

## Notes & Comments

### CONSUMER GOODS OR CAPITAL GOODS—SUPPLY CONSISTENCY IN DEVELOPMENT PLANNING A COMMENT

by

G. C. HUFBAUER\*

Everyone who has heard of Harrod-Domar realises that growth targets imply something about savings rates. But growth targets also imply something about the availability of capital goods. The business of economic planning, as Winston points out [1], is to ensure compatibility between the Harrod-Domar and the Mahalanobis constraints. If domestic savings exceed the availability of domestic plus foreign capital goods, two "despised alternatives" confront the economy: inventory accumulation or slower growth. To avoid this unhappy predicament, Winston outlines three remedial policies.

Our purpose is to suggest that the Harrod-Domar and Mahalanobis constraints may not be independent. Remedial policies aimed at that larger capital goods supply may affect the private and public savings rates and the growth of income. These suggestions are hardly novel [2]. They turn on replacing the proportional savings function with a classical savings function (*i.e.*, one which specifies private savings rates by economic sector), on distinguishing tax rates by type of domestic production and imports, and on stipulating a connection between consumer-goods production and import of raw materials for the consumer industries.

Let government expenditure be subsumed under consumption goods and capital goods. The Harrod-Domar savings function in Winston's open economy model [1, pp. 360-362] then becomes:

$$(1) S_t = I_t = S_{t-1} + (s_c + r_c) \Delta Y_{ct} + (s_k + r_k) \Delta Y_{kt} \\ + (s_{x1} + r_{x1}) (1 - \alpha) \Delta Y_{xt} + (s_{x2} + r_{x2}) \alpha \Delta Y_{xt},$$

where  $s$  denotes private savings and  $r$  denotes the fraction of tax receipts devoted to public savings. Public-cum-private savings rates differ between industries principally because of variations in the gross profit share of income and differences in tariff and tax rates. It should be noted that  $r_{x1}$  and  $r_{x2}$  reflect import

\* The author is Economic Advisor, Planning and Development Board, West Pakistan. The views in this article are the personal opinions of the author and do not necessarily reflect official position or policy.

duties imposed on consumer and producer goods, respectively (including raw materials for such goods), as well as export taxes.

The consumption equation, inclusive of government consumption, remains notationally the same:

$$(2) C_t = Y_{ct} + (1-\alpha)Y_{xt} - I_{dt}$$

but  $Y_{ct}$  (domestic production of consumption goods) is bounded by the condition:

$$(3) Y_{ct} \leq \lambda (1-\alpha)Y_{xt}.$$

In other words, the inverse of the input coefficient,  $\lambda$ , and the availability of imported raw materials,  $(1-\alpha)Y_{xt}$ , set an upper limit on domestic output of consumption goods<sup>1</sup>.

Winston's inequality (3.8), in which savings exceed the supply availability of capital goods, then becomes:

$$(4) \Delta S = (s_c + r_c) \Delta Y_{ct} + (s_k + r_k) \Delta Y_{kt} + (s_{x1} + r_{x1}) (1-\alpha) \Delta Y_{xt} + (s_{x2} + r_{x2}) \alpha \Delta Y_{xt} > \sigma_k I_{k(t-1)} + \alpha \sigma_x I_{x(t-1)}.$$

Under the circumstances of inequality (4), Winston offers three non-trivial policies:

- i) Anticipate the problem and devote more resources to the domestic investment-goods sector and the export sector, so that  $I_{k(t-1)}$  and  $I_{x(t-1)}$  will be larger.
- ii) Shift resources from the domestic investment-goods sector to the export sector if  $\sigma_k > \sigma_x$ , or *vice versa* if  $\sigma_k < \sigma_x$ , while keeping total resources committed to these two sectors constant.
- iii) Reduce the proportion of consumer-goods imports, thereby increasing  $\alpha$ .

The first solution will depress the left side of inequality (4) if  $(s_c + r_c)$  exceeds the other savings rates. But if savings associated with investment goods and export production are greater than savings associated with consumer-goods production, solution i) has the happy effect of raising aggregate savings while meeting the supply constraint. The larger are  $(s_k + r_k)$  and  $(s_{x2} + r_{x2})$ , the higher will be the growth rate which equilibrates financial savings and the supply of capital goods. Since  $(s_k + r_k)$  and  $(s_{x2} + r_{x2})$  are always less than one, the allocation of more resources to  $I_k$  and  $I_x$  must eventually close the gap in inequality (4).

<sup>1</sup> The constraint on domestic production of consumption goods is completely analogous to Winston's constraint on the minimum proportion of investment that "must" come from foreign sources [1, pp. 368-369].

