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**REVENUE IMPLICATIONS OF CHANGING
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STUDY**

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Revenue Implications of Changing Industrial Structure: An Empirical Study

Stephen R. Lewis, Jr. ^{*}/

This paper explores briefly the relationship among several strands of fact and opinion about tax revenue and the changing structure of production, and examines the revenue implications of import replacement and related structural changes in Pakistan for the period 1951 to 1964. Low-income countries depend heavily on taxes on foreign trade for their government revenue, as has been brought out by several studies /4/, /5/, /11/. That low-income countries need to develop new means of raising tax revenue is an article of faith among most economists analysing the problems of development. The ability and willingness of a government to have a reasonably high marginal tax rate is often used as an indicator of the country's efforts to develop. Numerous economists, of whom Wolfgang Stolper /23/ is a recent and articulate example, have argued that the difficulties of raising government tax collections makes the ^{revenue} effects of any given project an important aspect of the evaluation of alternative projects. There is also a considerable body of information and doctrine on the necessity of import substitution, or replacement of imports by goods produced domestically, as an integral

^{*}/ I am grateful to Henry Druton and Benjamin Cohen for their comments on an earlier version of this paper; to several former colleagues at the Pakistan Institute for Development Economics for their criticisms of an earlier and more limited attempt at a similar analysis /6/; and to Sara Clark, who programmed and supervised the computations. The usual disclaimer applies to them all.

part both of the industrialization program and of efforts to avoid balance of payments difficulties in the developing countries /1/, /17/, /18/.

There is a basic revenue problem inherent in the development policies used by many low-income countries, particularly relatively open economies where imports supply a large portion of all manufactured goods used domestically. Such countries often have revenue-raising import duties, and sometimes domestic excise taxes on similar goods to avoid any protective effect of the revenue duty. These duties, often on mass consumption goods such as cloth, beer, kerosene, or tobacco, produce substantial portions of government revenue /3/, /11/. If the government raises import duties on such consumption goods, in an effort to encourage their domestic production and to "save foreign exchange," there will quite likely be a net loss in government revenue unless the direct taxes on domestic incomes generated by the new production plus the indirect taxes on domestic output are sufficient to offset the loss in revenue from the reduction of imports.^{1/} As a part of protection and encouragement of industrialization, however, governments often grant tax holidays to domestic manufacturers, and are also likely to maintain domestic indirect tax rates below import tax rates as a part of the program of protection. Finally, many countries seem inclined to start their import replacement programs in the consumer goods industries, which bear higher rates of import duties and yield the greatest share of government revenue. As import replacement occurs, the composition of imports shifts to the lower duty items,

^{1/} The price elasticity of demand for imports is also an important factor in determining the effects of an increase in duties on total duties collected. Demand would have to be fairly elastic before increased rates of duty would result in decreased duty revenue, however.

and revenue per unit of imports will fall. If imports stay the same proportion of GNP, domestic taxes must rise more rapidly than GNP to keep the overall marginal tax rate from falling below the average tax rate.

The situation described is complicated further when revenue comes from export taxes on a raw material that could be used domestically, such as raw cotton and jute in Pakistan. If industrial growth means that domestic industries process a raw material that was previously exported (and taxed), the government must face a loss in tax revenue unless it taxes the domestic industry's use of the raw material or captures the equivalent revenue through direct taxes on domestic factors in the processing industry.

Section II sketches the method of analysis used in the empirical study, though details are in Appendix A. Section III gives brief descriptions of Pakistan's industrial growth and of the revenue system. The results of the analysis of the effects of structural change on the revenue system are in Section IV.

II Methods of Analysing Tax Structure Changes

The method used to assess the impact of changing structure and changing tax rates is quite simple. It consists of holding revenue determinants constant at base period levels and allowing them, one by one, to take on end period values. The effects of individual determinants are calculated by comparison of the alternative projections. The detailed procedures are given in Appendix A, but a rough sketch is given here. For example, one asks the question: if the flow

of taxes in a later period remained in the same ratio to its tax base as it had in an earlier period, what would have been the tax revenue in the later period?

If T_i^1 , and T_i^2 are the revenues from indirect taxes on industry i in periods 1 and 2, respectively, and X_i^1 and X_i^2 are the levels of production in industry i in the same two periods, then the expression:

$$T_i^1 \frac{X_i^2}{X_i^1}, \text{ would give the level of revenue from taxes on } i \text{ in}$$

period 2 if the ratio of taxes to output had remained the same. If one knows the statutory rates of tax r_i^1 , r_i^2 , in the same two years, one can adjust tax revenue figures for changes in rates. E.g., $T_i^2 \frac{r_i^1}{r_i^2}$ would be the expression for the tax revenue from industry i in period 2 if the statutory rates remained the same as in period 1. With empirical knowledge of T 's, X 's and r 's one could calculate how much of the change in revenue was due to a change in base, how much to changes in rates, and how much to changes in composition within an industry among production of goods with different tax rates. I have taken a change in the effective rate of tax (T_i/X_i) in an industry, after adjustment for rate changes, as a measure of the effects of changed composition. The change in effective rate, however, may be due to other factors, such as a failure of measured tax rate changes to reflect rate changes on important commodities in an industry.^{2/}

^{2/} The ratio of tax collections to output is really a weighted average of tax rates, while most of the rates used for this study are unweighted averages of rates within an industry /20/. The reader may judge for himself the effects of this method from the empirical results given below.

In addition to changes in rates, base, and composition within industries, any change in the composition of demand or of output among industries will produce changes in the composition of tax revenue, so long as tax rates vary among industries. Therefore, one wishes to ask the question: what would revenue have been in period 2 if the structure of revenue had remained what it was in period 1? This can be done simply by inflating each revenue figure T_i^1 in the base period by the growth in total industrial output $\frac{\sum_i X_i^2}{\sum_i X_i^1}$, or by the total supply (imports plus domestic production, or Z_i) of industrial goods, $\frac{\sum_i Z_i^2}{\sum_i Z_i^1}$

Finally, and most important for the problem of interest here, one can explore the effects of import substitution. The most widely used definition of import substitution is a change in the ratio of competing imports (M_i) to total supply (Z_i) in an industry. Since, in general, the rate of duty on imports, $\frac{T_{mi}}{M_i}$, will be greater than the rate of tax on domestic output $\frac{T_i}{X_i}$ in the same industry, a change in the ratio of imports to total supply will change the ratio of tax collections to flow of product. To assess the impact of import substitution, total indirect tax collections on the flow of goods in industry i ($T_i^1 + T_{mi}^1$) are increased in proportion to total supply in the industry, $\frac{Z_i^2}{Z_i^1}$. When the results of the latter calculation are compared with projections of the flows of domestic and import taxes separately one can find the effects of any change in the shares of imports and domestic production in total supply.

