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Source: *Oxford Economic Papers*, Jun., 1988, New Series, Vol. 40, No. 2 (Jun., 1988), pp. 269-288

Published by: Oxford University Press

Stable URL: https://www.jstor.org/stable/2662973

Oxford Economic Papers 40 (1988), 269–288

THE CONTRASTING THEORIES OF INDUSTRIALIZATION OF FRANÇOIS QUESNAY AND ADAM SMITH

By WALTER ELTIS[1]

THE BENEFITS from industrialization as seen by the great French Physiocrats and Adam Smith were immensely different. François Quesnay argued from 1759 onwards that the industrial sector of the economy was 'sterile', and that state support for industrialization in France in the seventeenth century had reduced population, cut living standards and undermined government finances. Adam Smith insisted just seventeen years later in *The Wealth of Nations* that the benefits from the division of labour which could only be enjoyed in industry had already raised the standard of living of a British labourer above that of an African King. (pp. 23–4)

Quesnay and Smith both used rigorously formulated economic argument to arrive at these radically different results. What led Quesnay to his conclusion which astonished his contemporaries no less than subsequent generations of economists was a belief that industry as constituted in France in the seventeenth and eighteenth centuries could make no kind of net contribution to the nation's tax revenues. Its 'net product' [*produit net*], or taxable capacity or economic surplus was zero, which meant that at best, if its support cost the rest of society nothing, it could made no contribution to the military and welfare needs of the State. In less favourable circumstances where industry actually needed to be subsidized or protected, such diversions of real resources would impoverish the primary producing sector which provided the surpluses on which French governments relied. Smith too believed that agriculture had the potential to provide a vastly greater economic surplus than industry, but in his judgement the surplus industry offered was not zero. In addition, industry could be expected to provide external benefits of great importance to the whole economy through the productivity advances associated with the division of labour, though according to Smith, these would be maximized if industrial development was left to market forces.

Virtually all subsequent economists have preferred Smith's analysis to Quesnay's, but there is an important line of argument in Quesnay which several developing countries have overlooked to their cost. This is the proposition that industry fails to provide a taxable surplus comparable to that offered by agriculture. In twentieth century Argentina the agricultural surplus is equivalent to 80% of output, and the state has prevented significant agricultural growth by diverting a high fraction of this suplus to

[1] A preliminary version of this paper was presented to the 8th World Congress of the International Economic Association in New Delhi in 1986, and this will be published with the Conference Proceedings. The present developed version has benefited from comments by Peter Sinclair, Andrew Skinner, and Gianni Vaggi.

the support of industries which cannot compete internationally.[2] In Pakistan the value-added of various industires, measured at world prices, has recently been shown to be negative.[3] Such industries cannot be net contributors to the nation's tax revenues. Instead as in seventeenth and eighteenth century France, they are net absorbers of revenues, and via protection, net inflators of agricultural costs. So such government support for industry may well damage the supluses primary producers generate and therefore reduce the size of the sectors of the economy which have a true net capacity to support government expenditure and to finance economic growth. If the extraction of real resources from a primary surplus-generating sector and their dissipation in an industrial surplus-absorbing sector can occur as readily in twentieth century Argentina and Pakistan as in seventeenth century France, it is unfortunate for such countries that Quesnay's detailed theoretical and practical accounts of this line of argument are so largely neglected today.

The twentieth century development of Argentina, Pakistan and other economies that protect industry at the expense of agriculture will also be damaged through two further effects which are well known in the twentieth century international trade literature. In so far as industrial protection reduces the national income in the short-term it will lessen saving and so have a tendency to reduce the rate of capital accumulation. Moreover, in so far as the costs of imported capital equipment are raised through the protection of domestic capital goods industries (which is an endemic policy in the Indian sub-continent), such saving as actually results in accumulation will be deployed less effectively so that growth will be still further reduced.[4]

In this paper the essence of Quesnay's and Smith's arguments will be set out at the start, and it will be suggested that there are important elements of truth in both. Twentieth century economies may therefore find that they are applying industry-boosting policies which derive from propositions Smith established in conditions where Quesnay's reasoning is more appropriate.

François Quesnay on the relationship between agriculture and industry in economic development

In Quesnay's analysis primary production offers an economic surplus [*produit net*] over wage and raw material costs which ranges up to 100% of these.[5] He contrasts three agricultural techniques of production of which the most capital intensive, *la grande culture,* yields a surplus to landowners and

[2] See Cavallo and Mundlak (1982) for estimates of the surpluses generated in Argentinian agriculture in the 1960s and the 1970s, the rates at which they were absorbed by the State, and the consequently low levels of agricultural investment and growth.

[3] Little, Skitovsky and Scott (1970), pp. 58, 64 and 113.

[4] These lines of argument are admirably set out in Corden (1985).

[5] Quesnay's account of the techniques of production available to agriculture is set out in detail in the articles 'Fermiers' and 'Grains' which he contributed to Diderot's and d'Alembert's *Encylopedia.* These are summarised in Eltis (1984), pp. 4–11.

the state equal to approximately 50% of output. With the more modestly capital intensive intermediate technology, *la petite culture,* the *produit net* is between 30% and 40% of annual agricultural advances and perhaps 25% of agricultural production, and in the most labour intensive conditions where peasants use only spades and hoes, the land yeilds no surplus over their own meagre subsistence. Competition between farmers ensures that the physical rates of surplus appropriate to these techniques of production are translated into the money rates of return Quesnay set out. His detailed calculations to demonstrate this always assume an average seven year run of good and bad harvests.[6]

La grande culture which offers a surplus of 50% of output to landlords or the state involves heavy investments by farmers themselves, while with *la petite culture* which yields around 25% of output, farmers invest modestly or else use landlords' capital and divide the harvest equally with them. The establishment of the high-surplus-yielding *la grande culture* requires a wealthy entrepreneurial class willing to invest in a capital intensive and highly efficient agriculture, with firm expectations that landlords and the state will allow them to enjoy the high profits that efficient farming can be expected to yield. These high farmers' profits are part of the 50% of agricultural costs and not the 50% of pure surplus or *produit net* that accrues to landlords and the state.

