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TAXATION OF PRODUCTIVE CONSUMPTION IN DEVELOPING COUNTRIES

Carl S. Shoup

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Taxation of Productive Consumption in Developing Countries

Carl S. Shoup

International Center
for Economic Growth

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PREFACE

We are pleased to publish this essay by Carl S. Shoup as the fourth in our series of Occasional Papers. The series features broad reflections by senior scholars and policymakers on major "lessons" produced by recent advances of knowledge.

While tax policy is a central concern for many developing countries, little research has been done on how taxation affects productive consumption, or the consumption of goods and services that allows people to increase their production. In this paper, Carl Shoup analyzes the relationship between various tax schemes and productive consumption and makes recommendations on how tax policy may maximize rather than hinder productivity. In developing countries, where much of the population lives at a subsistence level, this issue is especially critical.

Carl Shoup, McVickar Professor Emeritus of Political Economy at Columbia University, has participated in studies of taxation and has helped formulate proposals for tax reform in both developed and developing countries around the world, and has over several decades made substantial contributions to the rise of public finance as a field of economics. We believe his essay adds much to our understanding of the effects of taxation in the development process and will be of great interest to both scholars and policymakers.

Nicolás Ardito-Barletta
General Director
International Center
for Economic Growth

Panama City, Panama
August 1989

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ABOUT THE AUTHOR

Carl S. Shoup is McVickar Professor Emeritus of Political Economy, Columbia University, where he was a member of the faculty from 1928 to 1971. His chief interest has been public finance, with a specialty in taxation, particularly tax systems of both developed and developing countries. He was director of tax missions to Japan (1949–50), Venezuela (1958–59) and Liberia (1969). He has participated in tax studies commissioned by the governments of Brazil, Cuba, Indonesia and Jamaica, and served as interregional advisor on tax reform planning for the United Nations (1972–74), consulting with developing countries that asked for assistance in tax policy. In the developed world, Professor Shoup acted as a consultant to the U.S. Treasury on tax matters, was co-director of a study of the finances of New York City, and was a member of the Fiscal and Financial Committee of the European Economic Community that set the guidelines for harmonization of the member countries' tax systems. Recently he has participated in studies of the value-added tax by the World Bank. His books include *Public Finance* (1969), *Ricardo on Taxation* (1960) and (with others) *Facing the Tax Problem* (1937).

CARL S. SHOUP

Taxation of Productive Consumption in Developing Countries

The Incipient Danger

Current tendencies in tax theory and tax policy for developing countries may be endangering prospects for economic growth in those countries. At present the danger is only incipient, but the time seems right to sound a tentative warning and to appraise the degree of danger.

The taxes at issue are those that cause consumers to reduce their productive consumption—in other words, the consumption of food, potable water, clothing, shelter, sanitation and medical care that at the margin of consumption enables the worker to increase output through an increase in vigor (or a decrease in enfeeblement). According to the FAO's Nutrition and Working Efficiency, "A poor diet, resulting in undernutrition and malnutrition, reduces working efficiency by (a) decreasing the worker's resistance to disease; (b) increasing the rate of absenteeism; (c) causing lethargy, lack of initiative and drive; (d) increasing accident rates" (Food and Agriculture Organization 1962, p. 44). If the increase in output resulting

I am indebted to Howard N. Jacobson, Charles E. McLure, Jr., and Brian L. G. Morgan for comments on an earlier draft of this paper.

from a rise in consumption exceeds the increment of consumption, the latter is not only productive, it is also gainful.

Two tendencies now threaten productive consumption in developing countries: (a) the increasing emphasis in public finance theory on the desirability of taxing consumption rather than income, and on taxing more heavily those items of consumption for which demand is relatively inelastic and (b) the spread of general sales taxation among developing countries, owing largely to discovery of the value-added tax, a type of general sales tax that is attractive because it does not induce many of the distortions familiar under the old turnover tax, as explained below, but that still carries the threat of reducing productive consumption.

Regarding the first tendency, the effect of an income tax at the margin that favors consumption now over consumption later has induced many students of tax theory to urge at least a partial substitution of a broad-based consumption tax, which is neutral in this respect. They have not, however, noted the danger that such substitution may reduce productive consumption. While they have usually advocated exemption of basic foods as well as, to some degree, clothing, shelter and medical care, the reason commonly given has been vertical equity: distribution of the total tax bill in a progressive pattern, with exemption of the very poor. If, indeed, achievement of vertical equity automatically means exemption of productive consumption, the recent emphasis on consumption taxation may not be dangerous for economic growth. This point will be taken up below.

Another conclusion of tax theory that poses some danger for productive consumption is the rule for achieving optimal taxation of commodities on the basis of efficiency, that is, without regard to distribution of income. This rule, stated in its simplest form for a small tax, calls for a commodity tax system in which tax rates differ among commodities in such a manner that the physical quantities demanded by a consumer are reduced by a uniform proportion for all commodities (see Stern 1984, p. 350). A higher tax rate is therefore required for a commodity with relatively inelastic demand, even if it is a basic foodstuff. This prescription obviously abstracts from productive consumption.

This raises a question about the danger for productive consumption posed by the spread of the general sales tax, noted as the second ten-

dency. Why is this so important? May not an excise tax on alcohol or tobacco be equally detrimental to productive consumption, as the consumer seeks to maintain his intake of these addictives in the face of the excise by cutting back his productive consumption of food and the like? In principle, this income effect of the excise is significant, but in practice, as explained below, the greater danger for productive consumption probably comes from the general sales tax that covers almost everything, including food and clothing. The relative pressure on productive consumption exerted by still other taxes, including the income tax and taxes on international trade, are also covered below.

Productive consumption is here distinguished from consumption that creates human capital, where the increase in output arises only after a considerable period, sometimes years, while the individual is building up technical skills or, as with children, building up the body and mind. Both types of consumption are productive, but since much has been said on tax policy and human capital, this paper will not explore that aspect of productive consumption, except for a few words on children in the section that follows.

Of primary interest here are middle-income developing countries. Their per capita income is low enough that a considerable part of the labor force may be in the range of consumption where an increment of food will result in an increment of output by the worker. For extremely poor countries where almost all the populace lives by subsistence agriculture (in Mozambique, for example, the figure is four-fifths), those in the productive-consumption range are probably not much affected by taxation. On the other hand, the labor force of the higher-income developing countries is mostly above the upper limit of marginal productivity of consumption. Even in these countries, however, there are lower-income regions where productive consumption obtains.

The Range of Productive Consumption

The feature of productive consumption that makes it so important for shaping a tax structure is the narrow range within which it operates. In terms of number of calories ingested per day, consumption of less than

1,500 yields no output by the consumer, who is still too enfeebled at that level to do more than rest ("resting metabolism level"). Beyond an intake of about 3,000, ability to produce is not further enhanced, at least for sedentary workers, the individual by then being fully strengthened and healthy, as far as nutrition is concerned. At 3,000 calories, the worker is producing, or is capable of producing, more than he or she is consuming. Consequently, with a 1,500 increment rise in consumption, from 1,500 to 3,000, output increases by more than 3,000; thus the average marginal productivity of consumption in this range is more than 2. Marginal productivity near the upper and lower boundaries of 3,000 and 1,500 is probably less than one. Then, in some other subrange, perhaps from 2,000 to 2,500, the marginal productivity of consumption will be higher, perhaps far higher, than 2.