In addition to changing revenue from indirect taxes on imports and on domestic production, one should account for changes in direct domestic taxes on the value added in the import-substituting industries. An earlier study on Pakistan /8/, following the methods used by Chenery /3/, measured the shares of increased domestic value added that were "due to" import substitution. Assuming value added is an appropriate proxy for the direct tax revenue base, one could attribute to import substitution the same share of the growth in direct taxes on manufacturing. The revenue offsets some of the loss of indirect tax revenue from import replacement.

Since a substantial portion of Pakistan's industrial growth has taken the form of processing domestically raw materials that were previously exported, one must adjust for the decline in taxed exports. This was done by estimating the domestic absorption of raw cotton and jute and assuming it to be taxed at the same rate as exports actually were. This represents the gross loss of revenue from domestic processing. Since much of the output of the jute textile industry, especially, is exported, the portion of increased direct tax revenue "due to" increased exports was computed, and applied as an offset to the loss in export tax revenue.

Finally, in all cases where statutory rate comparisons can be made over time for individual industries, one can assess the effect of rate changes on the tax revenue from the industry, holding import substitution, or the composition of demand, or the effective rate of tax in the industry (or the intra-industry composition of output or of imports) constant. Applying the methods listed above in

various combinations, one can compute the gains and losses in tax revenue due to changing composition of output, of imports, of domestic demand, and of exports, as well as the revenue effect of changes in tax rates. In addition to calculating the revenue effects of all these changes, the data are sufficient to compute elasticities of tax revenue with respect to tax bases by industry or commodity group, adjusted for tax rate changes. Since tax information is often expressed in the form of elasticities, these have also been computed and are given in Section IV.

III Pakistan's Industrial Growth and Tax Structure

A few basic facts about structural change in Pakistan are necessary before examining the tax structure. In the 1950's income growth in Pakistan barely kept ahead of population growth, and food production lagged behind growth in population. Pakistan changed from a net exporter to a net importer of foodgrains. Despite general stagnation, modern manufacturing industry grew at a rate of ten to fifteen percent per year through the decade. This rapid growth was, to a large extent, due to import substitution, or to a change in the ratio of imports to total supply in most manufacturing industries. Industrial growth was very rapid both because the Partition of British India had left Pakistan with practically no manufacturing capacity and because the trade policy adapted by the government greatly protected manufacturing industry relative to agriculture. A substantial portion of industrial growth entailed the processing of domestically produced agricultural

products (oil seeds, tobacco, sugar, cotton, jute, wool, hides and skins), some of which, particularly jute, cotton, and hides and skins, were previously exported in unmanufactured form. Domestic products first replaced imports in consumer goods, particularly in cotton textiles, sugar, cigarettes, and other agriculturally based industries. The composition of imports changed from one heavily weighted by manufactured consumer goods (which were relatively heavily taxed) to intermediate manufacturers, capital goods, and foodgrains.

The growth rate of agriculture and other non-manufacturing sectors accelerated continued to grow rapidly. Imports, which had been virtually constant in the 1960's, and manufacturing from 1951/2 to 1959/60 due to stagnant export earnings, more than doubled in the first half of the 1960's accompanying a sharp rise both in foreign aid and in export earnings. Most manufacturing industries did not experience import substitution in the 1960's, since domestic demand and import supplies grew at approximately the same rate as domestic production.

Between 1950 and 1965, even though there was less than one per cent per year growth in income per capita, there were substantial changes in economic structure. Modern industry grew at an average rate of fifteen percent per year. The saving rate more than doubled (from under 5% to over 10% of GNP). The investment ratio more than tripled (from under 5% to over 15% of GNP). The composition of exports shifted away from complete dependence on primary goods, though raw jute and cotton still comprised over half of export earnings in the mid-1960's. The composition of imports shifted away from manufactured consumer goods toward capital goods and iron and steel.

Some basic characteristics of Pakistan's tax structure given in Table I, and they reflect the changing structure of the economy over the period 1951/2 to 1963/4.^{3/} The overwhelming dependence on indirect taxes is obvious. The major changes in tax structure are (i) the decline in the absolute level of export taxes, due both to rate decreases and to rising domestic absorption of exportables (ii) the sharp increases in indirect taxes on domestic production, (which fall mostly on manufactures), (iii) the decline in the absolute amount of import taxes in the 1950's (due largely to changed import composition) and (iv) the sharp increase in import taxes in the 1960's, due to increased rates of tax and to increased flows of imports. Taxes on agricultural land increased slowly, and most of the growth of direct tax revenue came from income and profits taxes.

Pakistan used a variety of indirect taxes throughout the period covered by this study.^{4/} Imported goods were subject to (i) import duties and (ii) sales taxes. Domestically produced goods were subject to sales taxes (often at lower rates than for similar goods when imported) and to excise taxes. The sales tax law is a general law with major exceptions (manufactured goods produced by small establishments, and agricultural goods) and is levied at the manufacturing or the wholesaling stage. Excise taxes are levied on particular products, mostly

^{3/} The choice of the years is dictated by the availability of data on output and on detailed indirect tax collections that have been used in earlier studies /7/, /8/.

^{4/} The basic law and structure of indirect tax rates in Pakistan are analysed by Radhu /20/.