Depending on the output-capital ratios ( $\sigma_k$  and  $\sigma_x$ ), solution *ii*) prescribes more/less capital-goods production and less/more export production. Fewer exports mean fewer imports, and hence smaller tariff revenues. Therefore, if solution *ii*) prescribes a shift away from export production, public savings will probably decline, since in developing nations imports typically generate a disproportionate share of public revenues; the reverse holds if the shift is towards export production.

Solution *iii*) calls for expanded capital-goods imports at the expense of consumer-goods imports. This solution may activate constraint (3), thereby depressing national income. In any event, if the solution is implemented without changing tariffs, aggregate savings will almost certainly fall, since consumer goods invariably bear higher duties than capital goods. If the policy is implemented through tariff adjustments, the effect on public revenues depends primarily on the elasticity of home demand and the percentage of landed cost accounted for by tariffs<sup>2</sup>.

Insofar as Winston's solutions change the overall savings rate by altering the composition of economic activity, it should be possible to offset these changes through tax policy. In principle, taxes can be raised, lowered, or shifted between classes of the population so as to maintain a given level of public and private savings. But in practice, this may not be so easy! The kinds of savings problems engendered by Winston's three solutions are illustrated, for Pakistan, by the data in Table I. For the purpose of this exercise, we assume that inequality (4) applies to the Pakistan economy<sup>3</sup>.

Solution *i*), if it entailed a shift from consumer industries to producer industries, might cause a modest decline in Pakistan private savings and a larger drop in public savings<sup>4</sup>. It is reasonable to suppose that private savings differ between industrial activities principally as a function of the profit share of income, and the 1964/65 West Pakistan data in Table I indicate a slightly bigger profit proportion among consumer industries than among producer industries.

<sup>2</sup> Assuming that foreign supply is perfectly elastic, the percentage change in revenue for a 1 per cent change in the tariff rate (e.g., an increase from 10.0 per cent to 10.1 per cent) is given by  $(ew + 1)$ , where  $e$  is the elasticity of demand (with a negative sign), and  $w$  is the percentage of landed cost, inclusive of tariff, accounted for by the tariff. To the extent higher tariffs absorb windfall profits accruing to holders of import licences, public revenue is directly proportional to the tariff rate.

<sup>3</sup> The assumption may not be correct. A simplistic diagnosis of the 1967 Pakistan economy, with its widespread excess capacity, suggests that too much foreign exchange has gone for industrial machinery (thanks in part to the "project aid" fetish), leaving too little for raw-material imports. In other words, inequality (4) may run the other way: additions to capacity may exceed financial savings. Perhaps the remedy is smaller capital-goods imports (i.e., smaller  $\alpha$ ). This would release foreign exchange for import of raw materials, thereby permitting larger positive increments in domestic output of consumption goods ( $\Delta Y\alpha$ ).

<sup>4</sup> Solution *i*) is here interpreted as requiring a shift from consumer industries, leaving agricultural production for domestic consumption unchanged. Likewise solution *iii*) is assumed not to affect foodstuff imports.

Meanwhile, the excise and sales tax burden falls much more heavily on consumer goods than on capital goods. Hence, unless tax rates were changed, public savings would suffer from reduced consumer-goods production. On the other hand, if solution *i*) entailed a shift from consumer industries to export production, public revenues might actually increase; the effect on private savings cannot be determined from Table I.

Incidentally, of the four Pakistan industries scored by A. R. Khan for "consumption liberalization" [3]<sup>5</sup>—cotton textiles, sugar, cigarettes, and paper—the last three as practised in West Pakistan enjoyed 1964/65 net profits exceeding 59 per cent of value added; the figure for cotton textiles was 48 per cent. Meanwhile, domestic sales of cotton textiles, sugar, and cigarettes all generated indirect taxes exceeding 40 per cent of value added. Perhaps sugar, cigarettes, and paper should be curbed on grounds of comparative advantage [4 ; 5]. But their restriction in order to enlarge domestic capital-goods output requires some attention to financial consequences. High savings rates on the production side may go hand-in-hand with "consumption liberalization"<sup>6</sup>.

Solution *ii*), according to Table I, would bring about a decline/rise in public savings depending on whether it entailed a shift of resources from/towards export production. The effect of solution *ii*) on private, and hence total, savings cannot be determined without some knowledge on savings in the production of cotton, rice, and jute for export.

Finally, there is solution *iii*). If enacted without change of tariff rates, this solution would surely depress Pakistan public savings (note the comparatively high tariff on consumer imports); owing to constraint (3), it might also depress consumer-goods output.

---

<sup>5</sup> Khan also reprimanded tea production.

<sup>6</sup> But consumption liberalization may still have adverse effects upon personal savings rates, particularly among the upper income groups.

