

# THE CONCEPT OF AN AGRICULTURAL SURPLUS, FROM PETTY TO SMITH

BY  
ANTHONY BREWER

*Everyone has to eat, so agriculturalists must produce enough to feed themselves and the rest of the population. This statement is trivially obvious but making it explicit mattered to the early development of economic thinking. Many important economic writers of the period (Petty, Cantillon, Hutcheson, Hume, Steuart, Mirabeau, Smith, and others) used a specific notion of agricultural surplus of the form:  $x$  men can feed  $y$ , where  $y > x$ . A series of questions about the relation between agriculture and the rest of the economy naturally follows. Will the surplus be produced? How does it reach those who consume it? What are the “superfluous hands” (in Hume’s terms) to do? This paper points out this neglected theme in early economics.*

## I. INTRODUCTION

Everyone has to eat, so those who produce food must produce enough to feed themselves and to feed all those who do not produce their own food. Once stated, this is trivially obvious but, I will argue, making that simple relation between agriculture and the rest of the economy explicit and, at least in principle, quantifiable played a significant role in the development of economic thinking in the seventeenth and eighteenth centuries.

This paper will focus on a very specific way of posing the question. Many of the most important economic writers of the period (William Petty, Richard Cantillon, Francis Hutcheson, David Hume, James Steuart, Adam Smith, and others) used arguments of the form

$x$  men<sup>1</sup> can feed  $y$ , where  $y > x$ , (Statement 1a)

---

Dept of Economics, University of Bristol, 8 Woodland Road, Bristol BS8 1TN, UK. A.Brewer@bristol.ac.uk.

<sup>1</sup>“Men” because that is the word the writers discussed here used, as in Hume (1955, p. 111) “men, both male and female.” “Family” might capture the implied meaning better.

or the very similar

$x$  men can provide necessary subsistence for  $y$ , where  $y > x$ , (*Statement 1b*)  
with the obvious corollary that  $y - x$  can be fed (or provided with subsistence) while employed in other activities.

Statements 1a and 1b are not quite the same, but seventeenth- and eighteenth-century writers often identified food with subsistence, or at least linked them very closely, so it frequently seems more a matter of chance than of deliberate choice whether a particular writer used version 1a or version 1b. For example, Hume took  $y$ , in my notation, as the number “the land will support,” but  $x$  as the number needed in agriculture plus those who supply “the more necessary manufactures” to the agricultural workers, rather than to the whole population (1955, p. 6), a notion that falls between the two versions defined above. Steuart cast an almost identical statement in terms of food alone, on the lines of statement 1a, but described those not required to produce food as “free hands,” which would fit better with a definition based on statement 1b. Where appropriate, therefore, I shall refer to “statement 1,” treating statements 1a and 1b as if they were synonymous, or (less formally) to the “people-supported” measure of agricultural surplus.

Statement 1 clearly defines a notion of a surplus, but of a very specific kind. It is defined in physical terms, and avoids problems of valuation by comparing numbers of people, producers and consumers of food or subsistence goods, rather than physical or value quantities of output. It would be possible to recast the definition in terms of labor time, rather than people, but the writers discussed here did not do so. The surplus defined by statement 1a arises in agriculture, but only because food is produced by the agricultural sector and the definition is cast in terms of food. Similarly, the surplus defined by 1b arises from the industries that produce necessary subsistence goods, by definition. There is no necessary implication that other sectors are “sterile,” that profits or rent arise exclusively from subsistence production, or anything of the sort.

The purpose of this paper is, first, simply to point out the near ubiquity of this very specific form of surplus in late seventeenth- and eighteenth-century writings on economics, and, second, to examine the way it was used. I will argue that it mainly served as a starting point for discussion of the relation between agriculture and the rest of the economy,<sup>2</sup> a natural focus of concern in a period in which non-agricultural activities were growing rapidly in Britain and elsewhere, but in which agriculture was still the largest sector in the economy. The treatment is necessarily very compressed, but it may serve to pick out some common themes. The main focus will be on the writers listed above (Petty, Cantillon, Hutcheson, Hume, Steuart, and Smith), who each presented some immediately recognizable form of statement 1 and used it as the starting point for economic arguments. François Quesnay, the Marquis de Mirabeau, John Law, and Anne Robert Jacques Turgot had versions of statement 1 but did not develop them. They will be mentioned briefly by way of comparison and for completeness. I should emphasize that this paper is about the specific way of defining and measuring an agricultural surplus outlined above, and not about other forms of surplus and the arguments based on them.

<sup>2</sup>Aspromourgos (1996) calls this “the social division of labour,” and uses it (with distribution) as one of two headings for a discussion of economics in this period.

I will argue that there is a progressive development of thinking about the social division of labor from Petty to Smith, which shows up clearly in the treatment of agricultural surplus. Petty posed the question but made little progress with it; Cantillon set it in the context of a worked-out analysis of an essentially static, agrarian economy; Hume and Steuart took a contrasting line, emphasizing the way commerce unlocks the dynamic potential of agriculture. Smith drew the threads together, with a new emphasis on the role of capital accumulation.

There will be little to say about income distribution because this particular concept of surplus is well adapted for the analysis of inter-sectoral relations, but not for the analysis of distribution between types of income. None of the authors described here in fact linked their version of statement 1 directly to the distribution of income. That is not surprising when one considers the issues involved. An agricultural surplus is indeed a necessary condition for the existence of other types of income. If farmers produce only just enough to feed themselves, there could be no non-agricultural incomes and no non-producers at all. This is a case that Hume implicitly considered. A positive (agricultural) surplus, however, could simply accrue to the farmers who produce it, to be sold in return for manufactured goods, with  $x$  farmers supporting  $y - x$  non-farmers. In this case, again implicitly considered by Hume, the agricultural surplus is not linked to distribution between income types at all. At the other extreme, if agricultural producers were confined to bare subsistence, then agriculture could generate rent (or rent plus tithes, taxes, profits, and so on) corresponding to subsistence for  $y - x$  non-agriculturalists for every  $x$  employed in agriculture. This is the case that corresponds most closely to a 'surplus' theory of distribution, but it still does not tell us about wage and non-wage incomes in other sectors of the economy. The most natural case, however, would be one in which agricultural producers get enough to buy some non-agricultural goods, but part of the income generated in agriculture goes to rent, taxes, and the like. There is, then, no close connection between distribution and agricultural surplus in the sense considered here. None of this, of course, means that there is any inconsistency between the notion of agricultural surplus under discussion and a distribution theory based on some other concept of surplus, or some other theory altogether.