Table 1. Revenue from principal Central and Provincial Direct and Indirect Taxes (Rs. millions)

	<u>1951/52</u>	<u>1954/55</u>	<u>1959/60</u>	<u>1963/64</u>
Indirect Taxes on Imports	693.9	461.5	547.3	1,174.9
Indirect Taxes on Exports	366.8	128.5	129.9	103.1
Indirect Taxes on Domestic Production	115.2	263.4	527.2	1,027.3
Direct Central and Provincial Taxes	272.2	368.1	608.0	641.9
Total of above	1,448.1	1,221.5	1,812.4	3,147.2
<u>Indexes 1959/60 = 100</u>				
Taxes on Imports	126.3	84.3	100.0	214.7
Taxes on Exports	202.4	98.9	100.0	79.4
Taxes on Domestic Production	21.9	50.0	100.0	194.9
Direct Central and Provincial Taxes	44.3	60.5	100.0	138.5
Total of Above	79.9	67.4	100.0	173.6
<u>Percentage Distribution</u>				
Taxes on Imports	47.9	37.8	30.2	37.3
Taxes on Exports	25.3	10.5	7.2	3.3
Taxes on Domestic Production	8.0	21.6	29.1	32.6
Direct Central and Provincial Taxes	<u>10.8</u>	<u>30.1</u>	<u>33.5</u>	<u>26.8</u>
Total of Above	100.0	100.0	100.0	100.0

Sources: Indirect tax collections are actuals, unpublished documents from the Statistical Office of the Central Board of Revenue. Direct taxes are from /12/ and /13/.

Note: Some miscellaneous taxes are omitted, and the total taxes in the above table are equal to about 90 percent of total central and provincial tax revenue. The revenue statistics for Pakistan are discussed /9/. 1951/52 and 1954/5 are April 1 - March 31 fiscal years. 1959/60 and 1963/64 are July 1 - June 30 fiscal years.

manufactures. Goods are generally exempt from sales and excise taxes if they are exported. Exports of jute, cotton and a few less important products have been subject to taxes upon export only. The combination of (i) a highly differentiated tariffs structure (ii) different rates of sales tax both on different goods and, for the same good, on import or domestic production, and (iii) excises on particular domestic products has led to a wide range of indirect tax rates on different commodities.^{5/}

The differentiation of import duties is shown in Table II, for 1955/56 and 1963/64. If these were fully representative of the differential incentives for import substitution it is clear that import composition would shift from high duty consumer goods to intermediate, and especially producer durable goods. The effective rates of tax (i.e. collections divided by flows of taxable product) on both imported and domestically produced commodities are shown in Table III for twenty-three manufacturing industries used here and in other recent studies /7/, /8/. There is obviously a wide range of tax rates both on imports and on domestically produced goods. In almost every case, the rate of tax on domestically produced goods is substantially lower than the rate on imports. There are changes in the effective rates of tax over the decade covered by the data, which are caused by a combination of (i) changing statutory rates and (ii) changing composition of flows

^{5/} Despite this differentiation, however, relative prices in the market were not greatly influenced by market prices but were set primarily by quantitative import restrictions. This is discussed at length by Pal /15/, /16/, Radhu /21/, and Lewis /7/. Since the licenses were not sources of revenue, they do not concern us here.

TABLE II

Average Rates of Import Duties, by Type of Commodity

	<u>1955/56</u>	<u>1963/64</u>
<u>Consumption Goods</u>		
a) Essential	35%	56%
b) Semi-luxuries	54	116
c) Luxuries	99	142
<u>Raw Materials for Consumption Goods</u>		
a) Unprocessed	26	30
b) Processed	43	51
<u>Raw Materials for Capital Goods</u>		
a) Unprocessed	23	31
b) Processed	33	42
<u>Capital Goods</u>		
a) Consumer durables	71	89
b) Machinery and Equipment	14	17

Source: Radhu /20/ updated in an unpublished paper dated August 1964.

Table III. Effective Percentage Rates of Indirect Tax on Imports and Retained Domestic Production, 1954/5 and 1963/4

No.	Name of Industry	Effective Tax Rate on Imports		Effective Tax Rate on Retained Domestic Products	
		1954/55	1963/64	1954/55	1963/64
2070	Sugar Mfg.	97	42	12	20
2091	Edible oils	12	4	7	8
2092	Tea Mfg.	184	62	6	17
2099	Food N.E.C. ^a	18	26	137	34
2100	Beverages	511	257	19	53
2200	Tobacco Mfg.	129	117	36	26
2311	Cotton/Other Textiles	74	61	14	12
2313	Jute Textiles	b	b	10	29
2314	Silk and Art Silk	106	106	8	1
2500	Furniture/Wood Mfg.	34	52	12	9
2700	Paper Mfg.	46	38	5	9
2900	Leather/Footwear Mfg.	32	280	2	4
3000	Rubber/Rubber Mfg.	83	31	11	7
3150	Soap/Perfumes	23	47	7	25
3191	Matches	294	b	25	51
3199	Chemicals/Pharmaceuticals	81	19	7	6
3200	Petroleum/Coal Mfg.	71	56	44	112
3300	Non-Metallic Min.	10	19	7	18
3500	Basic Metals/ Products	17	23	1	3
3600	Machinery	7	13	0	0
3700	Electrical Machinery/ Equipment	16	43	10	10
3800	Transport Equipment	38	37	c	2
3900	Misc. Mfg.	c	39	6	3

a Omits grain and Rice milling.

b Imports and duty revenue too small to be identified in statistics.

c Less than .5%

Source: Indirect tax revenue data from unpublished tables of the Central Board of Revenue. 1954/55 to 1963/64 data are reclassified and published in /B/.

of imports and of domestic production within industries.

The goods yielding the highest levels of revenue in the earliest and latest periods are highly concentrated. For domestic indirect taxes, salt (food mfg. n.e.c.), cigarettes, and petroleum products each contributed over ten percent, and cotton textiles yielded over one-third the revenue from domestic manufacturing taxes in 1954/55. The distribution was less concentrated by 1963/64: cotton textiles and petroleum products yielding over twenty per cent of domestic tax revenue, and tobacco products just over ten percent. Sugar refining was next with slightly under ten percent. Revenue composition from import duties changed more sharply, in large part due to the changing composition of imports. In 1954/55, sugar, cotton textiles and petroleum products were the major source (almost 60 per cent) of import tax revenue, followed by transport equipment and artificial silk textiles, which each yielded less than ten percent of revenue. Ten years later, transport equipment, metals and metal products, petroleum products, electrical machinery and equipment, and non-electrical machinery each produced over ten percent of import tax revenue, and accounted in total for over two-thirds such revenue.

With this broad picture of changes in industrial and revenues structure as background, the next section attempts to analyse rigorously the growth of tax revenue as it relates to the changing rate structure and the changing level of underlying flows of goods.