**NOTATION**

- $Y$  = income  
 $S$  = net savings  
 $I$  = net investment  
 $C$  = consumption  
 $s$  = private savings rate  
 $r$  = public savings rate  
 $\alpha$  = proportion of export earnings used to purchase capital goods.  
 $\lambda$  = inverse of the import-requirements coefficient for domestic consumer-goods production.  
 $\sigma_k$  = output-capital ratio in the domestic producer-goods industry (it is assumed that labour supply poses no constraint).  
 $\sigma_x$  = output-capital ratio in the export industry.

**SUBSCRIPTS**

- $t$  = time  
 $c$  = consumer-goods industry  
 $k$  = producer-goods industry  
 $x$  = export industry  
 $x_1$  = export industry, when foreign exchange goes for the purchase of consumer goods, or their raw materials.  
 $x_2$  = export industry, when foreign exchange goes for the purchase of capital goods.  
 $d$  = inventories of consumer goods

**TABLE 1**  
**SELECTED PARAMETERS FOR THE PAKISTAN ECONOMY**

	Net profits/ value added, West Pakistan	Indirect taxes/value added, West Pakistan	Import duties/ CIF imports, Pakistan	Develop- ment outlay/ public revenue, Pakistan
	1964/65 <sup>1</sup>	1964/65 <sup>2</sup>	1966/67 <sup>3</sup>	1965/66 <sup>4</sup>
Domestic capital-goods production <sup>5</sup>	54%	16%	—	} 18%
Domestic consumer-goods production <sup>6</sup>	60%	31%	—	
Export production used to import:				
Capital goods <sup>7</sup>	n.a.	} 1%	21%	
Consumer goods <sup>8</sup>	n.a.		34%	

<sup>1</sup> Net profits are defined as value added, less employment costs, less 10 per cent of fixed asset in operation at the beginning of the year (depreciation allowance). The data were derived from *Census of Manufacturing Industries: 1964/65* [6]. In principal the data cover all West Pakistan factories registered under 2j and 5i of the Factories Act 1934, but in practice there are many errors and omissions.

<sup>2</sup> Indirect taxes are defined as excise, sales, and export taxes. Excise and sales taxes were derived from [6]. Exports are exempted from excise and sales taxation; in fact rebates are given for excise and sales taxes on inputs directly used in export production. Export taxes, although levied only on jute and cotton, are related to the total value of 1966/67 exports. [Cf. 7, pp. 27-33; 8; 9].

<sup>3</sup> Data taken from [7; 8; 9].

<sup>4</sup> Development outlay is defined as development expenditure plus expenditure on education [10, Tables 42, 44, 46].

<sup>5</sup> Domestic capital-goods production is defined as cement, basic metals, metal products, machinery, and ship-building.

<sup>6</sup> Domestic consumer-goods production refers to all *industrial* activities save those listed in footnote 5 above.

<sup>7</sup> Imported capital goods are defined as iron and steel products, other industrial metals, machinery, all motor vehicles, railway plant and rolling stock, and ships, boats, and aircraft.

<sup>8</sup> Imported consumer goods are defined as all imports except those listed in footnote 7 above and *except* foodstuffs (SITC Section O).

## REFERENCES

1. Winston, G.C., "Consumer Goods or Capital Goods — Supply Consistency in Development Planning", *Pakistan Development Review*, Vol. VII, No. 3, Autumn 1967.
2. Hahn, F.H., and R.C.O. Matthews, "The Theory of Economic Growth, A Survey", in *Surveys of Economic Theory*, Vol. II, 1965.
3. Khan, A. Rahman, "Import Substitution, Export Expansion and Consumption Liberalization: A Preliminary Report", *Pakistan Development Review*, Vol. III, No. 2, Summer 1963.
4. Soligo, R. and J. J. Stern, "Tariff Protection, Import Substitution and Investment Efficiency", *Pakistan Development Review*, Vol. V, No. 2, Summer 1965.
5. Lewis, S. R. and S. E. Guisinger, "Measuring Protection in a Developing Country: the Case of Pakistan". (Mimeographed), December 1966.
6. West Pakistan, Bureau of Statistics, *Census of Manufacturing Industries, 1964-65. (Preliminary Release)*. (Lahore: Bureau of Statistics, Government of West Pakistan, November 1967).
7. Pakistan, Ministry of Finance, *The Budget, 1967/68*. (Rawalpindi: Manager of Publications, 1967).
8. *Monthly Foreign Trade Statistics of Pakistan*, June 1967. (Monthly issued by the Central Statistical Office, Government of Pakistan).
9. *Statistical Bulletin*, September 1967. (Monthly issued by the Central Statistical Office, Government of Pakistan).
10. Pakistan, Ministry of Finance, *Pakistan Economic Survey: 1966/67*. (Rawalpindi: Manager of Publications, 1967).