With marginal productivity above one, small changes in disposable income can have dramatic effects. A small decrement or increment in tax, allowing the taxpayer to consume slightly more or forcing him to consume slightly less, starts him on his way up or down the production ladder, projecting him into a consumption range where marginal productivity of consumption is zero.

To illustrate this, let us consider an admittedly oversimplified yet instructive example in which the marginal productivity of consumption is constant from 1,500 to 3,000, and zero below or above those levels. But first, a few definitions and units of measurement.

The unit of measurement adopted here, for both consumption and output, is the calorie, because of the importance of food in productive consumption. One could measure the other inputs essential for production by the number of calories, embedded in food, that they could be exchanged for, but this of course varies with the type of food and relative prices. Potable water might be treated separately, as an essential input of more or less fixed amount; it is a facilitating input, without which the calories in foodstuffs are of no consequence. Clothing may be almost disregarded as an input requirement in the warm climates where so much of the developing-country populace dwells; in temperate or colder climates, the amount of clothing might be measured by the calories it saves, by keeping the body warm, in the food intake necessary for a given level of production. Sanitation and medical care, as well as

health inputs in general, might be treated like water, except that there is a greater range of input within which at least some productive capacity remains.

In this analysis, we will look at input variation entirely in terms of food, assuming given, fixed levels of input of the other consumables necessary for production.

Output is measured by the number of calories in the output or the maximum in food that it can be exchanged for. While this is unsatisfactory for a thoroughgoing analysis, it will be adequate for the present attempt to examine taxation's effect on output through its effect on productive consumption. Indeed, we shall not go far wrong if we deal with food as the only variable.

Output in calories will differ from input in calories for a given individual at a given time and place. To be sure, no one can expend more calories than he ingests, aside from drawing on body tissues, but the expending itself can yield a product that, measured in calories, may exceed or fall short of the calories ingested and expended.

A calorie is a unit of heat energy in the metric system, specifically, the quantity of heat required to raise the temperature of one gram of pure water one degree centigrade (gram calorie). In the nutrition literature, it is customary to use the term "calorie" to mean one thousand calories, i.e., as shorthand for kilocalorie, and this convention will be followed here. The term also indicates the heat content of a food, that is, the amount of heat energy that the food can yield as it passes through the body (*New Columbia Encyclopedia*, p. 427). "Calorie intake," then, means the intake of a specified food that can yield the stated amount of calories as it goes through the body. According to the American Medical Association (1982), the average daily calorie requirement of a woman with a desk job is 2,000; woman with a fairly active job (housewife, physician), 2,300; man with a desk job, 2,500; man with a fairly active job (carpenter, teacher), 2,800; man with a very active job (bricklayer, coal miner), 3,300; professional athlete (man or woman), 4,000.[1] Ingestion beyond these amounts usually causes a gain in weight. Numbers given below without definition refer, as here, to kilocalories per day.

The marginal product of productive consumption depends, of course, on the level and intensity of capital equipment, willingness to

work, size of reward offered, and the like, which are assumed to be given in the illustrations here.

Let us assume that output (1) begins at the 1,500 input level, (2) exceeds input at input levels above 2,000 and (3) reaches a maximum of 6,000 at an input of 3,000 (these figures are illustrative).[2] This is consistent with a constant marginal product of 4. The level at which output just equals input, 2,000, is the "natural equilibrium" level. It is "natural" in the sense that no taxation or aid is involved; if the worker is allowed to retain all that he produces (because he pays no taxes) and is given no aid, he can repeat this pattern indefinitely.

At a higher level of input, say 2,200, output exceeds input, and the worker is on his way up to the maximum output, but if the government taxes away the excess of output over input, the worker is locked in at the 2,200 level. Using our constant marginal productivity of 4, we find output is 2,800 for an input of 2,200, that is, 4(2,200 – 1,500). A tax of 600 leaves but 2,200 available for consumption, and the pattern is repeated indefinitely. There is a tax-induced equilibrium at the input level of 2,200. Similarly, if we start with a worker whose intake is only 1,600 initially, but supply him with aid of 1,200, he is at an aid-induced equilibrium of 1,600, because his own output of only 400 is supplemented by 1,200 aid, allowing him to consume 1,600. In these examples we abstract from whatever event put the worker at the 2,200 level or the 1,600 level to begin with; for example; it might have been a good year or a bad year, respectively, for agriculture.

If, in this highly simplified example, any of these equilibria are disturbed even slightly by a unit decrease or increase in calorie intake, substantial effects occur, if the marginal productivity of consumption is greater than one.

In what follows, we assume for convenience that a change in the worker's calorie intake within the 1,500–3,000 range affects his output immediately. A decline of one calorie in intake on a given day will cause his output for that day to fall by four calories. In actuality, the full effect may be delayed for several weeks. Similarly, the illustrations assume that the entire output of one day, after tax, is consumed the next day. These simplifying assumptions are relaxed in the latter part of the present section.

Suppose, then, that a worker starts day one with an endowment of 2,200 calories from outside sources, which he consumes on that day. He thereupon produces 2,800 on day one. Of this, assume that 600 is taken in tax at the start of day two. Let a onetime, one-calorie tax also be imposed on him on day two. After the total tax of 601, he consumes 2,199 calories, and hence produces only 2,796 that day. On day three, after the usual tax of 600, he has available for consumption the remaining 2,196 calories produced on day two. This consumption is 4 less than 2,200; output thus falls by 16, or 4×4, from the original level of 2,800 to 2,784 on day three. Consuming, after the tax of 600, 2,184 on day four, the worker produces only 2,736 calories [2,800 – 4(16)], and so on. He slides downward day by day until he is soon producing nothing and consequently, the next day, consuming nothing.

If we postulate, instead of an additional tax of one calorie for one day, a reduction in tax of one calorie for one day, so that the worker pays a tax of only 599 instead of 600 for that one day, an upward spiral is begun, which soon places him at a level of consumption where a further increment has no effect on his output.

Much the same end result occurs if the marginal productivity of consumption in the 1,500–3,000 range is assumed not to be constant at 4, but to vary, first rising from less than one to a maximum 20 or even 40 over a short subrange, then declining similarly.

Incidentally, it is evident in this kind of illustration that there is no induced equilibrium level of government *aid* in the consumption subrange *above* the natural equilibrium level, and no induced equilibrium level of *tax* in the consumption subrange *below* the natural equilibrium level.