IV Empirical Evidence on Tax Revenue and Economic Structure

The summary results of the analysis of changing tax revenue are given in short form in Table IV. This table shows the effects on the potential revenue in 1963/64 of the several factors influencing direct and indirect tax revenue. The taxes this paper deals with were Rs. 2242.2 million, (approximately \$470 million at the official exchange rate), over two-thirds of central and provincial direct and indirect tax revenue in that year. The magnitude of the effect of economic structure is very large, as seen in line 8. If tax rates had remained at their 1954/55 levels,^{6/} and if the total flows of goods and related revenue had grown proportionally (instead of changing in composition), the level of tax revenue in 1963/64 would have been Rs. 778.9 million higher than they actually were. This amount represents more than one third of actual revenue, and almost half (as will be seen) of what revenue would have been had not rates of tax been increased. In other words, because tax revenue was based on flows of particular goods in particular ways, rather than on flows of goods regardless of source, or value added in manufacturing industry,^{7/} the changes in economic structure resulted in substantially lower revenue. To the extent that the government had created the differential tax structures as part of a program to encourage structural

^{6/} Except for export taxes. Tax rates on exports fell. If the export tax flow had been valued at the 1954/55 rates, it would have resulted in considerably more loss from the change in structure.

^{7/} The loss is slightly larger if the proxy for the tax base were value added in manufacturing. Please note that "loss" is used to convey a lower value of revenue than would have occurred had not conditions changed. I omit the quotation marks when referring to "losses" in the text.

change, its efforts resulted in a major loss of revenue.

The sources of foregone revenue are given in lines 3 to 7 of Table IV. Even if no import substitution had occurred, the changing composition of demand away from consumption goods that were more heavily taxed toward producer goods that were more lightly taxed resulted in a loss of almost Rs. 150 million. Import substitution, or the changing ratio of imports to domestic production within industries, resulted in Rs. 280 million less in indirect tax revenue. Domestic processing of taxed exports resulted in a loss of Rs. 64.0 million. Part of the loss, (Rs. 43 million) was made up by increased collections of direct tax revenue on import-substituting and export processing activities, but the net loss was still about Rs. 300 million.^{3/} Finally, there was a loss of Rs. 328 million that was due to several factors, principally (i) changing composition of output and imports within industries away from more highly toward more lightly taxed goods, and (ii) evasion of taxes, both of which caused the effective rate of tax, adjusted for rate changes, to fall over time.

^{3/} No adjustment has been made for the fact that processed exports earn larger amounts of foreign exchange which, when spent on more imports, will result in larger import duties. While in principle such an adjustment should be made, in practice it would not have been important. The net gain in tax revenue from processing and exporting tax free and otherwise taxed non-processed export is given by $\frac{t_e}{1+v} \bar{f}_m - t_e$ where v is the share of value added in gross output of the processing industry, \bar{f}_m is the average rate of tax on imports, and t_e is the rate of tax on exports. With an average effective rate of import duty of 25% and export duty of 10%, the f.o.b. value of processed export would have to increase by 40% above that of unprocessed exports in order to offset the loss in revenue from the domestic processing industries. Processing industries have ten to thirty per cent ratios of value added to gross output at domestic prices, and even less at f.o.b. dollar prices, since export taxes act as implicit subsidies to domestic using industries. Mallon/10/ has even suggested that the dollar earnings from given quantities of raw material may be lower when processed than when unprocessed, because of the implicit multiple exchange system. In practice v may not be much greater than zero, so the offset to the revenue loss would not be very great.

TABLE IV. Summary Table, Effects of Structural Changes on Revenue,
1963/64 (Base Year is 1954/55)

	<u>Rs. Million</u>
1. Actual Revenue, Central and Provincial Direct, and Central Indirect Taxes	3,147.2
2. Actual Revenue, Direct and Indirect Taxes Related to Manufacturing	2,242.2
3. Loss in indirect revenue due to changed composition of demand	148.9
4. Loss in indirect tax revenue due to import substitution	280.8
5. Loss in indirect tax revenue due to changes in intra-industry composition	328.1
6. Loss in export tax revenue due to domestic processing of jute and cotton	64.1
7. Gain in corporate tax revenue due to import substitution and export processing	43.0
8. Net loss due to changing economic structure	770.9
9. Gain in revenue due to rate changes on import and domestic taxes	605.5
10. Loss in revenue due to lower tax rates on exports	65.3
11. Net gain in revenue from tax rate changes	540.2

Source: See Appendix for methods and Appendix Tables for details.

Though the loss in revenue due to changing structure was substantial, there was also an impressive increase in tax revenue that resulted from increased rates of indirect taxes. Using the commodity composition and structure of production of 1963/64, increased taxes accounted for Rs. 606 million, (Rs. 233 million on domestic production, Rs. 373 million on imports). This means that rate increases accounted for about one third of total revenue from these taxes in 1963/64. The lowering of export duties on cotton and jute, however, led to a loss of Rs. 66 million in revenue at the 1963/64 level of exports, so that the net gain from all rate changes was Rs. 540 million (\$113 million at the official exchange rate). Despite substantial increases in tax rates, then, the loss in potential revenue due to changed industrial structure outweighed the net gains from rate changes.

Studies of industrial growth have shown that a substantial amount of import substitution had occurred before 1954/55, at least in the industries for which data were available. Using those data, it was possible to undertake the exercise of projecting revenue in 1963/64 with a base period of 1951/52, covering industries that contributed almost two-thirds of the tax revenue and a larger share of value added in manufacturing in 1963/64. The detailed results are given in the Appendix. The magnitude of revenue losses due to import substitution and export processing is somewhat higher when 1951/52 base is used instead of 1954/55 (a net loss of Rs. 496 million out of actual revenue of Rs. 1,446 million). The gain due to direct taxes on import-substituting and export processing industries is somewhat higher than when 1954/55 was used as a base. Losses of potential revenue due to

lower taxes on exports are greater when 1951/52 is used as a base period, though this may be somewhat misleading since export prices and export tax rates were both much higher in 1951/52 than in 1963/64. The net gain in potential revenue from tax rate changes is proportionately smaller if 1951/52 is used as a base, so that the net effects of structural change and tax rate changes produced lower levels of tax revenue in 1963/64 than if no import substitution had occurred.