Statements of the form of statement 1 raise difficulties if scrutinized at all carefully. For example, the amount of food or, more generally, of necessities required to support a person or family is not well defined, as several of the writers discussed here recognized. So Cantillon compared the way of life of peasants in the south of France with those in Middlesex, England (1755, pp. 39, 71), while Smith discussed the effects of a postulated switch from wheat to potatoes as the staple food (1776, pp. 176–177). Statement 1 must be read in the context of given habits and customs. For Hume, most notably, changes in tastes and customs were a key part of the story of development, so one must assume that the "people-supported" measure of surplus would vary over time for this reason, as well as because of changes in agricultural productivity. Second, one has to ask how to account for non-agricultural inputs into agriculture. Many inputs were produced locally, often by agriculturalists themselves, and can presumably be netted out in a vertically integrated agriculture (or necessities-producing sector), but it is harder to deal with inputs that could not normally have been produced locally, such as iron used for tools. One might either include the necessary iron producers in the calculation of the  $x$  agricultural producers (assumed vertical integration again), or

exclude them and reckon instead that part of the marketable surplus in agriculture is earmarked to provide for them. Seventeenth- and eighteenth-century writers did not construct formal models,<sup>3</sup> and were able to treat these issues casually, if at all. The concept of surplus discussed here, though quantifiable in principle, was important mainly as a starting point for qualitative discussions.

A number of different indicators of agricultural productivity appear in the literature of the time. Perhaps the simplest is the ratio of the crop to the seed sown. The term *produit net* (net product) was used in a work of agronomy to refer to the output minus the seed (Argemi 2002, p. 461).<sup>4</sup> Cantillon refers to this measure, but only as a preliminary step in his argument (1755, p. 71). It is, of course, necessary to subtract what is set aside for seed before calculating the useful output, but this measure is of limited use beyond that. It has a long history, presumably because it is relatively easy to measure. Second, one can measure the output per unit of land. This is clearly relevant, for example, to a calculation of the number of people that a given territory could support. Cantillon, again, made prominent use of such calculations throughout his *Essay* (1755), as did others. Third, one can measure agricultural output in value terms; that is, the revenue generated in agriculture, net of (some or all) money costs. If the costs subtracted include all intermediate goods but not wages, this is equal to incomes generated in the sector (plus taxes, etc.). If wages are also subtracted, then it is equal to rents (plus profits), and so on. Quesnay's net product is a variant of this measure. It is not in a simple sense a measure of productivity, since it depends on prices. The "people-supported" measure exemplified by statement 1a is a further alternative. These different notions of productivity or surplus are not interchangeable and are not alternative measures of the same thing. They are different concepts used by different writers for different analytical purposes. This paper, to repeat, is concerned only with the "people-supported" form.

## II. LUXURY

Statement 1 makes sense only if there is a definite amount of food (statement 1a) or of necessities more generally (statement 1b) that are required per person or per household. In most seventeenth- and eighteenth-century versions of this notion of surplus, there is an additional assumption, implicit or explicit, that people will not normally consume more than this required amount, so that there is a definite connection between the production of food (or necessities in general) and population. Adam Smith was quite explicit about this, both in the *Theory of Moral Sentiments* and the *Wealth of Nations*. "The rich man consumes no more food than his poor neighbour. . . . The desire of food is limited in every man by the narrow capacity of the human stomach" (1776, p. 180; see also 1759, p. 184). As income rises above subsistence level, spending shifts to other things. In Smith's terms, there is no limit to "the desire of the conveniences and ornaments of building, dress, equipage, and household furniture" (1776, p. 180).

<sup>3</sup>Except Quesnay, who did not, I will argue, use statement 1 in that context.

<sup>4</sup>Not to be confused with Quesnay's later and different use of the term.

There is a connection here with a literature about “luxury,” which goes back at least to the ancient Greeks but which was very much alive in the period under discussion. The luxury debate was, generally speaking, cast in moralistic terms, with little economic content. Thus, Plato thought the desire for luxuries led to an unlimited desire for wealth, hence to cities that were fevered and uncontrollable. A succession of ancient and medieval authors followed his lead in condemning luxury as a source of corruption and conflict. Embedded in much of this literature, from Plato on, is the idea that the desire for necessities is limited, hence manageable, while the desire for luxuries is not.

In the early modern period, however, particularly in Britain, an opposing view emerged, which saw the desire for luxuries as a good thing because it stimulated production and trade. This was the attitude, for example, of Nicholas Barbon, in the late seventeenth century, who distinguished between the limited “wants of the body” (necessities) and the unlimited “wants of the mind.” “Man naturally Aspires, and as his Mind is elevated . . . his Wants increase with his Wishes, which is for every thing that is rare, can gratifie his Senses, adorn his Body, and promote the Ease, Pleasure, and Pomp of Life” (1690, p. 14). Barbon’s focus was on trade and he presented no clear idea of an agricultural surplus, but the idea of a limited demand for necessities compared with an unlimited demand for other things is clearly there, as it is in Smith, and as it is implicitly in other writers. Bernard Mandeville, in the early eighteenth century, took this line of argument to a scandalous extreme, expressed in the subtitle of his *Fable of the Bees: or Private Vices, Publick Benefits*. Many of the writers discussed here, notably Hutcheson, Hume, and (less obviously) Smith, were explicitly or implicitly responding to the luxury debate while trying to avoid the condemnation that Mandeville had attracted (on Smith, see Brewer 2009).

### III. THE SOCIAL DIVISION OF LABOR

Statement 1 puts the focus on the relation between those who produce food or necessities and the total population they support, thus on the relation between agriculture and the rest of the economy. In a much broader sense, the relation between town and country, between traditional rural ways of life and the growing world of trade, manufacturing, and luxury consumption was a central theme of cultural and political discussion in Britain and elsewhere over several centuries, from the attempts of Tudor monarchs to force the nobility to “continue the ancient and laudable custome of the Realme” by staying in their country estates, away from the temptations of the city (cited in Lubbock 1995, p. 43), to the jeremiads of Cobbett in the early nineteenth century. Smith stands at a turning point. The relation between town and country is a recurring theme of the *Wealth of Nations*, but Smith’s emphasis on the mobility of capital and on the consequent equalization of profits between agriculture and other sectors was a step towards treating agriculture as a business like any other. His successors, notably Ricardo, gave a special role to agriculture, but in a new framework in which diminishing returns in agriculture matter simply because of their impact on the system-wide profit rate, not because agriculture has any particular socio-political role.