In industry in contrast there is no taxable surplus, and in conditions of perfect competition [*concurrence libre*], prices cover no more than wage and raw material costs. But the assumed wages of master craftsmen and the owners of manufacturing businesses are set very high in relation to average living standard to enable their incomes to include an element of normal profit to cover risk, trouble and a reasonable return on their capital.[7] Quesnay and Turgot after him took it for granted that the element of extra income of industrial proprietors was not a taxable surplus, for they would gradually cease to manufacture if this element in their rewards was removed.

It is an inevitable consquence of these assumptions of Quesnay's that the financial needs of the state can only be met from the economy's primary producing sector, because only this yeilds taxable surpluses. But it was nonetheless a notable fact which all including Quesnay recognised that French industrialsists and the merchant class that traded their goods often made vast fortunes. His insistence that industry and commerce could not support the needs of the state, or finance economic growth and that their

[6] There is a careful analysis of the link between physical and value rates of return with the different agricultural techniques of production in Quesnay's article 'Grains' (1757).

[7] The evidence of the higher incomes of industrial entrepreneurs is set out in Chapter 7 of *Philosophie Rurale,* and summarised in Eltis (1984), pp. 12–13. Meek (1962) did not accept that their higher incomes contains an element of normal profit, but Adam Smith who had had the benefit of extensive contacts with the leading Physiocrats in Paris believed it did in his summary of their system in *The Wealth of Nations,* pp. 666–7.

production was *sterile* therefore bewildered his contemporaries. These also noticed that manufacturing and commerical states like Venice and Holland had accumulated wealth and power, so how could it possibly be argued that agriculture provided the ultimate source of all wealth and of all net government revenues?

It has always been a mark of the greatest economic thinkers that they can dispute the underlying explanation of facts that are self-evident to the untutored, and Quesnay insisted that taxable industrial and commercial profits could only arise where businesses had managed to achieve elements of monopoly power.[8] This had arisen in Quesnay's Europe in a variety of ways. States frequently granted monopoly privileges to political supporters, or else they sold future monopoly rights for current cash, or they allowed corporations with monopoly power to emerge by protecting their own countries' industries. Such policies were prevalent throughout Europe and they had allowed extremely profitable corporations to emerge. And it was also true that industrial innovators could sell at monopoly prices, but these would disappear as soon as others learned to make the same new products. In addition France's great jewellers and furniture makers of the *ancien régime* had temporary monopoly-rights over their distinguished products which allowed them to sell at home and overseas at very high prices which yielded financial surpluses.

Quesnay insisted that any taxable industrial and commercial profits which arose in these ways could only result from such elements of monopoly power, which had the unfortunate effect of diverting a fraction of the true surpluses generated in the primary sector to wealthy industrial and commercial proprietors.

The agricultural surplus is the excess of agricultural output over the costs farmers must meet, and anything which reduces their expenses will increase the suplus as Quesnay explains in the 'Dialogue on the Work of Artisans':

> we have to divide the reproduction generated by the cultivator into two portions, namely, the portion which provides for his own subsistence, and the portion which is in excess of this subsistence. Whence it follows that if it is possible, without detrimentally affecting the total reproduction, to cut down on the first portion, the second will be correspondingly increased. For example, if we assume that the reproduction is 20, the cultivator's expenses 10, and the surplus 10, then if the expenses can be cut down to 8 the surplus will be 12. (p. 227[M])

The purchase of industrial goods required for the subsistence of labourers

[8] Quesnay discusses the relationship between industrial and commerical profits, the degree of competition and the national interest in three important articles which he published in 1766 in the *Journal d'Agriculture* of which the Physiocrat, Du Pont de Nemours was then editor. These are, 'Répétition de la Question Proposée dans la "Gazette du Commerce" au Sujet du Bénéfice que la Fabrique des Bas de Soie Établie à Nîmes Produit à la France', and the two dialogues between Monsieur H. (Quesnay pretending to be an intelligent critic of Physiocracy) and Monsieur N. (Quesnay the Physiocrat), 'Du Commerce', and 'Sur les Travaux des Artisans'. In the passages from these articles quoted below, [M] after a page reference signifies that a translation is by Ronald Meek, and [E] that the responsibility for a translation is mine.

are a cost to agriculture. Quesnay explains in the same article how tailors make clothing so that 'the husbandman is not obliged to leave his plough in order to work at making his clothing' and this saving of the husbandman's time increases 'his productive labour' and therefore the rate of surplus in agriculture (226[M]). Increasing the cost of manufactures as a result of protection or monopoly privileges, which permit the generation of industrial profits, will therefore reduce the rate of surplus in agriculture. Part of the agricultural surplus is in effect diverted to monoplist merchants or industrial producers.