The approach taken thus far differs from that of examining the elasticity of the tax system with respect to national income /22/. The neglect of elasticities is due in part to the existence of other studies /2/, /14/, /24/ which have taken this route in examining Pakistan's tax structure. Broadly speaking, these have been fairly aggregative studies, showing low elasticities of tax revenue with respect to national income for land taxes, export duties, and import duties, and relatively higher elasticities for income and corporation taxes, sales taxes on imports and on domestic production, and excise taxes. The reason for the low elasticities of some taxes has been recognized as a change in composition of commodity flows, principally imports. Yaqub /24/ has disaggregated to the commodity level for several important products on which domestic excise taxes were levied. He found that while excises were elastic with respect to national income, their elasticity with respect to the specific commodity base was generally below unity. Rab /19/ has found that corporation income taxes from particular industries have not been of unit elasticity with respect to value added in those industries, and in some cases seem to have been well below unity. By computing

the elasticities of revenue with respect to base (imports or retained domestic production) for each industry, one can more easily examine the reasons (changing structure or inelasticity with respect to particular base) for the overall changes in tax revenues. Estimates for each industry are given in Table V.^{9/}

Two sets of figures are given for import taxes and domestic indirect taxes in Table V. "Buoyancy" of tax revenues, as defined by Sahota /22/, is the percentage changes in tax revenue unadjusted for rate changes divided by the percentage change in the tax base. Elasticity adjusts the tax revenue change for any change in rates that might have occurred over the period. The majority of the elasticities both of import taxes and of domestic production taxes are very close to, or are greater than, unity. If they had all been unity, all of the decrease in potential tax revenue would have been due to the changing composition of demand and to import substitution. There are several important industries for which the tax revenues were not elastic, which resulted in a loss of potential revenue from evasion or from sharp changes in commodity composition within industries.^{10/}

^{9/} The tax used is the tax on all products included in the industry. The base is either total imports by industrial origin, or domestic output of the industry in question. Since different products in the industry are taxed at different rates, any change in composition of the flow of goods affects the elasticity of tax revenue with respect to the total base. In addition, any change in the share of taxes that are evaded will affect the elasticity of tax revenue with respect to its base. Both factors may be important in explaining the deviations from unity of the elasticities of taxes by industry.

^{10/} Negative values appear for import taxes on tea and on tobacco products, but imports of both were very small and statistical errors may have been responsible for the result. Negative values for food products not elsewhere classified (principally salt, from the revenue standpoint) and artificial silk textiles have so far escaped satisfactory explanation. Both are cases where the tax law has changed, resulting in lower absolute revenue in 1963/64 than in 1954/55.

TABLE V. Buoyancy and Elasticity of Indirect Tax Revenues with Respect to
Flows of Taxed Commodities 1954/5 to 1963/4.

<u>No.</u>	<u>Industry</u>	<u>Import Taxes</u>		<u>Domestic Taxes</u>	
		<u>Buoyancy</u>	<u>Elasticity</u>	<u>Buoyancy</u>	<u>Elasticity</u>
2070	Sugar Mfg.	1.03	.86	1.25	1.11
2091	Edible Oils	.90	.91	1.04	1.26
2092	Tea Mfg.	-1.82	-1.21	2.18	.60
2099	Food N.E.C.	1.25	.66	-.44	-.63
2100	Beverages	.57	.44	3.34	2.65
2200	Tobacco Mfg.	.29	-.21	.87	.40
2311	Cotton/Other Textiles	1.20	1.85	.91	.43
2313	Jute Textiles	0 ^{a/}	0 ^{a/}	2.74	1.82
2314	Silk + Art Silk	1.00	.53	-.98	-.95
2500	Furniture/Wood	1.25	1.02	.91	.73
2700	Paper Mfg.	.79	1.01	1.21	.90
2900	Leather/Footwear	1.17	1.15	1.44	.94
3000	Rubber/Rubber Mfg.	.58	.69	.47	.17
3150	Soap/Perfumes	1.40	1.21	1.44	1.12
3191	Matches	1.00	1.00	2.08	1.23
3199	Chemicals/Pharmaceuticals	1.32	1.33	.95	.82
3200	Petroleum/Coal Mfg.	.64	.54	.92	.27
3300	Non-Metallic Min.	1.13	1.13	1.39	1.21
3500	Basic Metals/Products	1.09	1.04	1.18	1.15
3600	Machinery	1.30	1.11	--b/	--b/
3700	Electrical Machinery/Equip.	1.27	1.41	.99	.97
3800	Transport Equipment	.92	.96	1.19	1.19
3900	Misc. Mfg.	2.28	2.24	.65	.39

Sources: Arc elasticities computed from tax rate from /20/, modified for this study, and revenue, import, export, and production data from /8/. Buoyancy uses taxes unadjusted for rate changes. Elasticity adjusts tax revenue for tax rate change. See Sahota /22/ for a discussion of the two concepts and an application to Indian data at an aggregative level.

a/ There were no imports of jute textiles in 1963/4.

b/ Domestically produced machinery is not subject to tax.

Only rubber goods, petroleum products, and artificial silk textiles among major sources of import tax revenue, showed low elasticities. Domestic taxes on such important producing industries as tea, tobacco products, cotton textiles, rubber products and petroleum products, however, have not been elastic with respect to the tax base of domestic production. Thus, not only were imports replaced by more lightly taxed domestically produced goods, but the taxes on those goods have not kept up with the growth of output of the industries.^{11/} With the exception of these certain domestic production taxes, however, indirect taxes are by and large elastic with respect to the flow of commodities taxed, so that the major lack of overall elasticity is the changing commodity composition of output and of imports.^{12/}

V. Conclusions and Implications

Most empirical work on tax revenue elasticity in the developing countries has been done at a fairly aggregative level. This study disaggregated major taxes considerably in order to isolate more accurately the reasons for the overall elasticity of particular taxes. The major finding is that even though individual taxes are elastic with respect to their tax bases, changes in the pattern of industrial production, imports, and exports, that accompany economic growth, may give a

^{11/} Rab's findings indicate that a similar tag is found in the direct taxes on these industries.