## IV. PETTY

Petty seems to have been the first to present a notion of surplus on the lines of statement 1.<sup>5</sup> For example, “if there be 1000 men in a territory, and if 100 of them can raise necessary food and raiment for the whole 1000” (Petty 1899, I, p. 30).<sup>6</sup> This example, the first and best-known of several in Petty’s works, is part of a discussion of policy towards the indigent and unemployed. He thought that those who are unable to work should be provided for, while the “lazy and thievish” should be “restrained and punished” (I, p. 29), but he was worried that there might not be enough jobs for all those who are able and willing to work. Of the 1000 men in his hypothetical example, only 100 are needed to provide subsistence,<sup>7</sup> while 200 produce for export markets, 400 produce luxuries—the “ornaments, pleasure and magnificence of the whole” (I, p. 30)—and 200 are “governours, divines, lawyers” and the like. Petty’s illustrative numbers leave 100 people unaccounted for, and work should be found for them.

The role of surplus here is essentially secondary and negative: since only 100 are needed to provide subsistence for the whole, there is a potential problem in finding work for the rest. The limitations of the argument should also be noted. The flows of income and spending that underlie the example are not considered at all. Thus, if 200 are employed in export industries, the corresponding imports might be expected to displace domestic employment, but Petty did not take that into account. Nor did he consider the financing of the public works he advocated, beyond saying it would be “safer” (from a public order viewpoint) to “afford [the unemployed] the superfluity which would otherwise be lost and wasted, or wantonly spent” (I, p. 31). He does not seem to have considered that spending, however “wanton,” creates work, and that diverting spending to public works might crowd out other forms of employment. To say this is not to criticize Petty—no such analysis existed at the time—but to warn against reading more sophisticated treatments of surplus into Petty’s very limited version.

A few years later, he produced a rather similar line of argument in the concluding chapter of *Verbum Sapienti*, titled “how to employ the people, and the end thereof.” To “enrich the kingdom and advance its honour,” food and necessaries should be produced by “few hands” since “he that can do the work of five men by one, effects the same as the begetting four adult workmen” (I, p. 118). The rest of the population will have to work to earn their living, and they should “raise such commodities as would yield and fetch in money from abroad” (I, p. 119). This plainly mercantilist

<sup>5</sup>Aristotle had something a little like it, cited by Smith. Here is Smith’s version: “Speaking of the ideal republic described in the laws of Plato, to maintain five thousand idle men (the number of warriors supposed necessary for its defence) together with their women and servants, would require, he says, a territory of boundless extent and fertility, like the plains of Babylon” (1776, p. 388). The idea of a surplus needed to support an idle population, at least, is there.

<sup>6</sup>I have modernized punctuation and capitalization in quoted extracts.

<sup>7</sup>The assumed rate of surplus is extraordinarily high for the period—a mere 100 subsistence producers support 900 others. The numbers are only illustrative, of course, but they do make it hard to take the argument seriously.

aim, however, had its limits, and Petty's conclusion reveals how different his cast of mind was from that of later writers.

But when should we rest from this great industry? I answer, when we have certainly more money than any of our neighbour states.... What then should we busy ourselves about? I answer, in ratiocinations upon the works and will of God, to be supported not only by the indolency, but also by the pleasure of the body, and not only by the tranquility, but serenity of the mind (I, p. 119).

To understand Petty's approach, it helps to recall his approach to population theory. He was closely associated with the work of John Graunt, one of the founders of modern demography, who collected evidence on birth and death rates. Petty seems to have treated the rate of population growth determined by the difference between birth and death rates as something like a natural constant. He was prepared, for example, to project it forward for centuries, and to project it backwards to show how population had grown since the time of Noah's ark. Unlike later writers who treated population as endogenous, Petty saw population as essentially exogenous at any given date.

The given population is the main resource of the kingdom, but only if it can be put to work. In a pioneering exercise in human capital theory, he estimated actual and potential income by applying an assumed level of earnings per head to the total population and calculating the corresponding capital value. In *Political Arithmetick*, for example, he took the estimated population of England, excluding children under seven together with those whose rank or position excludes them from labor (I, p. 307), and calculated the amount each could earn if fully employed, to arrive at a total potential income. An estimate of the amount each could "superlucrate" ("save") shows how fast the wealth of the country could grow (I, p. 308). Again, the naïveté should be noted—Petty treated saving in aggregate as a simple summation of individual saving with no consideration of the form in which saving would be held or the uses to which it might be put.

Petty had little to say about how the given population is, in fact, allocated to different jobs. He had decided views about the most productive tasks for the unemployed to do—import substitution was the best way to create jobs—but little in the way of argument to justify them. If productivity in the production of subsistence goods is high, then people can do other things, but those who are not required to produce subsistence must be found some form of useful employment, if only to avoid the danger of civil disturbance. In sum, he posed the question of the social division of labor without making much progress in explaining it.

Turning to the controversial issue of Petty's distribution theory, what can be said here is that his treatment of rent was not linked to his version of statement 1. In a much-cited text, Petty imagined a man who raises corn, performing all the necessary operations himself.

I say that when this man hath subtracted his seed out of the proceed of the harvest, and also what himself hath both eaten and given to others in exchange for clothes and other natural necessaries, that the remainder of the corn is the natural and true rent of the land for that year (1899 I, p. 43).

This certainly looks like a surplus theory of rent, and one that might perhaps be restated in terms of statement 1, but it is almost entirely isolated, and is inconsistent

with many other statements about rent in Petty's work; for example, his claim that taxes on rent will be passed on to the tenant when the rent is renegotiated (I, p. 37). There is just one place where Petty set out a version of the argument that "x men can feed y," and also brought rent into the story. He assumed that 100 men can produce food for 1000, giving an apparent surplus of nine-tenths of output, but then added "suppose that rent of land (found out as above mentioned)<sup>8</sup> be the fourth part of the produce (about which proportion it really is ...)" (I, p. 89). The obvious inconsistency surely indicates that Petty did not link rent to the kind of surplus defined by his version of statement 1.