The restrictions on competition which make this state of affairs possible divert part of the agricultural surplus to industry or commerce, but the state cannot tax these *de facto* monopoly profits in the same way as the revenue from the agricultural surplus, for according to Quesnay in the 'Dialogue on Commerce', commercial traders:

> know how to keep their profits and protect them from taxation; thus their wealth like the traders themselves has no country; it is unknown, mobile, and dispersed throughout all the countries in which they have dealings, and their true wealth is so confused with debts, active and passive, that it is impossible to evaluate it or assess it for proportional taxation. If their merchandise is taxed, the taxes will fall equally on domestic and foreign merchants and both will ensure through their sales and their purchases that the taxes fall on the nation ... (p. 851 [E])

Thus commercial capital is controlled by multinationals (to use a twentieth century label) which are in effect untaxable,[9] and it makes no difference whether these enterprises are nominally domestic or foreign.

Profits of French companies are sometimes made at the expense of foreign countires, but foreign companies will equally gain at the expense of France, as Quesnay explains in the 'Dialogue on Commerce':

> Merchants transport and re-transport, and profit turn by turn in every country ...
> Commerical costs are always paid at the expense of producers, who would benefit from the full price that purchasers pay if it were not for the expenses of intermediaries ... These costs, it is true, may increase the wealth of the traders who profit from them, but not at all those of the nations which mutually contribute them. Since, once again, the traders do not allow nations to share in their wealth, but they themselves share in the wealth of nations. (pp. 835–6[E])

If governments cannot obtain tax revenues from industrial and commercial producers, how are the great City states financed? Quesnay argued in the 'Dialogue on Commerce' that, 'the nations involved in maritime commerce may have a large number of wealthy merchants, but the State is always poor'. (p. 829[E]) Holland is an apparent exception, but Quesnay insists that the Dutch Republic is not merely commercial, 'It is also necessary to envisage it as proprietor of a territory which produces much: of colonies

[9] Cf. also Quesnay's statement in the *Maximes* that he published with the third edition of his original *Tableau* in 1759 that monetary fortunes are 'a clandestine form of wealth which knows neither king nor country' (p. 13 [M]).

whose produce is extremely profitable to it, and of seas where it obtains a large product through fishing'. (p. 852 [E])

If the state cannot tax industrial and commercial profits, it can at any rate borrow from wealthy producers and traders, but this has obvious disadvantages as Quesnay makes clear in the 'Dialogue on Commerce':

> to lend is not to give, and it does not even contribute to the needs of the State, and to borrow is no proof of wealth and power in a State . . . If you say that it is at least a resource for a nation to have the power to borrow, you should also perceive that this ruinous resource is hardly to the advantage of the nation which provokes the usury of the lender. (p. 826 [E])

Since the industrial and commercial fortunes which arise from monopoly power and accrue at the expense of the agricultural surplus are difficult to tax and dangerous to borrow, there is an overwhelming case for removing the privileges, and import and export restrictions, which allowed them to emerge.[10] It is argued powerfully in the 'Diaglogue on Artisans' that a nation's overwhelming interest is always:

> to extend commercial competition as far as possible . . .
>
> It is only by means of absolute liberty of commerce that the number of domestic and foreign merchants can be multipled, monopoly be made to disappear, and burdensome costs reduced, nations be assured the highest possible prices in their sales, and the lowest possible prices in their purchases, and thus procure for themselves the most extensive and advantageous commerce they can hope for. (p. 858 [E])

This will have the added advantage of encouraging the growth of agriculture, for:

> the highest possible price in the sale of your products, and the lowest possible price in the purchase of foreign produce will procure the greatest possible growth for your agriculture, which will then furnish you with the only true and solid means to increase your commerce, your wealth and the enjoyment you derive from it. (p. 842 [E])

Once the ideal state of perfect competition in industry and commerce is actually attained, the calculations set out in the *Tableau Économique* show the precise relationship between the output and the rate of return achieved in the surplus-generating and state-financing primary producing sector, and the consequent demand for the products of the industrial and commercial sector that this idealised economy will actually be able to sustain.

The question of the size of the economy's industrial and commercial sector in relation to the agricultural can be examined in two stages. The first and simplest is to examine the relative size of the two sectors in static

[10] Vaggi (1985) emphasises the significance Quesnay attached to the merchant class as an intermediary between agriculturalists and final consumers, which exploits the opportunities open to intermediaries with local monopoly power to deprive producers of some of the real incomes that would otherwise accrue to them.

conditions, and this is found by examining their relative size when the *Tableau Économique* is in stationary state equilibrium. Using the results of the static *Tableau* as a starting point, the dynamic conditions which will produce industrial growth or decline can then be derived.

Industry and commerce will provide employment for a considerable fraction of the population. The effective demand for their produce derives from landlords and the government who are assumed to spend half their incomes on the products of industry and commerce, and farmers who are also assumed to spend half their incomes in the industrial and commercial sector. Quesnay shows that when the full inter-relationships of the *Tableau Économique* are set out and analysed, the aggregate demand for domesically produced industrial and commercial production will total $\frac{1}{2}(A+R)$, where A is farmers' total incomes (which also equals total agricultural costs or advances) and R is the agricultural surplus or *produit net.*[11]

If agricultural advances, A, yield a return of 100% as in *la grande culture,* R the *produit net* will actually equal A, so that $\frac{1}{2}(A+R)$, the aggregate demand for the output of domestic industry and commerce will actually equal A. If the level of agricultural technology is merely that of *la petite culture* where agricultural advances yield no more than 30% to 40% the total *produit net* or aggregate rents will be perhaps one-third of agricultural advances, so R will equal no more than $\frac{1}{3}A$ and the aggregate demand for home produced manufactures, $\frac{1}{2}(A+R)$ will total $\frac{2}{3}A$. Hence the demand for manufactures will approximately equal annual agricultural advances with *la grande culture* but be only two-thirds with *la petite culture.*

The level of industrial and commercial employment will therefore depend upon both the level of agricultural investment, and the capital intensity of agricultural technology which determine the rate of surplus in agriculture. That is a summary of Quesnay's static analysis, which explains the size of the industrial and commercial sector in a stationary state. In the formula where industrial production is $\frac{1}{2}(A+R)$, anything which raises A, the level of agricultural advances, and R the agricultural surplus or *produit net,* must raise demand for the ouput of the industrial and commercial sector.