The example of a worker at a tax-induced equilibrium level of 2,200 may seem to imply that governments purposely stabilize workers at some level of consumption below 3,000, the level that yields maximum product. In fact, of course, governments have no such aim. The result, however, is the same as if the government had planned it. The worker can be locked in at a level of consumption that yields less than the maximum product, when the government fails either to tax or to aid him at the natural equilibrium level, or stipulates tax or aid at certain levels above or below natural equilibrium.

The description so far seems decidedly unreal. Workers do not appear to be so delicately balanced, either at a natural or at an induced equilibrium level, that a slight fiscal change sends them soaring to the maximum product level or plunging to zero output. This is because there are five buffers operating. The first two lie between the worker's consumption and his ensuing production, and the other three lie between the worker's production and his ensuing consumption.

First, the worker may for short periods draw on his body tissues, chiefly fat, to expend more energy than his current intake of calories alone would allow. Conversely, a part of his intake of calories may go, not to expending energy, but to building up body tissues, as with a worker on a sedentary holiday. In these instances, the relation between a day's consumption (from outside the body) and the same day's ensuing production implied above is altered, at least for a time.

Second, the worker's intake of calories may be so closely linked with an intake of soporifics, narcotics or other production-adverse elements that the normal relationship between one day's consumption (which in this analysis is always measured in calories) and the same day's ensuing production is again disturbed. Alcoholic drinks, for example, "contain calories in abundance" (AMA 1982, p. 29). But here, the calories are linked with intoxicants, and beyond a modest level of intake, the combination reduces output, substituting uncoordinated activity or torpor. Counting calorie intake alone, without regard for such linkages, is obviously unsuitable for the present analysis. If the intake is of a substance that carries no calories (tobacco, for example), it is not here considered consumption.

Third, some part of the worker's output may be saved rather than consumed on the day immediately following that of production. Later, he may draw on the savings to allow a greater input of calories than the preceding day's production alone would permit. The savings may also be immediately invested by the worker, as when a farmer invests his labor in a growing crop. These possibilities change the postulated relation between today's production and the next day's consumption. Saving and dissaving are to be distinguished from adding to or drawing down body tissues, since the saving or dissaving affects the intake of calories, or consumption.

Fourth, lags in wage adjustment and the like may prevent an increase or decrease in a worker's output on one day from changing his consumption possibility accordingly for the next day. This lag in adjustment is to be distinguished from the fact that part of the worker's output, if he is a wage earner or an entrepreneur who is renting or borrowing, will normally flow to others to cover capital expenses. This implies no change in the basics of the analysis above, but simply affects the relation between what the worker produces on one day and what he can consume the next.

Fifth, the worker's family must be considered. In terms of the induced-equilibrium example above, the worker producing 2,800 calories will not, after paying the tax of 600, normally have 2,200 calories to consume himself the next day, so that he can continue to produce. His family will consume part of his product. Thus the relation between the worker's output and his own ensuing consumption is altered. The natural equilibrium level of output is now somewhat higher than 2,000, and there is no induced equilibrium at an output of 2,800 and a tax of 600. The family's presence, however, also helps counteract these effects. Consumption by a housekeeping spouse enhances the productive capacity of the worker, who would otherwise have to divert part of the energy used for producing output to household tasks. Moreover, the spouse and children may take on outside work that enhances the family's consumption level.

Children under working age supply a clearer example of diversion of a worker's output to consumption that does not immediately increase production, however important that linkage may be over the longer term in creating human capital.

In that longer view, reduction in a child's consumption now may reduce future output greatly. Children may die before reaching a working age precisely because of such a reduction. They succumb more readily to disease or, in famine areas, starve. Then, in strictly economic terms, all the input they have absorbed in earlier years is seen as wasted, as they never reach working age.[3]

The economic waste is greatest when the child dies just before working age. In fact, child mortality in developing countries is greatest up to four or five years of age, so the input "wasted" is correspondingly

less, however great the human tragedy in either case. Once the child has reached the age of five or so, he can forage for himself to some degree and has outgrown some diseases. Moreover, until the growth requirements of puberty, he needs less intake, especially of proteins, because he has passed through the initial period of unusually rapid growth, including the laying down of muscle tissue (Shoup 1965, p. 190; Sebrell et al. 1959, p. 12; Dr. Howard N. Jacobson, letter to the author, July 1988).

Even so, total consumption by children per adult worker may be higher in developing countries than in developed, owing to a high birth rate coupled with a substantial mortality rate in middle and later childhood. In addition, if the adult is enfeebled owing to deficient current consumption, the childhood-consumption cost of the adult's product may be still higher in the developing country.

Reducing a child's consumption to enable the worker to consume and hence produce more may carry a heavy cost in loss of future output if the child reaches working age, but only after a long period of protein-deficient intake. "Calories can carry the individual to working age, but the amount of work he can do will depend in many occupations on the amount of muscle tissue he has laid down during his early years of growth, and this will be a function of protein intake" (Shoup 1965, p. 191).

Consumption in old age, defined as the period following retirement from work, influences output indirectly in two ways. First, consumption by an older person is one of the family buffers that lie between the worker's output and his ensuing consumption. Second, the prospect that such consumption will be available influences the willingness to work in earlier years. This latter effect is not strictly within the purview of the present analysis, which is concerned with changes in physical and mental ability to work, not with willingness to do so.

The proportion of the labor force that is subsisting in the productive-consumption range is presumably highest in the low-income developing countries, though there are doubtless areas within some of the higher-income developing countries that show similar proportions. At least a few of the higher-income developing countries may have a labor force that is almost entirely above the productive-consumption range; for them the issues raised here are of little importance. ("Ranges" here refer to marginal effects.)

Most of the low-income countries lie not far from the equator, and this eases the task of reaching the upper level of productive consumption, since the need for increments of clothing and shelter is relatively small. That upper level, however, may be considerably lower than in the colder countries, owing to the enervating effects of heat and humidity. In extremely hot countries, air conditioning supplies productive consumption by allowing better sleep at home and more output in the store or factory.

The literature on productive consumption, aside from that dealing with human capital, is scanty. Many recent treatises and compendia of conference papers on economic development fail to treat this aspect of consumption. That at least some consumption is necessary for production is indeed obvious. What is not so obvious is the pattern of the marginal relationship of the two. Aside from my 1965 contribution, and a 1968 statement by Myrdal, I have been unable to find anything but brief references to the marginal productivity of consumption at various consumption levels. Myrdal, in his treatise on Asia, was explicit, but did not examine the marginal pattern in detail.