## V. LAW

Law presented an argument rather like statement 1, though it is not quite the same and will, therefore, not be discussed at length. "Suppose an island belonging to one man, the number of tenants a 100, each tenant 10 in family, in all a 1000; by these the island is labour'd, part to the product of corns, the rest for pasturage: Besides the tenants and their families, there are 300 poor or idle, who live by charity" (1705, p. 97).

The tenants, we learn later, work only half the year, so it seems that 1000 working half-time can provide for 1300. It becomes clear, however, that some of the produce is exported and other goods imported. The proprietor's consumption, which must be assumed to include luxuries, is not separately accounted for, nor is it clear that the 1300 people mentioned are the whole population. Law's statement at most sets a lower bound to the true surplus. He presented the example to argue that by creating money, the proprietor can provide employment, both for those who presently live by charity and for the tenants during their idle times, either processing local produce for export or producing import substitutes. The point here, apart from completeness, is to show that there was a continuing tradition of concern about employment, which perhaps stems from Petty's analysis. The notion of surplus, however, played little role in the bulk of Law's analysis.

## VI. CANTILLON

In his *Essai sur la nature du commerce en général*, Cantillon<sup>9</sup> set out a calculation very similar to Petty's, in almost exactly the form of statement 1. Referring to data in the (now lost) appendix, he claimed that 25 adults could provide the necessaries of life for 100, according to what he called the "European" standard. Half the population is excluded from manual work on account of age or infirmity or because they have other sources of income, leaving 25 of the 100 "who are capable of working but would have nothing to do" in the provision of subsistence (1755, p. 87). The assumed rate of surplus is very much lower than Petty's and much more in accord with what we know of productivity at the time.

<sup>8</sup>Presumably a reference to the "rent as surplus" argument cited above, which is a few pages earlier in the text.

<sup>9</sup>I deal with Cantillon rather briefly here, since I have discussed him at length elsewhere (Brewer 1992).



He then asked what those who are not required to produce subsistence should do, abstracting initially from the economic mechanisms that determine what they will in fact do. They could produce luxuries of any sort, but if they were to produce durable goods they would add to the nation's wealth in a lasting way, especially if they were to mine gold and silver, which are particularly durable and "can always be exchanged for the necessaries of life" (p. 89). Equally, they could produce goods for export, in order to import gold and silver in exchange. Cantillon justified these uses of labor by arguing that the relative greatness of states is determined, at least in part, by the reserve stock they can call on in emergencies, and that stocks of gold and silver are the best reserves to hold since they can be used to buy anything. Export markets, however, are limited, and those who cannot produce for export are better employed producing luxuries for domestic consumption than left idle (pp. 89–91).

This much follows Petty closely but the context is quite different, as Cantillon signaled by continuing: "it is always the inspiration of the proprietors of land which encourages or discourages the different occupations of the people" (p. 93), linking the abstract discussion of what people *should* be employed to do with his analysis of the determinants of what they *actually* do.

The landlord stands at the center of Cantillon's analysis. In a central passage, Cantillon considered a self-sufficient estate, which served as a model of a whole economy.

If the owner of a large estate (which I wish to consider here as if there were no other in the world) has it cultivated himself he will follow his fancy in the use of which he will put it. (1) He will necessarily use part of it for corn to feed the labourers, mechanics and overseers who work for him, another part to feed the cattle, sheep and other animals necessary for their clothing and food or other commodities according to the way in which he wishes to maintain them. (2) He will turn part of the land into parks, gardens, fruit trees or vines as he feels inclined and into meadows for the horses he will use for his pleasure, etc. (1755, p. 59).

The landlord's tastes determine the way he uses his estate, subject to two constraints: first, the amount of land is fixed, so using it for one purpose prevents its use for another; and, second, the workforce must be maintained, so a decision to set people to work at a particular job is equivalent to a decision to devote the necessary resources to providing (conventionally determined) subsistence. Note that the division of land between subsistence and other uses is not the same as the division of the labor force implied by statement 1. The land might be wholly used for subsistence production, despite a high rate of surplus in the terms of statement 1, if those not directly involved in agriculture are employed as servants and the like and thus have to be fed. A market system, Cantillon argued, was just the same. Landowners are the only people with significant disposable income, so landlords' tastes, working through the market, determine the allocation of land, the only scarce resource, and the occupations of the population.

Population adjusts to the demand for labor with living standards at a level set by social convention, because people do not marry unless they can maintain their family at an acceptable level. The land can support a certain maximum population at the given consumption level. However, not all the land may be devoted to the support of human beings. If horses are extensively used for transport, for example, land is diverted from feeding people to feeding horses. The population that is the base for the surplus

calculation described above is endogenous, depending on the whole complex of landlords' spending decisions. Trade brings in further issues. If food is exported, it feeds people abroad, where they constitute potentially hostile military manpower. Production of manufactures for export, by contrast, allows imports of food and builds up population, and hence military potential, beyond what the land could otherwise support.

The "fancies" of landlords, then, govern the allocation of resources but have unplanned consequences for the position of the nation as a whole. As in Petty, the social division of labor is central, but Cantillon had a well-developed and consistent model of the determinants of allocation with land, not labor, as the scarce resource.

Cantillon clearly held that wages are determined prior to rents, implying that rent must be a residual, but he never explicitly said so. He repeatedly assumed for illustrative purposes that the landlord received a third of the gross produce of a farm, with another third going to laborers' wages and the final third to the farmer. This is probably consistent with his version of statement 1, in which half the working population produces necessities, but it is hard to be sure.

Since landlords are at the center of Cantillon's story, it is natural to ask why he said so little about rents. The example of the isolated estate, cited above, may help to provide an answer. He described how the owner of a self-sufficient estate could personally direct the use of the land and the work of all those it supports, including those who work the land, those who produce manufactures of different sorts, and those who are his personal servants. In the modern language of distributional shares, the wages of those who work the land would not be counted as part of the landlord's income at all, while his spending on manufactures and on servants would count as spending out of his income, but from Cantillon's point of view, this would be an irrelevant distinction. The point is that all those who live and work on the estate are the creatures of the landlord and work to satisfy his wants, however indirectly. In that sense the landlord's "share" of the produce of the estate is 100%. A market system, according to Cantillon, achieves exactly the same result, with market prices serving as a mechanism that gives effect to the "fancies" of landlords. From this point of view, the money rent charged to farmers measures nothing very important—it is part of the mechanism, but that is all.