The stationary state equilibrium set out in the static *Tableau* may be disturbed in a number of ways to produce economic growth or decline.

A possibility which concerned Quesnay was that the effective demand of landlords and workers might shift away from agriculture towards industrial products. An extraordinary result he arrived at which has no parallel in modern economics is that if a population wishes to purchase more industrial production, in his words if it acquires a greater taste for *luxe de la décoration,* then the level of industrial production and employment will not

[11] The annual advances of the industrial and commercial sector will be half its output and it is stated twice in *Philosophie Rurale* that these advances will indeed total half of $\frac{1}{2}(A+R)$, that is $\frac{1}{4}(A+R)$. (Vol. 1, pp. 124 and 328: the formula is explained in Eltis (1984), pp. 27–9 and 37–8).

increase: *it will actually decline.* This astonishing result follows directly from his assumptions.

Starting from an initial stationary state, if demand shifts away from agriculture and towards industry and commerce, these will receive extra cash flows (as calculated in two series of disequilibrium *Tableaux* which he published[12]) while agricultural producers will receive smaller cash flows than in the previous year. Because the agriculturalists suffer a financial shortfall, the advances or investment for the following year's production that they can afford will be reduced. The industrialists in contrast will receive an initial financial boost because demand shifts in their favour, and they will invest more in order to produce more in the following year. In consequence, in the second year, agricultural output (which is twice advances) will be lower while industrial production will be higher than before. But only agriculture yields a *produit net,* so if the land yields 100% as with *la grande culture,* each 100 livre fall in agricultural advances will also produce a 100 livre fall in the following year's agricultural surplus. If the landlords accept an immediate and parallel reduction in rents, farmers will achieve a new static equilibrium in which they invest less and produce less (to match the now reduced demand for food) and landlords will receive less rent. But the new situation is not a potential equilibrium redistribution of resources because Quesnay assumes that where the agricultural surplus falls, landlords are at first unwilling to reduce rents by the fall in the agricultural surplus which no one predicted when rent contracts were initially arrived at. Tenant farmers themselves therefore initially have to meet the whole or most of the financial loss consequent upon a lower *produit net* until leases come up for renegotiation, perhaps nine years later. This financial loss to tenant farmers will cause them to invest still less in the following year which will reduce the agricultural surplus yet again, but the rents they will have to pay will again be reduced by less than the fall in the *produit net,* so they will be forced to cut their advances still further, and each time they reduce their advances, production will fall in parallel and squeeze rents and farm profits still further. So agriculture will slide downwards, falling production levels continually reducing the *produit net,* and contractural rents falling more slowly than the *produit net* with the result that farmers are perpetually short of cash and are therefore obliged to sell off more and more of their advances instead of being able to invest them in the land to generate future harvests.

The domestic demand for industrial production derives quite largely from landlords spending a fraction of their rents on the products of industry, and farmers spending a fraction of their wages on the industrial side of the *Tableau.* If both these classes are becoming poorer each year, their demand for industrial production will all the time fall. The industrial producers gain

[12] These are to be found in *Philosophie Rurale,* Vol. III, pp. 33–53, and in *l'Ami des Hommes,* Vol. VI, pp. 192–202. A modern restatement is presented in Eltis (1984), pp. 42–9.

in the initial year in which the nation's tastes first move in their favour, and the extra cash flows they then receive enable them to invest and produce more in the second year, but after this, falling demand from agricultural producers and landlords will gradually reduce the domestic market for industrial production. This will be higher than it was originally for perhaps four years, but after that it will gradually decline in parallel with the falling trend in agricultural incomes.

Quesnay explains, correspondingly, that if the nation's tastes switch towards agriculture, industry and commerce will lose out for a few years but the growing agricultural sector will generate extra demand for industrial products which will steadily raise the demand for manufactures from then on. Within a few years the extra markets for manufactures from A and R which are both growing will more than make good the initial loss.

The formula for the growth (or decline) of agricultural production (δg_a) consequent upon a deviation in the propensity to consume the products of agriculture of δC_a from the steady state propensity (normally 0.5) can be shown to be:[13]

$$\delta g_a \approx \tfrac{1}{2}\delta C_a - \tfrac{2}{3}\delta C_a^2$$

Then if C_a rises from 0.5 to 0.6 (so that $\delta C_a = 0.1$), agricultural output (and therefore the effective demand generated from agricultural incomes) will grow at approximately 4.3% per annum. If the propensity to consume food falls from 0.5 to 0.4, agricultural production will decline at an annual rate of approximately 5.67%. When the propensity to consume food first declines from 0.5 to 0.4, the demand for manufactures rises by one-fifth (i.e by 20%) because the propensity to consume manufactured goods increases from 0.5 to 0.6. If agricultural output and hence the effective demand for manufactures then declines at a rate of 5.67%, it will fall below its initial level after four further years, despite the 20% increase at the start.