> In poor countries a change in the levels of living affects the contribution men make to production. . . . In the rich countries, standards of nutrition are generally so high that a rise in the quantity or an improvement in the quality of food intake has no effect on labor productivity. They may, indeed, lower it. This is not so in any South Asian country. . . . We may speculate about a minimum consumption level necessary to preserve optimal productivity ["optimal" is not defined by Myrdal, at least at this point], and such speculation has been reflected in some of the arguments in the theory of public finance for basic allowances before taxable income is assessed. We may further speculate about a level of consumption at which the cost of a marginal increase is exactly equal to its marginal value productivity. This would presumably be the optimal consumption level from the point of view of a calculating slave-owner or horse breeder (Myrdal 1968, pp. 1912–16).[4]

The present analysis has been in terms of energy: caloric intake and output. Protein requirements must be met if the energy relations are to obtain. A thorough description of the relations between these two

aspects of nutrition is given in the report of a "joint expert consultation" to the World Health Organization in 1985. Interestingly enough, nowhere in this informative report is there a marginal analysis: how much output will result from a unit increase in input? Everything is put in terms of totals, that is, "requirements." The list of differing requirements among occupations hints at marginal analysis, but no more. None of the twenty experts, two observers, and fourteen secretariat members on the panel were economists (WHO 1985, pp. 205–6).

Broad-Based Taxes in Developing Countries

The value-added tax (VAT) is levied not on sales, but on the value that a business firm adds to the goods and services it purchases from other business firms. It creates this value by using its labor force, its machinery and plant, and the like. A bakery, for example, adds value to the flour it purchases from millers by creating bread. A retailer adds value to the goods it buys from a wholesaler by displaying them in a convenient place for consumers, by stocking them for considerable periods, and by providing sales clerks to assist the customers.

The usual type of value-added tax is one that extends from the earliest stage of production or extraction down through the retail stage, in which the sum of the taxable values added at each stage equals the retail price. This comprehensive value-added tax is, in general, the same as a retail sales tax, provided that it is a consumption VAT that taxes value added on consumer goods, not on capital goods. The only difference is that it is collected in stages.

In some countries the VAT is levied only on the manufacturing sector. This kind of VAT is not covered here since it does not place such a heavy tax burden on the productive consumption inherent in foods and medical care (although it may affect clothing and shelter).

The other major broad-based sales taxes in developing countries are (a) the turnover tax, or "cascade" tax, which strikes total sales receipts, not just value added, at every stage, from extraction and manufacturing through the retail level, and (b) a tax on sales (again, not just on value

added) that is limited to one stage, usually manufacturing, but sometimes wholesaling or retailing (for details, see Due 1988, pp. 92–130).

The share of total tax revenue supplied by broad-based sales taxes in the lowest-income developing countries has increased in recent years. In the period from approximately 1966 to 1969, the turnover tax and the VAT together accounted for 14 percent of total tax revenue in the twenty countries with per capita GNP of $100 or less, in 1969 dollars. Some fifteen years later, they contributed 18 percent in the twenty-four countries with per capita GNP of $350 or less, in 1984 dollars. The import and export duties nearly matched this 4 percentage-point increase, rising from 35 percent to 38 percent. The share of excise taxes fell from 19 percent to 15 percent, and direct taxes (income tax and property tax) dropped from 32 percent to 28 percent (Due 1970, pp. 2, 28, 60, 80; Due 1988, pp. 22–23).[5] These shifts in shares are not dramatic, but the broad-based sales taxes did rise from fourth place to third, now exceeding the excise taxes, and the percentage-point increase in their share was slightly greater than that of the international trade taxes. In geographical terms, as of 1987, "the principal [developing-country] areas that have not yet introduced [general] sales taxes include only the Middle East countries, Venezuela, Nigeria, some smaller African countries and Singapore. Of the industrialized countries, only Japan does not use the tax" (Due 1988, p. 82).

Within the category of broad-based sales taxes, the share of the VAT has almost surely increased in the lowest-income developing countries, although data that directly support this point do not seem to be available. If this conjecture is correct, the proportional increase in the VAT share of total tax revenue has been substantial. In some developing countries, chiefly those with higher per capita income, we know that the VAT accounts for from one-quarter to over one-third of total tax revenue: Chile, 37 percent; Brazil, Colombia, Korea, Madagascar and Peru, from 25 percent to 36 percent. Omitting three countries for which data are not available, the lowest share is 9 percent for Panama (Casanegra 1986).[6] These percentages of total tax revenue are less significant in countries where a large government deficit is supported by inflationary finance. The "inflation tax" may indeed be a lighter burden on the

lowest income group than a broad-based sales tax, as explained below (Shoup 1969, pp. 454–61).

The comprehensive VAT's growing importance is evident from the rise in the number of countries using it. Due's 1970 study reported that only 4 developing countries used this type of tax: 3 in Latin America and 1 in Africa. By 1986, of the some 130 developing countries, 22 were using a comprehensive VAT, and 18 were using a restricted VAT, i.e., not through the retail stage (Gillis, Shoup and Sicat 1987, pp. 1–2).

Even so, the comprehensive VAT is not yet a worldwide phenomenon. Of the 22 developing countries that impose it, 14 are in Latin America. Two more are in the Caribbean. Only 1 Asian, 2 European and 3 African countries are using this tax.

Most of these 14 Latin American countries are in the upper range of developing-country income. Even though the standard VAT rates in these countries are high (e.g., Chile and Uruguay, 20 percent; Argentina, 18 percent; Brazilian states, 17 percent [Casanegra 1986, p. 2]), the impairment of productive consumption may be light, especially since food and certain other necessaries are often taxed at a low rate or not at all.[7]

Revenue from the VAT expressed as a percentage of either total product or total income gives another measure of the importance of the tax. As a percentage of gross domestic product (all product produced within the country, including that part accruing to residents of other countries), the tax ranged from 8.12 percent in Chile to 0.28 percent in Bolivia for a recent year. In only a few countries was the percentage above 4: Brazil, 6.49 percent (including the federal manufacturers VAT); Uruguay, 4.55 percent; Peru, 4.37 percent; Korea, 4.03 percent (Casanegra 1986). The extremely low percentage in Bolivia may reflect a large part of the GDP flowing abroad that is not subject to the tax.

The changing pattern of general sales taxation in developing countries has been well described and evaluated by John Due:

> The structures of [general] sales taxes have changed materially. Fifteen years ago almost all were manufacturers sales taxes or turnover taxes. Today, of the 58 countries for which adequate information is available, a total of 35 still confine the tax to the manufacturing

> sector, including three that extend the tax to larger wholesalers. Of these 35, 22 still use the suspension technique whereby sales between registered firms are tax-free; the other 13 use the value-added technique. The figures in a sense overstate the worldwide reliance on the manufacturers tax and the value-added technique, since they include all the former French colonies in Africa. The greatest change has occurred in the use of value-added taxes through the retail level; 20 developing countries now use this type of tax, which is also standard in most of Europe. This group includes all of the South American countries using a sales tax except Paraguay.
>
> National retail sales taxes (collected in part from wholesalers selling to small retailers) are found in only two developing countries, Paraguay and Zimbabwe. . . .
>
> The strong trend toward increased use of the value-added principle, either confined to the manufacturing sector or in comprehensive form extended through the retail sector, is likely to continue—in some instances, prematurely, as countries attempt to include the retail sector before conditions warrant. The worst of all sales taxes—the turnover tax—has become almost extinct, and countries still using it will in all likelihood move from it. One of the great contributions the value-added tax has made has been to provide an escape from the turnover tax (Due 1988, pp. 211, 214).