It must be admitted that the surplus concept defined by statement 1 did not play a central role in Cantillon's system. It is, rather, a digression, albeit one that was worked out fairly fully, perhaps added to respond to Petty. That said, it is possible that if we had the lost appendix, we might find it more fully developed, since Cantillon referred directly to the appendix in this context.

## VII. HUTCHESON, HUME, AND STEUART

David Hume presented a version of statement 1, and developed it in a novel and important way. His economic writings were (probably) independent of Cantillon, whose *Essai* was written before Hume's main economic writings but published after them,<sup>10</sup> but may well have been influenced by Francis Hutcheson's critique of Mandeville and, more distantly, by the *Fable of the Bees* itself. Mandeville had

<sup>10</sup>Cantillon's *Essai* circulated in manuscript in France before it was published, so it is possible that Hume had seen it.

claimed that national prosperity depends on vice. Without vice, he argued, there would be no demand for anything beyond bare necessities, population would shrink, and those who remained would be confined to a life of “slothful Ease and stupid Innocence” (1970, p. 200). Mandeville, in turn, may perhaps have drawn on Petty’s worry that part of the population may be left unemployed if there is not enough for them to do. Mandeville’s argument depends on listing ways in which “vice” creates employment (thus theft makes work for locksmiths) without considering that people who do not need to fit locks may spend the money on something else. Some version of statement 1 must be implicit in the *Fable of the Bees*, but it is never made explicit.

In his reply, Hutcheson set out a version of statement 1: “It is obvious to all, that in a nation of any tolerable extent of ground, three fourths employed in agriculture will furnish food to the whole” (1726, p. 139). Rather than be idle, most would choose to work to obtain “conveniencies and elegancies of life,” allowing many to support themselves by producing goods that are not strictly necessary. He agreed with Mandeville that confining production to necessities would be pointless, since “there would be no knowledge of arts, no agreeable amusements or diversions; and they must all be idle one half of their time”<sup>11</sup> (p. 139), but denied that moderate enjoyment of luxuries could be seen as a vice.

The notion of a potential surplus in agriculture plays a central role in Hume’s economics. “The land may easily maintain a much greater number of men, than those who are immediately employed in its culture, or who furnish the more necessary manufactures to such as are so employed” (1955, p. 6). Steuart agreed. “One consequence of a fruitful soil, possessed by a free people, given to agriculture and inclined to industry, will be the production of a superfluous quantity of food, over and above what is necessary to feed the farmers” (1767, p. 42). An agricultural surplus can feed a non-agricultural population of “superfluous hands” (Hume) or “free hands” (Steuart). Steuart discussed the number of “free hands” relative to the numbers of farmers in Britain (1767, p. 51–55), trying to turn the  $x$  and  $y$  of my statement 1 into real numbers. Steuart followed Hume very closely in the arguments discussed here (Brewer 1997), so I shall concentrate on Hume.

Not only can farmers produce more food than they *need* for subsistence, they can produce more than they *want* to consume. If there is nothing they want to buy and no effective way of forcing them to work to produce a surplus, they will not do so. A potential surplus need not be produced at all.

Where manufactures and mechanic arts are not cultivated, the bulk of the people must apply themselves to agriculture; and if their skill and industry encrease, there must arise a great superfluity from their labour beyond what suffices to maintain them. They have no temptation, therefore, to encrease their skill and industry; since they cannot exchange that superfluity for any commodities. . . . A habit of indolence naturally prevails. The greater part of the land lies uncultivated (Hume 1955, p. 10; for an almost exactly parallel statement, see Steuart 1767, p. 41).

<sup>11</sup>If there are no manufactures, farmers only work half the time, not three-quarters as the previous quotation might suggest, because they no longer produce raw materials for manufacturing.

For Hume, this was not simply a theoretical point, but the starting point for economic development. “In the first and more uncultivated ages of any state, ere fancy has confounded her wants with those of nature, men, content with the produce of their own fields, or with those rude improvements which they themselves can work upon them, have little occasion for exchange” (1955, p. 42). In his *History of England*, he described the Ancient Britons as “ignorant of all the refinements of life,” so “their wants and their possessions were equally scanty and limited” (1754–61, I, p. 5). After the Anglo-Saxon invasion, things went back to much the same state, since the “refined arts” were unknown (I, p. 16). Steuart too thought that many parts of Europe were still held back by “moral incapacity”; that is, by lack of incentives (1767, p. 42).

The process of economic development (to use the modern term) consists of a parallel development of agriculture and manufacturing, in which an agricultural surplus feeds the manufacturing sector, while the desire to buy manufactured goods provides the agricultural sector with a reason to produce such a surplus. “Every thing in the world is purchased by labour; and our passions are the only cause of labour. When a nation abounds in manufactures and mechanic arts, the proprietors of land, as well as the farmers, study agriculture as a science, and redouble their industry and attention” (Hume 1955, p. 11).

The problem, however, is to get the process started. If no attractive goods are on offer, farmers will not produce a surplus, and there will be no manufacturing sector, no market for manufactured goods, and no opportunity to learn more sophisticated skills. An external stimulus is needed. “In most nations, foreign trade has preceded any refinement in home manufactures... Thus men become acquainted with the *pleasures* of luxury and the *profits* of commerce” (p. 13). “Had [our neighbors] not first instructed us, we should have been at present barbarians; and did they not still continue their instructions, the arts must fall into a state of languor, and lose that emulation and novelty, which contribute so much to their advancement” (pp. 78–79). Steuart took a similar line, working through an example in which a hypothetical country “of great simplicity of manners” is visited by traders with “instruments of luxury and refinement... those who formerly lived in simplicity become industrious,” and output increases (1767, pp. 166–171; see also pp. 38–41).

