illegality to make it impossible to verify or deny the parameters of overinvoicing reported off the record by industrialists, bankers, foreign exchange authorities, aid officials and others. Bhagwati's experience in investigating faked invoices in Turkey and India was much the same as mine though his concern with balance of payments aspects of faking allowed him one rough measure of total magnitudes [1, p. 66].

tives thereby reduce employment creation and output growth in industry.

VI. The Implications for Industrial Development

Of the many ramifications of overinvoicing for economic development, three sorts seem of central importance for underdeveloped countries.

A. The structure and growth of industry is affected seriously by the lowered general price of scarce capital equipment and by the distortions of relative prices among types and uses of capital.[15]

The problems created by generally low capital prices in poor, capital-scarce countries have worried some economists for a long time and they are only compounded by overinvoicing. They all rest on the fact that capital with a too low price relative to its actual scarcity is wasted -- it is used in place of abundant factors (notably labor), it is left idle too much of the time, and it makes the wrong products appear profitable. To this, analysis of overinvoicing adds a better sense of just how low capital prices really are -- and a sense of how tariffs can effectively be circumvented by changing the practices of overinvoicing -- as in the estimate that overinvoicing in

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[15]There is a third, statistical distortion in the overstatement of industrial investment that overinvoicing produces. This is significant when overinvoicing practices change as in Pakistan between 1966 and 1970.

Pakistan more than offsets the existing tariffs on capital imports, providing a 4% subsidy to foreign capital at the official exchange rate. Capital appears to be even cheaper to the industrialist than had been thought.

The distortions among capital prices that are created by overinvoicing are more interesting both because they have not previously been identified and because they appear to explain (at least in part) patterns of industrial growth that are increasingly disturbing. Among capital goods, overinvoicing tends to raise the relative price and discourage the use of domestically produced capital; of capital that increases the utilization of existing plant and equipment; and of capital that creates employment.

To the extent that the profit incentives of overinvoicing influence investment decisions, they will create or compound a set of familiar and disturbing problems in economic development:

1. by discouraging the growth of a domestic capital goods industry which must compete with an effectively subsidized import. In Pakistan, domestic producers must compete with foreign capital goods at Rs. 4.56 to the dollar but with foreign consumption goods at rates as high as Rs. 22.00 to the dollar [13]. This clearly compounds the bias of cascaded protection under import substitution policies [3, 11].
2. by creating industry that is unnecessarily foreign-capital-intensive in its techniques and sectors of

production, and by perpetuating that pattern so that growth is heavily dependent on foreign capital;

3. by discouraging the use of existing plant and equipment in favor of adding new capital, with consequent reduction in both the level and growth of consumption and employment [14]; and

4. by discouraging industrial employment both through reduced capital utilization and through selection of complex, labor-saving and capital-using techniques and products.

B. The distribution of income is affected by overinvoicing on both ends of the income scale. Investment in employment-denying techniques and sectors reduces potential earnings of the unemployed and underemployed at the same time that profits accruing to the already privileged industrialists are increased.

C. The external effects of overinvoicing on the growth of the economy may be among its most costly consequences. The very real pressures and temptations faced by individuals in sanctioning agencies who have something very valuable to give away tends to redistribute overinvoicing profits from industrialists to agency employees, spreading corruption and raising "the cost of doing business." And whatever economic criteria these agencies may have applied to investment decisions[16] will

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[16]Quite apart from individual temptations to ignore overinvoicing, note that the agencies mainly responsible for the surveillance of overinvoicing are semi-private investment loan

tend to get lost under mutual political and financial payoffs that have nothing to do with economic development objectives. In a sort of Gresham's Law of Honesty, bad intentions drive out good as a rising cost of doing business forces corruption on even the reluctant businessman. This is a major source of concern about the increase in overinvoicing in Pakistan over the past four years -- that it is increasingly difficult for businessmen to choose not to overinvoice.

Finally, corruption increases the demands on industrialists' energies at the same time that it restricts the number of persons who can be trusted to share management's (often illegal) decisions. Industrial corruption not only diverts limited entrepreneurial talents from production, innovation, market and employment concerns and toward illicit financial intricacies, but its illegality also restricts -- often to family members -- the number who can be trusted to know of a firm's methods of operation.

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organizations, and as such they have an inherent conflict between their interest in honesty-and-economic-development on the one hand and their interest as a bank in the volume of loans and the financial solidity of their borrowers on the other. Overinvoicing gives foreign exchange market profits to their borrowers, increasing their financial resources (if profits are kept within the company), and the loans made by the agency thereby become more secure. Even without this added protection to already well secured loans, a policy of tolerance increases loans outstanding and therefore profits to the lending agency. Ethics and economic development aside, there is a clear motive for these agencies to nod at overinvoicing of capital goods imports. Even if they don't succumb to this temptation, it can certainly be doubted that they should have the major role in policing overinvoicing.

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