Freeing Productive Consumption from a Broad-Based Sales Tax

Most of the developing countries using the comprehensive form of VAT free much of productive consumption from that tax, either by exemption or zero-rating (see below). Yet there remains a considerable part of that consumption, especially with respect to clothing, shelter and even in some cases medical care, that is burdened by the usual VAT.

Zero-rating is the generally preferred method for completely freeing a particular product from the VAT. Under this regime the tax is computed by subtracting, from a gross tax applied to the firm's sales, the taxes shown on the invoices of goods and services it buys from other firms. If the sales of a particular good are to be freed of VAT, the firm can apply a zero tax rate to its sales of that good, while still being allowed to credit against the tax on its taxable sales all the taxes shown on the invoices for the things it buys, including anything that goes to make the zero-rated good. This procedure effectively cancels all the

VAT that has been collected at earlier stages on components of the good in question, unless the tax-credit chain is broken, as described below. It lowers correspondingly the amount of VAT this firm has to pay on its total business. Indeed, if the favored good is the only thing the firm sells, or even if it is not, but is large relative to the firm's sales of other things, the result will be a negative tax, and the firm should receive a tax refund from the Treasury.

Tax refunds are commonly said to be beyond the administrative capacity of a low-income developing country, but it is not clear why this should be so. If efficient tax refunding were made a primary goal, it could probably be accomplished. Moreover, such a practice would enhance the standing of the revenue-collecting authority in the eyes of taxpayers generally, who might therefore offer a higher level of tax compliance.

If such refunds were to occur almost entirely for small firms that sell chiefly the favored product, the refund procedure could be avoided by excluding all small firms from the VAT system. This would, however, prevent the lifting of the tax already paid at earlier stages. Moreover, if some of the small firms were in those earlier stages, and were excused from filing VAT returns, there would be no way by which firms further down (retail, say, as opposed to wholesale) could recover the VAT already paid at still earlier stages (manufacturing). The chain of tax credits at successive stages would be broken at one stage. Thus we may say that effectively freeing a particular type of consumer good, food for example, from VAT, while not impossible, is not likely to be achieved completely even under the zero-rating system.

The exemption technique is even less effective. Here, the sale of the good in question is excluded from total sales (instead of being included but taxed at a zero rate), but the VAT shown on the relevant purchase invoices of the firm is not allowed as a credit against VAT on sales, on grounds that the good in question has not been included in sales. This is of course simply a technical distinction drawn for convenience when the aim is to free from VAT only the value added at this particular stage, by this firm.

Unprocessed foodstuffs are the most commonly zero-rated or exempted consumption good in developing-country VATs. No doubt most of the retail value of these goods does escape the VAT, the values added

at previous stages being relatively small, but some burden probably remains. Clothing, it appears, is almost fully taxed under most comprehensive VATs in developing countries. An exception—and perhaps an important one—is homemade clothing. Shelter is often lightly taxed owing to conceptual and procedural difficulties, and it is presumably a small proportion of total productive consumption in warm countries. Consumer outlay on medical care in these countries may be quite low, and application of the VAT to the dispensers of health care may well be ineffectual, or not attempted.

On balance, then, the usual type of VAT in low-income developing countries may not seem very threatening to productive consumption. The great importance of food in such consumption,[8] however, and the difficulty of freeing food completely from the VAT, at least for urban consumers, still presents an appreciable danger for production, especially if the marginal product of consumption is as high as suggested above. Moreover, some nonproductive-consumption items that are covered by the VAT may be inelastic in demand, so that an income effect adverse to the rest of consumption may arise, as with, for example, an excise on alcohol.

Under the turnover tax (cascade tax), freeing processed food from taxation is more difficult, perhaps impossible, since there is no way at the retail stage to lift the tax already collected on components at earlier stages. Therefore, the turnover tax is more likely to strike productive consumption than is the VAT, even if an attempt is made to free certain goods from the tax.

A comprehensive turnover tax strikes the value added at retail only once, but the value added at wholesale twice, and that at the manufacturing level, three times, since the value added at each stage is embodied in the selling price at each later stage. Goods that contain a large element of retail value added relative to other goods are therefore taxed less. The turnover tax thus tends to favor the wealthy consumer, who commonly shops in high-service, expensively constructed surroundings. The low-income consumer correspondingly bears a more than proportionate share of the tax; hence the turnover tax impinges more on productive consumption than does the value-added tax, which strikes the value added at any stage only once.

The value-added tax, then, is superior to the turnover tax in the sense that it is possible to apply the VAT exclusions and reduced rates to protect productive consumption if the administrative effort and skills are available. The question remains of how strongly to advocate tax refunds in the face of a tax administration that seems unable to handle them. To recommend a tax structure that will almost surely be unworkable under any foreseeable tax administration is of course futile. But the opposite danger—to fail to recommend changes in the law that could be workable with marked improvement in administrative structure and techniques—is as great. If no such changes are advocated, tax administrators lack a powerful challenge to do better. It may be that the best way to improve tax administration is to face it with new tasks that are more difficult than the old, but not by so much that discouragement is bound to set in.

For these reasons, the technique of tax refunds under a zero-rating system for certain goods should be seriously considered by any developing country imposing a value-added tax.

The Effect of Excise Taxes on Productive Consumption

Excise taxes are taxes levied at high rates on luxury consumer items, addictives and goods that create strong negative externalities. A luxury item may be defined as one that is not purchased at all by low-income consumers, but is bought in increasing proportion as the consumer's income rises. Precious jewelry is a common example. If only low-income consumers are in the range of productive consumption, a tax of this kind presents no danger to production in general, however much it may reduce production of the taxed article, unless the tax is shifted backward to low-income entrepreneurs or employees.

The two goods most responsible for negative externalities (excluding illegal goods, e.g., narcotics) are alcohol and tobacco. Taxes on alcoholic drinks and tobacco products are found in virtually all countries, developing or developed. No country, apparently, attempts to free these products from an excise when they are consumed by low-income individuals, although in practice a good deal of consumption may occur

tax free in rural areas. In some urban areas the alcohol and tobacco taxes take from many families appreciable amounts, part of which would probably have been spent on productive consumption. To be sure, if the price elasticity of demand is so high that an increase in the tax rate decreases revenue, some consumer money is freed for productive consumption. Since these two negative-externality goods are addictives for many consumers, however, they face an inelastic demand (for findings on elasticities, see McLure and Thirsk 1978).

The fact that an excise tax, particularly one on an addictive, is likely to induce low-income consumers to cut back on their productive consumption has been emphasized, though not in the marginal terms employed here (McLure and Thirsk 1978, p. 491; Myrdal 1968, pp. 1912–19; Selowsky and Taylor 1973).