In Hume’s version, a taste for luxury stimulates more effort in agriculture, but it also stimulates an irreversible process of learning in both sectors and a general change in the “manners and customs” of the country. So, faced with the argument that international trade was risky because access to external markets might be cut off, he replied that artisans who had developed skills for the foreign market could find something to sell in the home market “if the spirit of industry be preserved” (1955, p. 80). Continued openness to trade is important, not to retain static gains from trade but to promote further development through emulation and international competition. Steuart took a rather less sanguine view, partly because his different theory of money led him to worry about balance of payments problems, but he too saw development as irreversible. The “statesman” should redirect activity towards the “inland trade” if the balance of trade became unfavorable, but it is clear that this did not mean reverting to “ancient simplicity.”

The main theme of Hume’s analysis of development is the idea that farmers are more productive if they get the surplus and can use it to buy things they want, but he

recognized that farmers might have to produce a surplus in order to pay rent and, more generally, that farmers might simply be forced to produce a surplus and hand it over to others. There are two elements to his treatment of the issue. First, he argued that force was inefficient. "It is a violent method, and in most cases impracticable, to oblige the labourer to toil, in order to raise from the land more than what subsists himself and family. Furnish him with manufactures and commodities, and he will do it of himself" (1955, p. 12). Hume had no definite theory of income distribution. He recognized rent as an empirical fact, but clearly thought that farmers in Britain in his own day (or some of them) were prosperous and independent, implying that rent did not eat up the whole of the surplus. Second, he recognized that feudal landlords did extract some of a very meager surplus, but argued that in the absence of attractive manufactures, they used the money to maintain gangs of unproductive retainers and to fight each other. When attractive luxury goods were introduced, at first from abroad, landlords moved to the towns and bought manufactures with income previously wasted on idle retainers. Luxury led to economic development and to political change—it was, according to the *History*, the main reason for the decline of feudalism (1754–61, IV, p. 385).

Hume's main concern was with the size and growth of the (marketable) agricultural surplus, but he also discussed alternative uses for it. Having established that a surplus supports "superfluous hands," he asked whether there is a conflict between power and plenty; that is, between maintaining soldiers and enjoying luxury goods. He cited Sparta, where the Helots were forced to support a population of Spartans who lived frugal lives devoted exclusively to war (1955, pp. 8–9), but claimed that Sparta was a freak case. In general, a taste for luxury increases the power of the State because it maintains a reserve of manpower in the manufacturing sector, which can be switched to military purposes when required. Wartime taxation forces cuts in luxury spending, the manufacturing labor force is reduced, and those who become unemployed have to join the army. In times of peace, the population can enjoy luxuries and farmers produce a surplus to exchange for manufactures, without impairing the ability of the nation to defend itself in time of war (pp. 12–13).

Hume and Steuart, then, both set out statement 1 in almost exactly the same way as Petty and Cantillon,  $x$  men can support  $y$ , but they emphasized that the fact that a surplus *can* be produced is no assurance that it *will* be. The size of the surplus is endogenous and so is the number of "superfluous" or "free" hands that will be supported—the ratio of  $y$  to  $x$  in statement 1 is not a premise of the argument but a conclusion. The notion of agricultural surplus becomes the central organizing principle in a pioneering theory of economic development.

### VIII. A FRENCH TRADITION: BOISGUILBERT, QUESNAY, MIRABEAU, AND TURGOT

One might expect Quesnay to bulk large in a discussion of agricultural surplus. What has to be said here is, however, mainly negative since the focus of this paper is on the specific form of surplus exemplified by statement 1, which is hardly to be found in the work of Quesnay and his close collaborators. There is a line of development in

economic thinking in France, from Boisguilbert to Quesnay, in which the focus is on the poor state of French agriculture caused, it was said, by arbitrary taxation and restrictions on trade, and on the fiscal problems of the French state.<sup>12</sup> In this tradition, agriculture, and a surplus generated in agriculture, is certainly central, but the surplus is seen in value terms so that a fall in the price of grain would lead to a fall in potential tax revenues. The “people-supported” way of conceiving an agricultural surplus did not fit well with this set of problems, so it appears only incidentally, if at all.

At the beginning of the eighteenth century, Pierre de Boisguilbert had a brief discussion of the social division of labor, which must imply something like statement 1. A developed state supports 200 professions, from bakers and tailors to actors, “all children of the fruits of the soil” (1966, p. 988). If agricultural production falls, the non-agricultural professions must fall away, starting with actors, the least necessary. Agriculturalists feed and provide subsistence for all others (p. 827). However, the relation is not stated explicitly as a relation between numbers in agriculture and elsewhere, and value calculations (agricultural revenue minus costs, in value terms) soon take over.

Later in the century, the *Mémoire sur L'Agriculture*, published under Mirabeau's name in the 1760 edition of *L'Ami des Hommes*, has a version of statement 1. At this time, Mirabeau had just started working closely with Quesnay, who may well have drafted the *Mémoire*, or at least approved it.<sup>13</sup> “L'Agriculture est l'unique manufacture où le travail d'un seul ouvrier fournit à la subsistance d'un grand nombre d'autres qui peuvent vaquer à d'autres emplois” (1756–60, p. 13).<sup>14</sup> As it stands, this is part of a passage praising agriculture in a general way, and is not developed further. A few pages on, the theme returns: “plus l'industrie & la richesse des entrepreneurs de culture épargne de travail d'hommes, plus la culture fournit à la subsistance d'autres hommes... Ces autres hommes sont d'autant plus disponibles pour tout autre exercice, pour les différents professions, pour la guerre, pour les travaux publiques, &c” (pp. 25–26).<sup>15</sup> There is here a recognition of the implications of agricultural surplus for the scale of other sectors, in terms reminiscent of Hume (whose work Mirabeau and Quesnay would have known). However, between the two passages cited, Mirabeau (or Quesnay) discussed the surplus arising in agriculture and its relation to other sectors in value rather than physical terms,

<sup>12</sup>Cantillon spent much of his career in France but does not fit in this pattern, perhaps because he was a merchant and banker with a very international outlook. By the time his *Essai* was written, his main base was in London.

<sup>13</sup>On Quesnay's role in this work by Mirabeau, see Théré and Charles (2008, p. 38).

<sup>14</sup>“Agriculture is the only form of production where the work of a single man provides for the subsistence of many others who can devote themselves to other occupations.”