The logic behind this process is that agriculture generates a *produit net* while industry does not. Every 100 livres of demand that shifts the pattern of production away from industry and towards agriculture therefore generates *an external benefit* of 100 livres to the landlords (or the State where rents are taxed). Similarly, an increase in the demand and supply of manufactures and a corresponding reduction in the output of food has a negative external impact on rents. The lower level of rents then adversely influences the effective demand for manufactures so that industrial producers lose on balance as soon as this unfavourable *external* effect on the demand for their produce outweighs the initial favourable effect.

The *dynamic* effect in the above processes is due to a lag between the generation of a higher or lower *produit net* and the market fixing of the rents farmers are actually obliged to pay. Where the *produit net* falls, farmers are squeezed because their contractural rents are still based on the

[13] See, Eltis (1984), p. 47.

formerly higher *produit net,* so output slides downwards. Where the *produit net* rises so that farmers benefit, output will rise from year to year until market determined rents in the end catch up with the rising agricultural surplus. Then, as the agricultural surplus and agricultural advances rise or fall, so will the demand for the products of industry and commerce which is always $\frac{1}{2}(A + R)$. Anything at all which produces an unpredicted rise or fall in the agricultural surplus will have these dynamic effects which strongly influence the long-term growth of both agriculture and industry.

Quesnay's own examples focus on the benefits from the establishment of free trade which raises the agricultural surplus and sets off a dynamic expansion of the economy,[14] and the damaging effects on both agriculture and industry of a reduction in the agricultural surplus as a result of the adoption of protectionist policies misguidedly intended to foster industrial expansion. Quesnay's criticisms are especially levelled at the pro-industrial policies of Louis XIV's great Finance Minister, Colbert, and in his '*Maximes Générales du Gouvernement Économique d'un Royaume Agricole*', a vital summary of Physiocratic economics which appears three times in his published work,[15] he outlines the disastrous effects of Colbert's efforts to foster industrialisation, which actually resemble those that many countries have adopted in the twentieth century:

> It will never be forgotten that a minister of the last century, dazzled by the trade of the Dutch and the glitter of luxury manufactures, brought his coutry to such a state of frenzy that no one talked about anything but trade and money, without reflecting on the true employment of money or on a country's true trade.
>
> This minister, whose good intentions were so worthy of esteem but who was too much a prisoner of his ideas, tried to bring about the generation of wealth from the work of men's hands, to the detriment of the very source of wealth, and put the whole economic constitution of an agricultural nation out of gear. External trade in corn was stopped in order to bring about a low cost of living for the manufacturer; and the sale of corn inside the kindom was subjected to an arbitrary system of regulation which cut off trade between provinces. The protectors of industry, the justices in the towns, in order to procure corn at a low price, ruined their towns and provinces through poor calculation by causing a gradual decline in the cultivation of their land. Everything tended to bring about the destruction of the revenue of landed property, manufactures, trade, and industry, which, in an agricultural nation, can be maintained only through the produce of the soil. For it is this produce which provides trade with a surplus for export, and which pays revenue to the proprietors and wages to the men engaged in remunerative activities . . .

[14] Examples are set out in Quesnay's '(Premier) problème économique', and in *Philosphie Rurale,* Vol. II, pp. 354–78, and restated in modern terms in Eltis (1984), pp. 57–61. The principal factors that influence the rate of economic growth in Quesnay's work are explained quite similarly in Barna (1976).

[15] These maxims first appeared in 1757 in the article, 'Grains': a longer version followed in 1759 in the third edition of the *Tableau Économique,* and the full thirty maxims were published in 1767 in the volume of Quesnay's writings, *Physiocratie,* that Du Pont prepared, which reached Adam Smith's library.

> Luxury in the way of ornamentation [*luxe de la décoration*] was encouraged, and made very rapid progress. The administration of the provinces, harassed by the needs of the state, no longer offered any security in the countryside for the steady employment of the wealth necessary for the annual reproduction of wealth, which caused a large part of the land to be reduced to small scale cultivation [*la petite culture*], to be left fallow, and to become valueless. The revenue of the proprietors of landed property was uselessly sacrificed to a mercantile trade which could make no contribution to taxes. It became virtually impossible for agriculture to provide for them, depressed and overburdened as it was; their coverage was extended more and more to include men, food, and trade in raw produce; they were increased through the expenses of collection and through the destructive plundering of the reproduction; and a system of finance grew up around them which enriched the capital with the spoils of the provinces. Traffic in money lent out at interest created a very important kind of revenue based on money and drawn from money, which from the point of view of the nation was only an imaginary product, eluding taxation and undermining the state. This revenue based on money, and the appearance of opulence, maintained by the splendour of ruinous luxury, imposed upon the vulgar, and reduced further and further the reproduction of real wealth and the money stock of the nation. Unhappily, alas, the causes of this general disorder remained unknown for too long a time (pp. 245–6 [M]).