Accordingly, there is a trade-off between reducing negative externalities and increasing total output. Vertical-equity standards for distributing the total tax bill may be joined to the productive-consumption goal (McLure and Thirsk 1978) to argue for reduction or even repeal of these taxes, but the relative ease with which substantial revenue can be raised by them is a strong counterforce, along with the negative externalities consideration.

If, however, the tax rate on an addictive were high enough, the total amount spent on the addictive, including the tax, would decline, and income would be released for increasing productive consumption. This follows from the proposition that the government can collect the same amount of revenue from two rates of an excise: one, a modest rate that allows a still substantial consumption, and another, a very high rate that greatly reduces consumption. If the tax rate were even higher than this second rate, total revenue from the tax would decrease from what it was at those two levels, and consumer income would be released for other spending. There seems to be no country that imposes excises at the higher of the two equal-revenue rates. Given the enormous difficulty of enforcing the higher rate, the aim has been primarily to obtain revenue, not to check consumption.

In some cultures, the use of alcohol, if not tobacco, is so restricted by social pressures, including religious doctrine, that excise taxes on these goods may not be diverting much spending power away from

productive consumption, even if price and income elasticities are low. Moreover, the alcohol tax in some areas does not extend, in law or in practice, to "folk beverages." These areas include much of Africa, Asia, the Middle East and the Pacific, for which little data are available on price or income elasticities (Meerman 1980, pp. 849–51; McLure and Thirsk 1980, pp. 853–54).

If such elasticities are in fact high at these low, or untaxed, levels of consumption in these cultures, the increase of an excise tax would not divert spending from productive consumption. It is not evident, however, that the elasticities should be high just because use of the product is low, or untaxed. Much more information on elasticities is needed.

The motor fuel tax is scarcely a burden on those in developing countries who are so low in income as to be in the productive-consumption range. The tax may indirectly affect the prices of some things they buy, but if its proceeds are dedicated to improving highways, the net result may be to lower those prices.

Many developing countries impose excise taxes on goods that, up to a point, represent productive consumption. Data gathered in 1977 by Cnossen (pp. 123–32) show that, of about 100 developing countries, one-third taxed textiles or footwear, over half taxed sugar, and nearly half taxed matches. In some countries the burden was substantial, judging from the percentage of total tax revenue obtained from these excises; the sugar excise accounted for over 10 percent of tax revenue in Ethiopia, Kenya, Morocco, Syrian Arab Republic, Tanzania and Uganda. In Somalia it accounted for 54 percent. Salt is taxed, but in fewer countries than formerly. Unless the low-income consumers are somehow exempted from these excises, such taxes need to be lowered or repealed if productive consumption is to be increased.

The trade-off noted above between reducing negative externalities by increasing the tax rates on addictives and raising total output by lowering such rates can be avoided to the extent that demand for these goods can be reduced by non-price methods such as banning promotional advertising, subsidizing adverse advertising,[9] initiating public education programs (on these see McLure and Thirsk 1978) and creating a generally adverse attitude toward those who consume these goods (wit-

ness the change in public attitudes toward the cigarette smoker in recent years). Hence the skills of the political scientist, the social psychologist and the sociologist can help in devising effective programs.

Income Taxes and Productive Consumption

The one tax that can be imposed with very little effect on productive consumption is the personal income tax. With the benefit of allowances and exemptions, the worker in that range of consumption can be excused from the tax completely.

Admittedly, we do not yet know the exact relationship between productive consumption and income. In some developing countries the personal and family exemptions may be so low that the worker exceeds them while still consuming less than 3,000 calories per day. In many such countries the only effective part of the personal income tax is that which is collected by withholding, and the personal exemptions granted under withholding may not always be adequate. If this defect exists, however, it is probably not large.

The corporate income tax is quite another matter. This tax may well be reflected in the prices of goods sold by the corporation, at least in part, thereby affecting productive consumption. No exemptions for particular products (e.g., basic foods) are granted under the corporate income tax, and this tax may therefore present more of a danger for the consumer than a general sales tax, under which such exemptions are common.

A few developing countries, particularly those with low per capita incomes, have imposed payroll taxes without personal exemptions, not for social security funds but for general revenue. Although wages probably rise, relative to profits of self-employment, to allow in some part for this tax discrimination, there may remain a net burden on productive consumption by wage earners in the second consumption range. Even if the payroll tax is dedicated to an old-age retirement fund, it will affect current ability to consume, perhaps mitigated to some extent by the fact that the employed person now does not have so much responsibility for the support of his aged relatives.

Trade Taxes and Productive Consumption

Taxes on imports are of minor importance for productive consumption in those low-income developing countries where a considerable part of the labor force is in that consumption range. Here we distinguish trade taxes from excise taxes that strike imported as well as domestic goods, and from border taxes imposed as part of a general sales tax. The import tax revenue at issue here then comes almost wholly from protective duties, and in the low-income developing countries we are considering, these duties are not likely to be imposed at burdensome rates on foodstuffs and medicines, or on the components for shelter. Clothing, and materials for it, may be an exception.

An export tax may well impinge on the incomes of poor agricultural or other families that produce the taxed good, especially if world demand for the country's output of that good is perfectly price elastic.

Resource taxes, levied on producers of petroleum, iron ore, bauxite and the like, are often in effect export taxes. However, since production is usually in the hands of wealthy owners or multinational corporations owned largely abroad, any backward shifting of the tax will probably have little effect on the productive consumption of most workers, except as unwise taxation causes a shrinkage in activity and consequent loss of jobs.

Protective tariffs that yield little revenue lie outside the scope of the present paper, as they are instruments of trade policy rather than public finance measures. A study of protective tariffs as they relate to productive consumption would be interesting, in view of the apparently depressing effect many of them have on the standard of living of the poor (McLure 1988, pp. 20–21).

Other Taxes and Productive Consumption

Poll taxes, including hut taxes in the non-monetized sector, are likely to impinge on productive consumption. Even though the non-monetized sector may be nearly self-sufficient in producing what it consumes, such a tax, payable in money, may force some incremental diversion of labor from producing crops for one's own use to a part-time, cash-paying job

that will supply the funds needed to pay the tax. It may be government policy to induce movement from the subsistence sector to the monetized sector, but the means to this end may have a substantial unrecorded effect on output. A poll tax in an urban area, imposed on someone in the productive consumption range, will in most cases force some decrease in consumption.

Land taxes and taxes on improvements are probably borne by a stratum of society whose consumption is well above the range of productive consumption. This may not be true of taxes on agricultural land, but that tax seems to be rare, or at least not fully enforced, in the countries of interest here.

Government inflation financing by the issue of new money that causes a rise in prices as the government bids resources away from the private sector is a hidden tax. If the rate of inflation is steady and is perfectly foreseen by everyone, and if all contracts are indexed, inflation financing is equivalent to a tax on cash balances (Shoup 1969, p. 456). Low-income groups in a low-income economy are largely free of this tax, since they do not typically hold large cash balances.[10] In real life, however, the inflation rate is not steady and is not perfectly foreseen by everyone, and indexing is scattered. It is likely, therefore, that those in the productive-consumption range will find money wages and small-business profits lagging behind the prices of productive-consumption goods. Because the pattern is so erratic, the deprivation can on occasion be severe.