<sup>15</sup>“the more the industry and wealth of farming entrepreneurs economises on manpower, the more agriculture provides subsistence for others.... These other men are ever more available for other professions, for war, for public works, etc.”

expressing the surplus as the excess of revenue over money costs, so his main line of argument falls outside the tradition under discussion here.<sup>16</sup>

A notion of surplus is clearly central to Quesnay's economics, but it was not stated in a form that can be equated with statement 1. He defined surplus (or *produit net*) in value terms (Vaggi 1987) as the difference between the value of output and costs, allowing him to argue that non-agricultural prices covered costs but no more, and thus that only agriculture produced a surplus. Although a physical notion of surplus of some sort must clearly be implicit in Quesnay's system, it would not be easy to make a direct link. Quesnay divided the economy into the productive sector (agriculture) and the sterile sector (the remainder), where the former produces a surplus and the latter does not. This is not the same as a division between necessities and luxuries (or non-necessities), since his *Tableau* included necessary purchases by the agricultural sector from manufacturing, while agricultural raw materials destined for use in luxury production still count as part of the productive sector. In addition, he insisted that the *produit net* depended on the price of agricultural products: at least up to a point, a higher price would lead to a greater surplus, not just in nominal but in real terms, allowing more rapid development of agriculture, and hence of the whole economy. It is difficult to see how this could be reconciled with the notion of a marketable surplus of the sort under discussion here.

None of this, of course, is to deny the central role of a (different) notion of surplus arising in agriculture in Quesnay's work, or to deny the importance of his emphasis on the need for investment in agriculture, and his representation of inter-sectoral flows of payments in the *Tableau Économique*. His approach is simply different.

Turgot should also be mentioned, but need not be discussed at length. In his early unfinished work *On Universal History* (1973, pp. 61–118), written in the early 1750s,<sup>17</sup> he presented a version of statement 1, albeit only in passing and in the context of a broad discussion of the history of mankind. Regarding the transition from the hunting to the pastoral stage of history, he asserted that “herds sustained more men than were required to look after them” (p. 67), but used this fact only to argue that it became possible to detach a military force from the rest of the community to conquer others and force them to do the work of tending the herds. After the later transition to agriculture, “the land can sustain many more men than are necessary in order to cultivate it . . . hence people who are unoccupied; hence towns, trade, and all the useful arts and accomplishments; hence more rapid progress in every sphere” (p. 69). These are important insights but Turgot did not develop the argument any

<sup>16</sup>Quesnay did refer to the hypothetical case of “un pays où les productions consommables excèdent la consommation qu'en peuvent faire les habitants qui les font naître par leurs travaux” (1958, p. 775; “a country where the consumable outputs exceed what the inhabitants who produce them can consume”), which looks a bit like statement 1. In context, however, it seems to refer to a shortage of demand in the aggregate, or a mismatch between the composition of output and of demand. He added that this applied only to an underpopulated but productive country, and to conceive of it was difficult. Elsewhere he remarked that the land “must not only feed [*nourrir*] those who cultivate it” but must support the state, the church, the landlords and so on (p. 482), but the second part of the statement is expressed in terms of payments, not numbers of people, and the argument is not developed along the lines under discussion here. It does not seriously threaten the view that Quesnay conceived the surplus in value terms.

<sup>17</sup>At almost exactly the time Hume was writing the essays cited here.

further. In his later *Reflections on the Formation and Distribution of Wealth*, he followed Quesnay's lead in treating the agricultural surplus in value terms.

## IX. SMITH

Adam Smith too noted the importance of a marketed surplus of food.

When by the improvement and cultivation of the land the labour of one family can provide food for two, the labour of half the society becomes sufficient to provide food for the whole. The other half, therefore, or at least the greater part of them, can be employed in providing other things, or in satisfying the other wants and fancies of mankind (1776, p. 180).

The reference is to food because the quoted extract is part of a discussion of agriculture in relation to population and economic development. The preceding paragraphs argue that other necessities of life are relatively easy to produce at a basic level if there is enough food, so food is the limiting factor in population growth. A growing marketed surplus of food is matched by a corresponding growth in manufacturing, where the main benefits of the division of labor are felt, so agricultural growth leads to economy-wide growth of total and per-capita output.

Where Hume thought that farmers might not produce a surplus for sale because there was nothing they wanted to buy, Smith insisted that people are always willing to sell any surplus of food over their own needs to satisfy their "endless" desires.<sup>18</sup>

The desire of food is limited in every man by the narrow capacity of the human stomach; but the desire of the conveniences and ornaments of building, dress, equipage, and household furniture, seems to have no limit or certain boundary. Those, therefore, who have the command of more food than they themselves can consume, are always willing to exchange the surplus, or, what is the same thing, the price of it, for gratifications of this other kind. What is over and above satisfying the limited desire is given for the amusement of those desires which cannot be satisfied, but seem to be altogether endless (p. 181).

Both Hume and Smith faced a problem in explaining why development had taken so long. Why were the potential gains from an agricultural surplus not exploited much more quickly? Hume's answer was that tastes were slow to develop and that attractive manufactured goods became available only very slowly. His *History* spelled it out: in Elizabethan times, for example, demand for things like pocket watches and silk hose was expanding, and so on, stage by stage.

In Smith's story, by contrast, the rate of development is governed by the rate of accumulation of capital. Agricultural improvement involves heavy fixed investment in clearing, draining, enclosing, and manuring the land, and in working animals, farm buildings, and equipment (1776, pp. 280–282), as well as investment in circulating capital. The corresponding expansion of industry requires investment in wage

---

<sup>18</sup>Note, incidentally, that the quoted extract refers to those who have "command" of food, implicitly including landlords who receive part of the product, a clear link to the "invisible hand" passage in the *Theory of Moral Sentiments* (see below and Brewer [2009]).



advances, materials, equipment, buildings, and so on. Growth is impossible without saving and investment, which are ensured in “all tolerably quiet and peaceable times” by the “uniform, constant, and uninterrupted effort of every man to better his condition” (p. 343). Growth, then, is normal but slow, since the fraction of income saved is low in all but the exceptional conditions of new colonies. For example, Smith discussed the opportunities created for Scottish agriculture by the union of Scotland and England, but argued that the response required a “long course of frugality and industry” (p. 239), which he expected to take a further fifty years, although the union was already more than fifty years old when he wrote. Steady, continuing growth emerged naturally from Smith’s framework. Hume, by contrast, had little or nothing to say about investment in productive activities (see Brewer 1997).