^{12/} This situation is further complicated by the fact that direct tax holidays are being used as an inducement to domestic industries. Rab /19/ has given some indications of the quantitative importance of these exemptions for revenue purposes.

very low marginal tax rate to a country that depends heavily on indirect tax revenue. This inelasticity of tax revenue is due to the fact that taxes are levied on specific flows of goods rather than on payments to factors of production, or even on more general flows of goods. The size of "loss" in potential tax revenue can be very large, particularly for a country that begins with large imports of manufactured consumption goods. The estimates for Pakistan suggest an annual loss of potential revenue equal to about one-third of actual revenue from direct and indirect taxes on manufacturing in 1963/64, due to changes in industrial structure that occurred over a decade. To the extent that the tax and tariff system was used to encourage structural changes as well as to raise revenue, the tax incentives themselves caused the relatively lower flows of tax revenue. A compensating factor to this inelasticity in Pakistan's case was the decision by the government to substantially increase indirect tax rates, both on imports and on domestic production that had been begun behind high tariff (and quota) protection. The increases in rates on domestic production resulted in recovering about forty percent of the potential revenue "lost" due to import substitution and to domestic processing of previously taxed exports.

A basic problem facing many developing countries is the overall inelasticity of their tax systems, and it is hardly possible to suggest here remedies for all such problems. There has been no mention in this paper of the inelasticity of taxes on agricultural land with respect to agricultural income, though this is a severe problem in many countries, including Pakistan. There is a lesson in the Pakistan experience for other countries facing revenue problems, however.

To a certain extent, the political acceptability of taxes depends on whether the parties paying taxes feel they can shift the taxes elsewhere. When domestic manufacturing grows up behind protective walls, domestic prices at the beginning of the process are set by the protective tariffs or import quota restrictions. As new industries "grow up," their costs should fall, leading either to falling prices of the goods or to monopoly profits to producers. If domestic production taxes are introduced, and progressively raised, the gains to the economy in increased efficiency can be passed directly to the government without either raising prices to the consumer (prices simply don't fall) or lowering profit rates to producers (profits just don't rise). The evidence available in Pakistan /7/, /21/ suggests that increases in taxes on domestic production were not associated with increased prices of the goods; in other words, the mechanism for "painlessly" raising tax revenue really worked. The principal disadvantage of this method of keeping the tax system relatively income-elastic is that neither falling costs in protected industries nor the proper timing of tax rate increases by the government is automatic. How much nicer to have a tax automatically responsive to every change in domestic value added! Since this is unlikely, and may in certain circumstances be undesirable, a program of progressively raising excise or production taxes on recently established manufacturing industries presents an alternative that would aid in overcoming the inelasticity of overall tax revenue that can result from changing industrial structure and import substitution.

Appendix A. Method of Analysing Tax Structure Changes

The formal methods of analysing tax structure changes and of attributing changes in revenue to various sources are quite a simple. The basic notion is one of holding some determining variables (composition of demand, statutory tax rates, proportion of supply product domestically) constant at base period levels, and letting them take on end period levels one at a time. In this way one can get an estimate of the change in revenue that is "due to" a change in each one of the variables. Naturally, there is an index number problem, and interactions among the different variables, so that one of the "sources" given below is in part a residual item. In addition, no adjustment was made for the fact that, for example, an increased rate of import tax might reduce the quantity imported. One justification for the latter omission is that in Pakistan throughout the 1950's and early 1960's, prices were determined largely by quantitative restrictions on imports and investment, and changes in taxes were not likely to result in changes in prices.^{1/} A brief outline of the method of computations is given here, where period 1 is used to signify base period and period 2 is end period.

The following definitions of variables are used. The subscript i refers to the commodity group and the superscript k refers to the year.

$$M_i^k = \text{imports c.i.f.}$$

^{1/} This proposition is explored by Pal /15/, /16/, Radhu /21/, and Lewis /7/, and some implications for tax policy are mentioned in the text.

T_{mi}^k = tax collections on imports

t_{mi}^k = average statutory rate of tax on imports (unweighted)

T_{mi}^k / M_i^k = effective rate of tax on imports

X_i^k = gross domestic output at factor cost

T_{di}^k = tax collections on domestic production

t_{di}^k = average statutory tax rate on domestic production (unweighted)

T_{di}^k / X_i^k = effective tax rate on domestic production

$Z_i^k = M_i^k + T_{mi}^k + X_i^k + T_{di}^k$ = total supply of the commodity, at market prices.

E_i^k = exports

$Z_i^k - E_i^k = D_i^k$ = domestic absorption.

Case 1. Suppose imports were replaced by domestically produced goods taxed at the same rate. If the composition of demand remained unchanged, indirect tax revenues would grow proportionally to the increase in total supply of manufactures, and revenue in period 2 would be given by:

$$\sum_i \left\{ (T_{di}^1 + T_{mi}^1) \left(\frac{\sum_i Z_i^2}{\sum_i Z_i^1} \right) \right\}$$

Case 2. Suppose imports were replaced by domestically produced flows taxed at the same rate, but the composition of demand changed to that of period 2. Indirect tax revenue in period 2 would be:

$$\sum_i \left\{ (T_{di}^1 + T_{mi}^1) \frac{z_i^2}{z_i^1} \right\}$$

The difference between Cases 1 and 2 would be the loss or gain in potential revenue due to a change in inter-industry composition of demand, (i) if there were no import substitution (or if imports were replaced by equally taxed domestic flows), (ii) if the composition of goods remained the same within industry and (iii) if tax rates had remained at their base period levels.

Case 3. Suppose the composition of demand remained unchanged, but there was import substitution within industries, resulting in lower-taxed domestic flows of goods. One must first calculate the implied levels of production \hat{X}_i^2 and \hat{M}_i^2 at market price for each industry, at an unchanged composition of demand,

$$\hat{X}_i^2 = z_i^1 \left\{ \frac{\sum_i z_i^2}{\sum_i z_i^1} \right\} \left\{ \frac{x_i^2 + T_{di}^2}{z_i^2} \right\}$$

This expression says: take total supply of i in the base period, increase it proportionally to the increase in total supply of all manufactures, and then proportion the implied total supply of i in period 2 according to the observed importance of domestic production in total supply of i in the later period.

The difference between implied total supply and implied domestic production is implied imports,

$$\hat{M}_i^2 = z_i^1 \left\{ \frac{\sum_i z_i^2}{\sum_i z_i^1} \right\} - \hat{X}_i^2$$

and then compute the tax revenue from such flows at the base period rates. The level of domestic indirect tax revenue implied in period 2 is given by:^{3/}

$$\sum_i \left\{ \hat{X}_i^2 \frac{T_{di}^1 / X_i^1}{1 + (T_{di}^1 / X_i^1)} \right\}.$$

The level of import tax revenue implied in period 2 is similarly:

$$\sum_i \left\{ \hat{M}_i^2 \frac{T_{mi}^1 / M_i^1}{1 + (T_{mi}^1 / M_i^1)} \right\}.$$

Case 4. Suppose the composition of demand did change to period 2,

and import substitution occurred, but the effective rate of tax on each flow (domestic production and imports) was the same as it was in the base period.