In a given country at a given time it may well be that no increment of tax, of whatever kind, can be found that will not reduce productive consumption. That fact does not excuse us from appraising each tax, in its relative marginal effect on such consumption, and selecting the one that does the least damage, provided the reduction in output caused by the tax is less than the gain in output through the corresponding government expenditure. Such comparisons, however, are difficult to make.

Welfare Payments and Subsidies in Place of Tax Relief

If tax exemption is difficult to administer or to target precisely enough to avoid wasteful revenue loss, a cash payment to the family in question

or a subsidy attached to a particular good or service is an alternative method of moving the consumer-worker up the calorie scale to the maximum-output level. Consider, for example, a value-added tax with a number of zero-ratings or exemptions. It could be simplified by levying one standard rate, with no zero-ratings or exemptions, and instead giving the workers direct cash aid or subsidizing their items of productive-consumption. The choice between tax exemption and aid is one of administrative feasibility. Little is known about these relative feasibilities.

If the scope of the present analysis is extended for a moment to include incentive effects, not just effects on ability, we note that, in practice, direct cash aid to low-income families is commonly reduced as the family's income rises (negative income tax). This tends to inhibit the desire for more income by more work. If, however, the conjectures made here about marginal productivity of consumption are correct, the question hardly arises; at the extreme, just one calorie of aid for just one period sends the worker and his family on up, period by period, to the maximum product level. In practice, because of the buffers noted above and doubtless for other reasons as well, this extreme result cannot be expected. The length of the "one period" in days or weeks will vary, especially according to whether the individual has been healthy or malnourished. Still, the power of productive consumption to increase output does reduce the degree of conflict between the income effect and the substitution effect of an aid payment that is tied to the amount of income earned. The aid could be continued from period to period regardless of the family's income until the maximum product level was reached, at which point the aid could be completely withdrawn without adverse results on output. The maximum output level would be reached sooner than if the aid were given for only one period.

A problem with the unrestricted cash grant to the household is that there is no inducement to spend it on productive-consumption goods rather than other goods. The missing substitution effect can be provided by a subsidy on the goods in question instead of a direct cash grant to the consumer. Such a subsidy is usually paid not to the purchaser, but to the seller of the good, who thereupon lowers the price. This subsidy to a seller

for a particular good, however, is likely to raise the same administrative and compliance difficulties as do special tax rates and exemptions.

In the developing countries where the productive-consumption issue is most important, the difficult decision to be made is whether the more effective method, dollar for dollar, is the direct cash aid to be spent as the recipient desires, or the subsidy attached to a particular good (and paid to the seller), if tax exemption is ruled out on administrative grounds. Specifically, a comparison must be made between (a) a cash payment of aid and a reduced poll tax, if a poll tax exists, and (b) an exemption or low rate for a particular good under a sales tax and a subsidy paid to the firm for that good.

Productive Consumption under Full Employment or Unemployment

If the opportunity cost of supplying an increment of productive consumption exceeds the output from that increment, there is no net gain for the economy. For example, if an increment of machinery or other capital equipment must be foregone in order to supply the workers in the productive-consumption range with an increment of food, total product may not be increased by this shift in resources. Total output will certainly not grow if the consumption is not in the "gainful" subrange of productive consumption. If the consumption is gainful, however, the chances seem good that it will produce, in present-value terms, a return that exceeds that of most conventional investment. The return can be very high and almost immediate.

These considerations are most relevant when employment, or use of resources, is full. Otherwise, some idle resources might be activated to supply the increment of gainful consumption. Indeed, if the idle resources can be put to work at virtually no marginal cost, even nongainful (but productive) consumption improves the economy as a whole.

The concept of full employment needs some refinement in the presence of a labor force part of which is subsisting in the range of gainful employment. If a fleet of buses is only partly employed because of a

shortage of motor fuel, it is obviously underemployed; what then of a labor force that could, and would, work more intensely for longer hours if supplied with additional food, shelter, clothing and medical care? Like the fleet of buses with too little fuel, that labor force is underemployed.

On the other hand, what can be said for productive consumption in an economy where unemployment of the conventional type is widespread, and the increment of labor—the extra hour, the greater intensity—can find no employment, because there is no market for its product?

In many low-income countries where much of the labor force is in the range of productive consumption, the nonmonetized or subsistence sector may be able to make good use of the extra product generated by the increment of consumption. A reduction or repeal of a hut tax would free money, or goods that can be traded for money, for buying additional consumption goods; the resulting product would be absorbed within the producing family or shared with the extended family or neighbors.

In the monetized, market-exchange sector of the economy, where the worker, his family or his employer cannot readily use the extra product gained from an increment of productive consumption, the advisability of granting tax exemption to productive-consumption goods merges with the macro problem of moving the economy toward higher employment. Still, the presumption would seem to be on the side of stimulating consumption that results in a marginal product greater than the consumption increment. There is a net gain, which must accrue to someone.

Summary

What are the prospects for avoiding taxation of those who are locked into the second of the three ranges of productive consumption distinguished here, the productive-consumption range? The prospects are not very good. If, as assumed in this analysis, these individuals are found chiefly in the thirty-six countries currently classified by the United Nations as "least developed," where the options for tax policy are limited

because of administrative and compliance difficulties, taxation that strikes the margin of productive consumption cannot be avoided completely. It can be reduced, however, by several techniques or policy choices.

A value-added tax in these countries could be designed to make as much use as possible of zero-rating of foods and medicines, and to some extent of clothing and shelter, although these last two cases may well encounter insuperable difficulties if the zero-rating is not to be unnecessarily extensive. The zero-rating should probably be extended to the sale of agricultural machinery, fertilizers and other farm inputs. Tax refunds must somehow be made feasible, to cover those cases where zero-rating produces an output tax that is less than the sum of the credits for the VAT that has been paid on the firm's purchases from other firms. Mere exemption of foodstuffs and the like, where no credit is given for the VAT on inputs allocated to the exempt output, will not be sufficient.

Excise taxes might be tailored to exempt, or to tax at low rates, the consumption of excisables by the productive-consumption user. Beer, for example, consumed more by lower-income persons, might be taxed at a lower rate than whiskey, consumed more by those who are in the upper consumption range where the marginal productivity of consumption is zero. Other considerations, however, such as production-adverse elements and negative externalities, might deserve more weight. Sumptuary taxation could be retained, at least if it relates strictly to extravagance rather than to addiction.

Import duties could be reexamined with an eye to exempting foods, medicines, and most textiles and cheaper types of clothing. Export taxes that fall heavily on the small producer would be candidates for repeal.