Smith’s account of the slow development of feudal Europe, however, is much closer to Hume’s than appears at first sight (Brewer 1998). Large landowners are unlikely to invest in agricultural improvements or to do the job well if they do invest. Tenants had no security of tenure and thus no incentive to invest. The “policy of Europe” discriminated in favor of towns, but they were held back by the backward state of agriculture; that is, the lack of the agricultural surplus defined by statement 1. Only the possibility of trading on a relatively wide geographical scale allowed towns to develop at all.

The inhabitants of a city, it is true, must always ultimately derive their subsistence, and the whole materials and means of their industry, from the country. But those of a city, situated near either the sea coast or the banks of a navigable river, are not necessarily confined to derive them from the country in their neighbourhood. They have a much wider range, and may draw them from the most remote corners of the world (1776, p. 405).

The development of manufactures ultimately undermined feudal structures and created better incentives (1776, bk 3, ch 4), just as in Hume (whom Smith credited: 1776, p. 412), leading to more secure agricultural tenancies and thus to agricultural development. All this is in contrast to the “natural” or undistorted progress of opulence exemplified by new colonies, in which agricultural development takes the lead. Agricultural surplus thus plays an essential role in Smith’s story.

## X. CONCLUSION

The notion of a marketable surplus of food originating in agriculture, or of a surplus of output over bare necessities (usually identified with the produce of the agricultural sector), played an important part in late seventeenth- and eighteenth-century economics. In itself, the idea that such a surplus exists is trivial, but the questions it points to are not. Will the surplus be produced at all? How is it transferred to those who consume it? What are the “superfluous hands” (in Hume’s terms) to do? It is impossible to pose these questions without thinking about the economy as a whole, and the way different sectors hang together. The common thread that runs through seventeenth- and eighteenth-century discussions of surplus is a concern with the relation between industry and agriculture, between the urban world of commerce and luxury production and the traditional world of the countryside, and with the potential

for development arising from their interplay. Petty saw these issues, though he offered few answers. The other writers discussed here, from Cantillon to Smith, grappled with them. Cantillon provided what is perhaps the first analysis of an economy as an integrated system, held together by his analysis of the way the allocation of resources responds to changes in demand and by his account of the flows of spending between town and country (the ancestor of Quesnay's *Tableau Économique*). Hume complemented Cantillon<sup>19</sup> with a dynamic historical vision of the process of development centered on the role of trade and of luxury production as a motivating force. Smith gathered the story together with a new emphasis on the role of capital accumulation.

## REFERENCES

- Argemi, L. 2002. "Agriculture, Agronomy, and Political Economy: Some Missing Links." *History of Political Economy* 34: 449–479.
- Aspromourgos, T. 1996. *On The Origins of Classical Economics: Distribution and Value from William Petty to Adam Smith*. London: Routledge.
- Barbon, N. 1690. *A Discourse of Trade*. London: Tho. Milbourn. Edition cited: *Reprint of Economic Tracts*. Edited by J. Hollander. Baltimore: The Lord Baltimore Press, 1905.
- Boisguilbert, P. de. 1966. *Pierre de Boisguilbert ou la Naissance de L'Économie Politique*. Two volumes. Paris: Institut National D'Études Démographiques.
- Brewer, A. 1992. *Richard Cantillon: Pioneer of Economic Theory*. London: Routledge.
- Brewer, A. 1997. "An Eighteenth Century View of Economic Development: Hume and Steuart." *European Journal of the History of Economic Thought* 4: 1–22.
- Brewer, A. 1998. "Luxury and Economic Development." *Scottish Journal of Political Economy* 45: 78–98.
- Brewer, A. 2009. "On the Other (Invisible) Hand ...." *History of Political Economy* 41 (3): 519–544.
- Cantillon, R. 1755. *Essai sur la Nature du Commerce en Général*. English translation by H. Higgs. London: Macmillan, 1931.
- Hume, D. 1754–61. *History of England*. Six volumes. Edition cited: Indianapolis: Liberty Fund, 1983.
- Hume, D. 1955. *Writings on Economics*. Edited by H. Rotwein. Edinburgh: Nelson.
- Hutcheson, F. 1726. "Letter[s] to Hibernicus" (signed "P. M."). *Dublin Weekly Journal*, Sat. Feb. 4th, 12th, 19th [sic]. Edition cited: *Collected Works of Francis Hutcheson*. Volume VII. Hildesheim: Georg Olms Verlagsbuchhandlung, 1971, pp. 132–169.
- Law, J. 1705. *Money and Trade Considered with a Proposal for Supplying the Nation with Money*. Facsimile reprint. New York: Augustus M. Kelley, 1966.
- Lubbock, J. 1995. *The Tyranny of Taste*. New Haven and London: Yale University Press.
- Mandeville, B. 1970. *The Fable of the Bees*. Edited by P. Harth. Harmondsworth: Penguin.
- Mirabeau, Marquis de (V. Riquetti). 1756–60. *L'Ami des Hommes*, Avignon. Part 5, *Mémoire sur l'agriculture*. Reprinted Aalen: Scientia Verlag, 1970, Volume 2.
- Petty, W. 1899. *The Economic Writings of Sir W. Petty*. Edited by C. H. Hull. Two volumes. Cambridge.
- Quesnay, F. 1958. *François Quesnay et la Physiocratie*. Two volumes. Paris: Institut National D'Études Démographiques.
- Smith, A. 1759. *The Theory of Moral Sentiments*. Edition cited: edited by D.D. Raphael and A.L. MacFie. Oxford: Clarendon Press, 1976.
- Smith, A. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Edition cited: edited by A. H. Campbell, A. S. Skinner, and W. B. Todd. Oxford: Clarendon Press, 1976.

<sup>19</sup>Although Hume wrote later, his work was published first.

- Steuart, J. 1767. *An Inquiry into the Principles of Political Oeconomy*. Two volumes. Edition cited: edited by A. Skinner. Edinburgh: Oliver and Boyd, 1966.
- Théré, C., and L. Charles. 2008. "The Writing Workshop of François Quesnay and the Making of Physiocracy." *History of Political Economy* 40: 1–42.
- Turgot, A. R. J. 1973. *Turgot on Progress, Sociology and Economics*. Edited by R. Meek. Cambridge: Cambridge University Press.
- Vaggi, G. 1987. *The Economics of François Quesnay*. Houndmills: Macmillan.