That passage underlines France's various seventeenth errors in the manner priority was given to industrial development. The attempt to achieve a low cost of living for industrial producers by forcing agriculturalists to sell in the home market reduced agriculture's *produit net,* and therefore its output and the economy's rate of growth. The towns themselves were ruined by the destruction of agriculture in the surrounding countryside. The encouragement of luxury consumption added to the deterioration of agricultural markets. The impoverishment of the agricultural producers reduced the level of agricultural technique from *la grande culture* which yielded a *produit net* equivalent to half of output to *la petite culture* which yielded no more than 25%. The tax-contributing agricultural sector was allowed to decline in relation to the industrial and mercantile sector which yielded no tax revenues, and tax collectors became increasingly desperate to obtain revenues so that methods of collection became increasingly supply-destructive. In the same 'General Maxims', Quesnay quotes Boisguilbert's calculations to suggest:

> the revenue from landed property, which was formerly 700 millions (1400 millions in terms of our money today) diminished by one-half between 1660 and 1699. He notes that it is not to the level of taxes but to the injurious form of assessment and the disorder which it brought about that this huge decline must be attributed. . . . The assessment became so irregular that under Louis XIV it rose to more than 750 millions but yielded to the royal treasury only 250 millions . . . (p. 262[M])

The increasing disorder in the nation's finances led to the creation of yet larger untaxable financial fortunes, and raised interest rates, and these

higher interest rates then added to the adverse effect on the surplus-producing agricultural sector.

Quesnay's analysis led him towards very simple policy principles which he summarised in the 'Dialogue on Commerce':

> Consumers multiply wherever subsistence expands; but it is only free competition with foreign buyers which can ensure the best possible price, and it is only a high price that can procure and sustain the opulence and the population of a kingdom through success in agriculture. That is the alpha and omega of economic science. (p. 824[E])

How Adam Smith's analysis of the relationship between agriculture and industry in economic development differed from Quesnay's

Smith's account of the potential benefits from industrialization departs sharply from Quesnay's. He believed that in its progress towards opulence an economy's investment will initially be mainly agricutural, and after that industrial and finally commercial, so the latter must in due course offer very large economic benefits. Before attention is focused on Smith's differences with Quesnay, it is important to emphasise the extent to which he learned from him. Smith spent ten months in Paris in 1765–66 where he discussed economic issues extensively with several of the leading Physiocrats, and in particular with Quesnay himself. The lectures he gave in Glasgow before 1765 include no hint of the close interconnection between capital accumulation and growth which was to play so fundamental a rôle in *The Wealth of Nations*. It has been inferred that he owed his grasp of this to the thorough grounding in Quesnaysian economics he acquired in 1765–66.[16] The editors of the Glasgow edition of *The Wealth of Nations* have commented that 'the model [of Physiocracy] which Smith expounds [in Book IV Chapter 9] is rather more elaborate than that offered by Quesnay' (pp. 672–3), which underlines how much he learned during this Paris visit. It may be added that in Paris Smith also saw a good deal of Turgot whose *Réflexions sur la Formation et la Distribution des Richesses* of 1770 reached his library, and in this book Turgot who is sometimes regarded as a near-Physiocrat recognised that industry generates a surplus in the form of investable profits, so Physiocratic thought on industrialization quickly moved on from Quesnay's stark insistence that industry's potential contribution to growth is at best zero.

It is to be noted that while Smith (and Turgot) progressed from Quesnay's negative analysis of the potential benefits from industrialization, there are still vital issues where they follow him. Smith wholly agreed that agriculture offers a far larger taxable and investable surplus than industry which is one main reason why he believed that in a society's natural

[16] That view has been expressed by Skinner (1979), Chapter 5.

progress towards opulence, agricultural investment must come first:

> The labourers and labouring cattle, therefore, employed in agriculture, not only occasion like the workmen in manufactures, the reproduction of a value equal to their own consumption, or to the capital which employs them, together with its owner's profits; but of a much greater value. Over and above the capital of the farmer and all its profits, they regularly occasion the reproduction of the rent of the landlord. (pp. 363–4)

Smith thus comes to the same view as Quesnay and the Physiocrats that extra agricultural demand and production provide the *external benefit* that unlike industrial production they raise aggregate rents. Because agricultural production adds to rents while industrial production does not, increments to agricultural production will have more potential to finance the needs of the State than equal increments to industrial production. The Ricardian theory of rent, originated by Malthus, West and Ricardo in 1815, insisted that this line of argument of Quesnay's and Smith's was incorrect. If, as the Ricardian theory insisted, marginal land yields no rent, a *marginal increment* to agricultural production will add no more aggregate ouput than the increase in wages and profits that it generates, and precisely the same is true of manufacturing. Ricardo therefore insisted that there is not reason to suppose that expanding agriculture will generate more 'revenue' [profits plus rents in his analysis] than an equal expansion of industry.[17] On this issue, Smith's position was identical to Quesnay's, and the Ricardians found them equally in error.

There is a further vital issue on which Smith and Quesnay were in complete agreement. Both wholly supported free trade and the maximization of international competition, and they saw the benefits from these in very similar terms. Smith's position is better known than Quesnay's, and a very well-known passage from *The Wealth of Nations* in juxtapositon to a similar passage from Quesnay's 'Dialogue on the Work of Artisans' will underline the similarity of their reasoning. First Smith:

> every system which endeavours, either, by extraordinary encouragements, to draw towards a particular species of industry a greater share of the capital of the society than would naturally go to it; or, by extraordinary restraints, to force from a particular species of industry some share of the capital which would otherwise be employed in it, is in reality subversive of the great purpose which it means to promote. It retards, instead of accelerating, the progress of the society towards real wealth and greatness; and diminishes, instead of increasing, the real value of the annual produce of its land and labour.
>
> All systems either of preference or of restraint, therefore, being thus completely taken away, the obvious and simple system of natural liberty establishes itself of its own accord. Every man, as long as he does not violate the laws of justice, is left

[17] His objections to Smith's argument are developed in Ricardo (1817), Chapter 26. Hollander (1973) pp. 195 and 280–7, has also strongly criticised Smith here.