The revenue lost by these measures would be recouped, so far as possible, by an increase in personal income taxation, provided that this tax was limited to individuals with incomes large enough to place them in the top consumption range. Corporate income taxation could also be increased, as long as there was little chance that it would be reflected in prices of the productive-consumption goods.

Some degree of inflation as a government revenue source might be acceptable if it did not appreciably burden those in the productive-consumption range.

A turnover tax should be avoided because of the inherent difficulty of shaping it to relieve the productive-consumption consumers from its burden.

The keys to restructuring a tax system in this way are, of course, tax administration and tax compliance. Without improvement in these two areas, little can be done to aid productive consumption. Some of those familiar with the fiscal scene in these developing countries are pessimistic as to the possibility of improving tax administration and compliance. If they are right, we may as well pass on to some other means of moving consumers up into the third range of consumption, where the marginal product of consumption is zero—perhaps by welfare payments or subsidies on certain goods and services. The same problems that plague tax administration, however, are likely to be encountered here too.

Pending further research, it is difficult to gauge the practical importance of taxation's effect on productive consumption. One urgent research project is to examine how families are distributed by money income and expenditure in relation to their position in the three ranges of consumption. The results will almost surely differ from country to country. In a country where the upper boundary of the productive-consumption range turns out to be well above the prevailing income tax exemptions, an increase in those exemptions may have a powerful effect on production. Also, if data were available on purchase of addictives by calorie-intake groups, the effect of excises, with respect to productive consumption, could be better judged.

Another research task is to identify those situations where consumption leads to a greater marginal product than does conventional investment, so that output would be increased by shifting resources from investment to consumption. In Myrdal's words, "Even if in a particular case, an investment in productive physical capital appeared so profitable that the government felt justified in reducing food consumption to enable the investment to take place, the depressing effect on labor productivity should be deducted in the calculations" (Myrdal 1968, p. 1916).

In sum, it is the marginal relations between consumption and output that need further study. The fact that consumption is a prerequisite to

production is so self-evident as to justify the typical absence of that statement in current studies of economic development. Yet the effect of an increment or decrement of consumption remains largely unexplored. It may be that almost all workers, everywhere, are either thriving in the highest of the three consumption ranges or languishing in the lowest consumption range, and thus the marginal product everywhere is zero. It seems rather risky, however, to base incremental tax policy on this supposition and to ignore the great gains that could come from lifting the lower group into the productive-consumption range through tax and aid policies.

Notes

1. For the most strenuous athletic activities the requirement may be as high as 7,000 to 8,000 calories a day (Dr. Howard N. Jacobson, letter to the author, July 1988).

2. In fourteen Asian developing countries in 1982, daily per capita calorie consumption ranged from 2,980 in the Republic of Korea to 1,920 in Bangladesh. Calorie consumption was said to "exceed minimum standards" in named countries for which the lowest figure was 2,280. Of the three countries implied not to have an excess over minimum standard, the highest (Nepal) showed 2,020. The implied minimum-standard consumption is therefore between 2,020 and 2,280. The amounts are given in the context of health maintenance rather than productivity (James, Naya and Meier 1987, pp. 223–25). As pointed out in an earlier analysis (Myrdal 1968, p. 543, note 1), " . . . the estimates of calorie intake per person per day are broad averages and are based on a population that includes children and retired people, as well as working adults. . . . Furthermore, the figures on intake refer to daily averages over the course of a year. Yet during the busy seasons in agricultural regions, peasants and farm workers generally eat better than at other times. . . . Thus nutritional levels tend to vary directly with the physical effort expended at different times of the year."

3. It was this aspect of consumption that Alfred Marshall emphasized, not the productive consumption of the worker-parent: " . . . a great part of the wages of the working classes is invested in the physical health and strength of their children," although he added, " . . . a slight and temporary check to the accumulation of material wealth need not necessarily be an evil, even from a purely economic point of view, if, being made quietly and without disturbance, it provided better opportunities for the great mass of the people, increased their efficiency, and developed in them such habits of self-respect as to result in the growth of a much more efficient race of producers in the next generation" (Marshall 1925, pp. 229–30).

4. Myrdal continues: "The rich Western countries can, of course, afford to let consumption take its course because it is in all directions above the level where changes have much effect on productivity. . . . [In] the underdeveloped

countries of South Asia, however, . . . [the] levels of living are so low that reduced consumption in almost all directions lowers productivity and even the prevention of an increase in consumption is detrimental, . . . [and such countries] must weigh carefully the effects on productivity of changing the components of consumption, and must then attempt to steer consumption in the most productive directions. . . . Their taxation policy . . . should be conceived in these broader terms" (Myrdal 1968, pp. 1918–19).

5. Discrepancy of one percentage point is due to rounding off and unallocated miscellaneous tax revenue.

6. Even higher percentages are shown in a recent compilation: Chile, 50 percent; Uruguay, 40 percent. Argentina, Brazil, Colombia, Costa Rica, Ecuador and Haiti are said to raise from 20 to 30 percent of their current revenue from a value-added tax (CIAT 1988).

7. In six more developing countries the standard VAT rate is 10 percent. The lowest standard rate, 5 percent, is found in only four countries (Bolivia, Honduras, Panama, Taiwan). Peru started with an 18 percent rate but reduced it to 11 percent in 1984 and 6 percent in 1986 (Casanegra 1986, p. 6).

8. Estimates of the proportion of total consumption accounted for by food were: agricultural workers in India, 77 percent; urban workers in Rangoon, 66 percent; wage earners in Djakarta, 60 percent, and in Saigon, 63 percent. In contrast, for all households in Sweden the figure was 33 percent and for urban wage earners in Canada, 28 percent (Myrdal 1968, p. 542). Accordingly, if all food is exempt from a broad-based consumption tax in the poorer countries, there is little left to tax. In such countries the food is chiefly cereals, which "constitute more than 70 percent of the Pakistani calorie intake and about two-thirds of the Indian and Philippine, compared with less than one-quarter in the United States" (Myrdal 1968, p. 547).

9. "In my view the continued tolerance of advertising of addictives is evidence enough that revenue, and not externalities, explains these taxes" (Charles E. McLure, Jr., letter to the author, July 1988). This climate is now changing somewhat, at least for tobacco. "According to a list provided by the World Health Organization, about 20 other countries [besides Canada] already have bans on tobacco advertising, some of them partial. They include Algeria, Finland, Italy, Norway, Jordan, Portugal, Singapore, as [well as] Czechoslovakia, East Germany, Hungary, Poland and Rumania. By the W.H.O. count, 43 nations including the United States require cigarette packs to carry health warnings. The new Canadian laws [which include a ban on all forms of advertising of tobacco products, except for U.S. magazines and periodicals sold in Canada] will make the warnings . . . among the most explicit" (Burns 1988). India and Nigeria also recently banned tobacco advertising (Hazarika 1988; Brooke 1988).

10. But see Brodersohn (1988, pp. 122–23): "Inflation most directly affects the poorer sections of the population, individuals who maintain a greater proportion of their income in the form of cash. . . ."

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