Implied domestic tax revenue would be:

$$\sum_i (X_i^2 + T_{di}^2) \frac{T_{di}^1 / X_i^1}{1 + (T_{di}^1 / X_i^1)}$$

and implied import tax revenue would be:

$$\sum_i (M_i^2 + T_{mi}^2) \frac{T_{mi}^1 / M_i^1}{1 + (T_{mi}^1 / M_i^1)}$$

Case 5. If the composition of demand is that of period 1, and import

substitution occurs in each industry (so production and imports at market price

^{3/} The reason for the tax rate expression is that one must get implied revenue from the total flow including revenue in each case.

are \hat{X}_i^2 and \hat{M}_i^2 , respectively), and the effective rate of tax on each flow is that of period 2, implied domestic tax revenue is:

$$\sum_i \hat{X}_i^2 \frac{T_{di}^2 / X_i^2}{1 + (T_{di}^2 / X_i^2)}$$

and implied import tax revenue is:

$$\sum_i \hat{M}_i^2 \frac{T_{mi}^2 / M_i^2}{1 + (T_{mi}^2 / M_i^2)}$$

Case 6. If the composition of demand changed, if import substitution occurred, and if the effective rate of tax on each flow of goods was that of period 2, then the implied tax revenue would be equal to the actual tax revenue. For domestic taxes, revenue = $\sum_i T_{di}^2$, and for imports, revenue = $\sum_i T_{mi}^2$.

Case 7. This and the next case are those where an adjustment is made for the change in statutory rates of tax, holding the composition of the flow within a commodity group (which is represented by the effective rate of tax on that commodity group.) constant at either base period or end period mixes. If composition of demand changed, import substitution occurred, but the intra-commodity composition of product or import flows remained at period 1 levels, and there is an increase in the statutory rate of tax from period 1 to period 2 levels, the implied tax revenues from domestic production taxes is given by:

$$\sum_i \left\{ (X_i^2 + T_{di}^2) \left(\frac{T_{di}^1 / X_i^1}{1 + (T_{di}^1 / X_i^1)} \right) \frac{t_{di}^2}{t_{di}^1} \right\}$$

while the implied revenue from import taxes would be:

$$\sum_i \left\{ (M_i^2 + T_{mi}^2) \left(\frac{T_{mi}^1 / M_i^1}{1 + (T_{mi}^1 / M_i^1)} \right) \frac{t_{mi}^2}{t_{mi}^1} \right\}$$

Case 3. If the end period composition of demand and intra-commodity composition of flows were maintained, and if import substitution had occurred (giving actual tax revenue in period 2) one adjusts to period one rates of tax by deflating actual revenues by the change in statutory rates. For domestic production taxes implied revenue is:

$$\sum_i T_{di}^2 \frac{t_{di}^1}{t_{di}^2},$$

while for import taxes the implied revenue is:

$$\sum_i T_{mi}^2 \frac{t_{mi}^1}{t_{mi}^2}.$$

In order to compute the gain or loss in period 2 revenues "due to" any one of the several factors (statutory rates, composition of demand, proportion of supply produced domestically, or intra-commodity composition of flows) one simply chooses the two measures that are the same except for the

factor under consideration and calculates the difference between them. For example, if one wished to calculate the effect of the changes in statutory tax rates on imports at the period 2 composition of demand, commodity composition of imports, and proportion of domestic output in total supply, one uses case 6 (actual tax revenue in period 2) and case 3 (revenue in period 2 adjusted for rate changes):

$$\sum_i T_{mi}^2 - \sum_i T_{mi}^2 \frac{t_{mi}^1}{t_{mi}^2} = \text{Rs. } 991.1 - \text{Rs. } 618.6 = \text{Rs. } 372.5 \text{ million}$$

if period 1 is 1954/55 and period 2 is 1963/64.

The basic results of projecting revenue to 1963/64 under various assumptions are summarized in Table A-1. Two different base periods were used. Data were available for eleven major manufacturing industries as far back as 1951/52, so one set of projections deals with only those 11 industries. The second set of projections includes virtually all of the manufacturing sector but uses 1954/55 as the base period. One can see from Table A-1 that by extending the base period farther back in time, the revenue losses "due to" import substitution are increased as a proportion of actual tax revenue, which certainly conforms with one's expectations.

Adjustments in revenue receipts were also made for direct taxes that were "due to" import substitution and local processing of exports, and for export taxes. For direct taxes, manufacturing company or corporation taxes were known for the period up to 1959/60, and were estimated for 1963/64 on

TABLE A-1. Indirect Tax Revenue Implied for 1963/64 Under Varying Sets of Assumptions.

<u>Basis of Revenue Projection:</u>	Implied 1963/64 Revenue with 1951/52 as base			Implied 1963/64 Revenue with 1954/55 as base		
	<u>Domestic Production</u>	<u>Import Taxes</u>	<u>Total Taxes</u>	<u>Domestic Production</u>	<u>Import Taxes</u>	<u>Total Taxes</u>
I. Base Period Composition of Demand						
1. Proportional growth of all flows and related taxes (no import substitution)	--	--	1430.8	--	--	2217.4
2. Import substitution occurs, but taxes and intra-industry composition stay at base period positions	590.2	289.0	879.2	1025.4	769.5	1794.8
3. Import substitution occurs and taxes and intra-industry composition are at 1963/4 positions	905.7	294.3	1200.0	1204.1	861.9	2066.0
4. Loss due to import substitution	--	--	551.6	--	--	422.6
5. Gain due to rate and intra-industry composition changes	315.5	5.3	320.8	178.7	92.4	271.2
II. 1963/4 Composition of Demand						
6. Proportional growth of all flows and related taxes (no import substitution)	--	--	1364.4	--	--	1926.7
7. Import substitution occurs, but taxes and intra-industry composition are at base period positions	610.0	379.3	989.3	815.9	830.0	1645.9

(continued)

(TABLE A-1 continued)