> perfectly free to pursue his own interest his own way, and to bring both his industry and capital into competition with those of any other man, or order of men. (p. 687)

and now Quesnay:

> You will come round again to the necessity of accepting the greatest possible freedom of competition in all branches of trade, in order to cut down as far as possible on the burdensome costs involved in them. As soon as you have calculated the effects of this general freedom prescribed by natural right, by virtue of which *each person should have the legal power to render his situation as good as he possibly can, without infringing upon the rights of others,* it will become self-evident to you that it is an essential condition of the growth of public and private wealth. (p. 229[M])

Despite this identity of argument on the desirabiliy of a system of natural liberty in industry and commerce, where all should be equally free to buy in the cheapest market and sell in the dearest (though Quesnay's support for this system is tempered by the qualification that it should be administered through benevolent despotism[18]); and also their agreement that agricultural expansion offers the largest potential economic surplus, Smith believed that there were significant errors in Quesnay's analysis. But the extent of their agreement should not be underrated. Smith said that Quesnay's system, 'with all its imperfections is, perhaps, the nearest approximation to the truth that has yet been published upon the subject of political economy. (p. 678)

The first important difference between Smith and Quesnay is that Smith (like Turgot a few years earlier) believed that industrial profits include an element of economic surplus in the sense that industrial capitalists can save and invest from their profits, with the result that they have the potential to add to the growth of the economy:

> The increase in the quantity of useful labour actually employed within any society, must depend altogether upon the increase of the capital which employs it; and the increase of that capital again must be exactly equal to the amount of the savings from the revenue, either of the particular persons who manage and direct the employment of that capital, or of some other persons who lend it to them. If merchants, artificers and manufacturers are, as this system [Quesnay's] seems to suppose, natually more inclined to parismony and saving than proprietors and cultivators, they are, so far, more likely to augment the quantity of useful labour employed within their society, and consequently to increase its real revenue, the annual produce of its land and labour. (p. 677)

It was extremely prescient of Smith to appreciate that merchants and manufacturers have the power (and the inclination) to save some of the ordinary or 'normal' profits which accrue to them in conditions of perfect

[18] See Fox-Genevese (1976) and Vaggi (1987) for accounts of these aspects of Quesnay's thought. It is to be noted that Vaggi doubts that Quesnay would have advised his Monarch to permit the free importation of manufactures that constitute a mere *luxe de la décoration.*

competition. That merchants and manufacturers have the power to raise the rate of growth through their saving does not necessarily signify that they will generate a taxable surplus. A sufficient profit to leave something over for potential saving may be a necessary condition for the investment of private capital in industry and commerce, so profits sufficient to enable individuals to save may be part of the supply price of manufactures. But it does not follow that any part of these profits will necessarily be available to the State, for a lower net of tax return could discourage the supply of industrial capital. Smith does not actually discuss Quesnay's propostion that industry and commerce fail to generate a taxable surplus, but the history of the next century underlines that the industrial surplus soon became large enough to generate substantial tax revenues in addition to private saving. By the time the first volume of Karl Marx's *Capital* was published in 1867, industrial and commercial profits amounted to 30% of Britain's gross domestic product and agricultural rents plus the profits generated in agriculture amounted to no more than 13%.[19] So within a century, Britain's industrial and commercial surpluses were to become vastly larger than the agricultural. Smith's analysis (and Turgot's) was compatible with this development, but not Quesnay's.

Smith's main objection to Quesnay's argument is of course its neglect of the enormous advantages a society can obtain from the division of labour which can be taken far further in industry than in agriculture, for the 'labour of artificers and manufacturers . . . is capable of being more subdivided, and the labour of each workman reduced to a greater simplicity of operation, than that of farmers and country labourers'. (p. 676) Because of these potential advantages:

> A small quantity of manufactured produce purchases a great quantity of rude produce. A trading and manufacturing country, therefore, naturally purchases with a small part of its manufactured produce a great part of the rude produce of other countries; while, on the contrary, a country without trade and manufactures is generally obliged to purchase, at the expence of a great part of its rude produce, a very small part of the manufactured produce of other countries. (p. 677)

So Smith argues that a country which successfully develops its industry can attain far more favourable terms of trade between agricultural produce and manufactures than one that is still without a substantial industrial sector. Smith formulated the benefits from the division of labour in industry so that each expansion in industrial employment leads to more extensive subdivisions of employment, and hence to the achievement of higher productivity through the invention of superior machinery to exploit the opportunities this offers:

> What takes place among the labourers in a particular workhouse, takes place, for the same reason, among those of a great society. The greater their number, the

[19] Matthews, Feinstein and Odling-Smee (1982), p. 164.

> more they naturally divide themselves into different classes and subdivisions of employment. More heads are occupied in inventing the most proper machinery for executing the work of each, and it is, therefore, more likely to be invented. (p. 104)

The proposition that industrial productivity will be higher the more extensive the division of labour was present in lectures Smith gave in Glasgow just before and immediately after his Paris visit, where different students have recorded his words as, 'Twenty millions of people perhaps in a great society, working as it were to one anothers hands, from the nature of the division of labour before explained would produce a thousand times more goods than another society consisting only of two or three millions' and 'For twenty millions in a society, in the same manner as a company of manufacturers, will produce a hundred times more goods to be exchanged than a poorer and less numerous one of 2 mill',[20] As industrial employment grows and the division of labour is extended, industrial productivity will continually increase, so the quanitity of production of each industrial worker will all the time rise. If the relative prices of manufactures do not fall entirely in line with continuing increases in industrial productivity, the amount of corn the product of a manufacturing worker can be traded for will all the time rise. Thus if manufacturing productivity grows at a rate of 2% a year, and the relative prices of manufactures fall only 1% per annum, while agricultural productivity and the price of corn are constant, the output of a manufacturing worker will be tradable for 1% more corn in each successive year. Hence the basis for Smith's statement that '[A trading and manufacturing country] exports what can subsist and accommodate but a very few, and imports the subsistence and accommodation of a great number'. (p. 677)

The country that succeeds in expanding its manufacturing employment sufficiently to achieve the highest productivity levels and the greatest terms of trade benefits implicitly faces only modest competition from other manufacturing countries, so it will be able to reduce the relative prices of its manufactures less than the annual advance in its relative productivity. In Smith's argument, other countries will only achieve matching industrial productivity if they can attain comparable employment and production levels, so those who first attain high industrial production and efficiency will enjoy advantages which will not be readily competed away in the manner Quesnay assumed throughout his analysis of the tendency of competition to eliminate industrial profits.

The logic of Smith's argument indicates that a country with inferior industrial output and productivity might be able to compete with its more efficient competitors if it could pass through an initial loss making phase as

[20] These are reprinted in *Lectures on Jurisprudence,* pp. 392 and 512.

it expands its industrial production to their levels. Its companies could only survive these losses if, during the interval in which they were still inefficient owing to an inadequate scale of production, they were protected from the competition of overseas industries which had already attained high output and productivity. Smith discussed this case for infant industry protection which followed so directly from the logic of his argument:

> By means of such regulations, indeed, a particular manufacture may sometimes be acquired sooner than it could have been otherwise, and after a certain time may be made at home as cheap or cheaper than in the foreign country. But though the industry of the society may be thus carried with advantage into a particular channel sooner than it could have been otherwise, it will by no means follow that the sum total, either of its industry, or of its revenue, can ever by augmented by any such regulation. The industry of the society can augment only in proportion as its capital augments, and its capital can augment only in proportion to what can be gradually saved out of its revenue. But the immediate effect of every such regulation is to diminish its revenue, and what diminishes its revenue, is certainly not very likely to augment its capital faster than it would have augmented of its own accord, had both capital and industry been left to find out their natural employments.
>
> Though for want of such regulations the society should never acquire the proposed manufacture, it would not, upon that account, necessarily be the poorer in any one period of its duration. In every period of its duration its whole capital and industry might still have been employed, though upon different objects, in the manner that was most advantageous at the time. In every period its revenue might have been the greatest which its capital could afford, and both capital and revenue might have been augmented with the greatest possible rapidity. (p. 458)

In Smith's argument an extensive scale of production and large capital stock are both necessary if high levels of industrial efficiency and employment are to be attained. Infant industry protection can create a large captive home market, but by reducing the economy's overall net revenue, or *produit net* as Quesnay described it, protection actually reduces the economy's capacity to expand the capital stock and therefore to take advantage of its newfound opportunities for industrial growth.

So while Smith saw far greater benefits from the growth of manufacturing industry than Quesnay, he entirely agreed that the State should not interfere with market forces to further industrial growth. The very different analyses of Smith and Quesnay therefore indicate an identical policy stance.

Conclusion

Since the Second World War, Hong Kong, Taiwan, South Korea and Singapore have followed policies which have much in common with those that Smith and Quesnay advocated,[21] while the countries of the Indian

[21] The policies these countries have pursued are set out and discussed in detail in Chen (1979).

sub-Continent have preferred to pursue Colbertian policies involving massive tariff protection, industrial subsidies, agricultural price controls, and the diversion of agricultural surpluses in order to seek to build up industry.

The theory of infant industry protection and of the potential external benefits from industrial development have advanced greatly since 1776, but the eighteenth century propositions of Smith and Quesnay that these policies will not actually assist long-term industrial development pose question which twentieth century economists cannot safely lose sight of.

The first questions are raised by the line of argument which is most powerfully present in Quesnay's work. This focuses attention on the taxable surplus or *produit net* that industry and agriculture generate. Quesnay was of course wrong to suppose that only agriculture generates a *produit net,* but the question still needs to be asked of countries which have devoted vast real resources to industrial growth: Is industry a net generator of funds capable of supporting government defence and welfare spending, or is it actually a net absorber of such funds? Is industry capable of supporting social welfare, or is it a part of the welfare system that the sectors which are truly surplus-generating are required to finance?[22]

A second vital question is raised most sharply by Smith's analysis: Have pro-industrial policies actually raised or alterntively have they perhaps reduced the long-term rate of capital accumulation? If they transitorily reduce the gross national product because they force the substitution of low (or even negative) value-added production (when measured at world market prices) for production which offers a higher value-added, then the probability is that there will be less saving and capital accumulation from this lower real national income (as the twentieth century neoclassical trade literature also suggests). If saving and capital accumulation are diminished in the short-term, does the evidence indicate that long-term capital accumulation is truly raised as the advocates of twentieth century Colbertian policies invariably suppose?

It certainly appears that the questions raised by the eighteenth century analyses of François Quesnay and Adam Smith may still be pertinent to the development policies of several countries in the Third World.

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[22] It is shown in Eltis (1979) that even in a country with industries as advanced as Britain's, the nationalized industries were for many years part of the welfare state which the rest of the economy had to finance from its surpluses, instead of generating real resources to provide the wherewithal to finance social welfare.

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