<u>Basis of Revenue Projection:</u>	Implied 1963/4 Revenue with 1951/2 as base			Implied 1963/4 Revenue with 1954/5 as base		
	<u>Domestic Production</u>	<u>Import Taxes</u>	<u>Total Taxes</u>	<u>Domestic Production</u>	<u>Import Taxes</u>	<u>Total Taxes</u>
8. Import Substitution occurs, intra-industry composition of base period, but statutory tax rates of 1963/64	971.0	1041.9	2012.9	1211.0	1534.6	2895.7
9. Import substitution occurs but taxes and intra-industry composition are at 1963/64 positions (i.e., 1963/64 actuals)	320.0	366.3	1106.3	932.2	991.1	1923.3
10. Import substitution occurs, intra-industry composition of 1963/64, but rates are of base period	616.4	227.6	844.0	699.2	618.6	1317.8
11. Loss due to import substitution	--	--	375.1	--	--	280.8
12. Loss due to change in intra-industry composition (e.g., import substitution within industries)	-6.4	151.7	145.3	116.7	211.4	328.1
13. Total loss due to intra-and inter-industry import substitution	--	--	520.4	--	--	608.9
14. Gain due to rate increases at 1963/4 intra-industry composition	203.6	138.7	342.3	233.0	372.5	605.5
15. Loss due to changed composition of demand (if import substitution had occurred)	35.7	-72.0	13.7	209.5	-60.5	148.9

Source: See Appendix text.

the basis of the average ratio of manufacturing to total income and corporation taxes in the last half of the 1950's. The analysis of "sources" of growth in manufacturing value added had been done elsewhere /7/, /8/. The proportion of increased direct taxes on manufacturing that was "due to" import substitution and export growth was credited to the gains in revenue from structural change that offset the losses in indirect tax revenue. For exports, the loss in revenue due to local processing was computed by multiplying the effective rate of tax on exports of jute and of cotton in the latest year (1963/64) by the quantity of raw jute and raw cotton used by domestic manufacturing establishments. The loss in export tax revenue due to the change in export tax rate was estimated under the assumption that the end period exports were the appropriate taxable flow, and computing the revenue that would have been forthcoming had the export tax rates of the earlier period been in effect. The effects are summarized in Table A-2.

TABLE A-2. Actual and Potential Collections of Export Duties (Rs. Millions)

Year	Actual Collections		Additional Collections if domestic use were taxed equally		Collections from exports if earlier year's rate had been effective			
	Cotton	Jute	Cotton	Jute	1951/52 Rates		1954/55 Rates	
					Cotton	Jute	Cotton	Jute
1951/52	202.3	115.5	22.2	--	--	--	--	--
1954/55	67.7	73.4	65.5	6.2	77.6	100.7	--	--
1959/60	27.0	86.4	93.2	29.6	36.5	115.9	31.9	84.5
1963/64	16.5	74.4	29.2	34.9	70.9	119.6	69.0	87.2

Source: Revenue data from Central Board of Revenue, converted to July-June fiscal year. Rates of duty calculated by dividing the statutory rates by the unit value of exports for the year in question. Statutory rates are given in the /13/, and unit values of exports are computed from the /12/. Domestic mill use is computed from Million /10/ and from /12/.

REFERENCES

1. Chenery, H. D. "Patterns of Industrial Growth," American Economic Review, September, 1960.
2. Chowdhury, A.H.M.N., "The Predictability and Flexibility of Tax Revenues in Pakistan," Pakistan Development Review Summer, 1962.
3. Ghai, D. P., Taxation for Development: A Case Study of Uganda, (Nairobi: East African Publishing House, 1966).
4. Hinrichs, H.H., A General Theory of Tax Structure Change During Economic Development (Cambridge: Harvard Law School, 1966).
5. Lewis, S. R., Jr., "Government Revenue from Foreign Trade: An International Comparison," The Manchester School, January 1963.
6. Lewis, S. R., Jr., "Sources of Change in Revenue from Import Taxes," Research Report No. 25, Pakistan Institute of Development Economics, January, 1965.
7. Lewis, S. R., Jr., Economic Policy and Industrial Growth in Pakistan M.S., Williams College, August 1966.
8. Lewis, S.R., Jr. and Soligo, R. , "Growth and Structural Change in Pakistan's Manufacturing Industry , " Pakistan Development Review, Spring, 1965.
9. Lewis, S.R., Jr., and Guereshi, S.K., "The Structure of Revenue from Indirect Taxes in Pakistan," Pakistan Development Review, Autumn, 1964 .

10. Mallon, R., "Export Policy in Pakistan," Pakistan Development Review, Spring, 1966.
11. Martin, A. and Lewis, W.A., "Patterns of Public Revenue and Expenditure," The Manchester School, September, 1956.
12. Pakistan, Central Statistical Office, Statistical Yearbook, 1963. (Karachi: Manager of Publications, 1964).
13. Pakistan, Ministry of Finance, Economic Survey, 1963/64. (Rawalpindi: Ministry of Finance, 1964).
14. Pakistan, Planning Commission, The Third Five Year Plan, (1965-70). (Karachi: Inter-Services Press, May 1965).
15. Pal, M. L., "The Determinants of the Domestic Prices of Imports," Pakistan Development Review, Winter, 1964.
16. Pal, M.L., "Domestic Prices of Imports: Extension of Empirical Findings," Pakistan Development Review, Winter, 1965.
17. Power, J. H., "Import Substitution as an Industrialization Strategy," Philippine Economic Journal, Spring, 1967.
18. Prebish, R., "Commercial Policy in the Underdeveloped Countries," American Economic Review, May 1959.
19. Rab, A., "Revenue Role of Pakistan's Income Tax," paper presented to the Seminar on Economic Problems of Pakistan, Pakistan Institute of Development Economics, January 1967.

20. Radhu, G.M., "The Rate Structure of Indirect Taxes in Pakistan,"
Pakistan Development Review, Autumn, 1964.
21. Radhu, G.M., "The Relation of Indirect Tax Changes to Price Changes,"
Pakistan Development Review, Spring, 1965.
22. Sahota, G.S., Indian Tax Structure and Economic Development.
(Bombay: Asia Publishing House, 1961).
23. Stolper, W., Planning Without Facts. (Cambridge; Harvard University
Press, 1966).
24. Yaqub, M., "The Elasticity of Taxes in a Developing Country: A Case
Study of Pakistan," paper presented to the Seminar on Economic Problems
of Pakistan, Pakistan Institute of Development Economics, January, 1967.