



Classical Political Economy

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Abstract: The paper discusses the approach to political economy of the classical economists from Adam Smith to David Ricardo; the reasons why it was prematurely abandoned and replaced by marginalist economics; and why a logically coherent version of it elaborated by Piero Sraffa puts into sharp relief the difficulties affecting the latter and especially its concept of capital as a magnitude that can be ascertained prior to and independently of the rate of profits and relative prices. It is argued that the classical approach does not stand or fall with the labour theory of value, which was adopted by classical authors only as a makeshift solution since they were not possessed of the mathematics of simultaneous equations needed to deal with an economic system characterised by a social division of labour. It is shown that the general rate of profits and relative competitive prices are fully determined in terms of the data of the theory, i.e., the system of production actually in use and real wages. The paper then deals with the determination of real wages; the role of natural resources; technical and organisational progress; money and banking; foreign trade; government and state.

Keywords: Capital accumulation and economic growth; Classical political economy; commercial society; foreign trade; government and state; long-period method; market; money and banking; natural resources and rent; Ricardo, David; Smith, Adam; social classes; social surplus; value and distribution; wages and profits

JEL Codes: B12, B40, B51, D33, D46, D82, E23, H10, J31, P16

1. The concept of “classical political economy”

Karl Marx coined the concept of “classical political economy” in *A Contribution to the Critique of Political Economy*. He related it to the works of William Petty in Britain and Pierre Le Pesant de Boisguilbert in

France in the seventeenth century up until the works of David Ricardo in Britain and Simonde de Sismondi in France at the beginning of the nineteenth century (see Marx [1859] 1970: 52). In his *Theories of Surplus Value* Marx referred to the classical political economists as including the Physiocrats, Adam Smith and Ricardo, who sought “to grasp the inner connection of the phenomena” under consideration ([1861-3] 1988: 358). In volume I of *Capital* he contrasted classical political economy and “vulgar economy”, which is said to deal with “appearances only” (Marx [1867] 1954: 85 n.). Marx called Ricardo “the last great representative” of classical political economy, a view Joseph A. Schumpeter ([1912] 1954: 62-7) explicitly shared. Prominent authors including John R. McCulloch and John Stuart Mill, often regarded as main representatives of British classical political economy, Marx saw to be part of its decline.

Marx’s concept was not generally accepted. Interpreters from Edwin Cannan (1893) to Mark Blaug (1987, 2008) and Denis O’Brien (1975, 2004) saw “classical political economy” to refer to pre-marginalist analysis in the period roughly from the mid eighteenth to the mid nineteenth century.¹ In this view it was an early and rude version of demand-and-supply analysis, with the focus on production and the supply side and consumption and the demand side still in their infancy. The alleged “shortcoming” involved was overcome, it was contended, by the development of marginal utility theory in the second half of the nineteenth century. The idea underlying this perspective was that as a scientific subject the discipline progressed from its early beginnings to its modern constructions, involving the elaboration of ever more sophisticated, rich and coherent versions of demand-and-supply theory. In this view there was only a single kind of economic analysis – demand-and-supply theory – which provided us with a more and more thorough and correct understanding of the economic phenomena under consideration. However, as we shall see, this view cannot be sustained. Classical and marginalist

¹ It deserves to be mentioned that marginalist theory is also known under the name of “neoclassical economics,” a term coined by Thorstein Veblen in 1900. Veblen responded to Alfred Marshall’s claim that marginalist theory consisted simply in the further cultivation of the seed planted at the time of the classical authors, thus the name *neoclassical*. However, Veblen saw that the neoclassical school had very little in common with other schools, including the classical one.

economics differ in important respects – the former is not simply an early and rude precursor of the latter.

2. Method and content

Clearly, demand and supply play some role in every kind of economic analysis, classical, marginalist, Marxist, Austrian or other. The question is: precisely *which* role? We shall see that in this regard there are fundamental differences between the classical authors and the marginalists. (See on this Kurz (2016: chaps 2 and 4).) These differences have their roots in fundamentally different methodological outlooks on the subject. Most importantly, the classical economists took the socio-economic system as they found it, stratified in social classes – workers, landowners and capitalists – who perform different roles in the process of the production, distribution and use of commodities and the wealth of a nation. In the tradition of Aristotle's *zoon politicon* (ζῷον πολιτικόν), individuals are seen as social beings whose motivations, aspirations, capabilities and so on are largely shaped by society or the milieu from which they come.

Another characteristic feature of the classical authors is their *objectivist* point of view. This was most effectively expressed by William Petty, who advocated a “physician’s outlook” on economic problems and decided to express himself “in terms of *Number, Weight, or Measure* ... and to consider only such Cases, as have visible Foundations in Nature, leaving those that depend upon the mutable Minds, Opinions, Appetites, and Passions of particular Men, to the Consideration of others.” Interestingly, the alternative he described fits rather well marginal utility theory and thus an important pillar of marginalism (the other one being marginal productivity theory). In a similar vein, James Mill, a friend of Ricardo (and the father of John Stuart Mill), put forward the remarkable proposition: “The agents of production are the commodities themselves ... They are the food of the labourer, the tools and the machines with which he works, and the raw materials which he works upon” (Mill 1926: 165). Production, these authors insisted, is a process of “productive consumption,” in which various commodities (means of production and means of subsistence of workers) have necessarily to be “destroyed,” in order to get some other commodities, and the amounts that have to be destroyed reflect the “difficulty” of getting them.

The focus of attention in classical political economy is on the coordination of economic activities via interdependent markets within a system of the *social division of labour*. Which conditions have to be met for an economy in order to reproduce itself, when will it develop and grow, when stagnate or shrink? The issues of socio-economic *reproduction* and *development* assume centre stage in the analysis. The approach is systemic and general – it looks at the economy as a whole and its interrelated parts and seeks to understand its “law of motion” (Karl Marx). The main problem dealt with is the dynamic behaviour of the system: an investigation of its static properties is only a step towards this goal. Important elements in this colossal painting of socio-economic life are the following: the factors affecting the pace at which capital accumulates; the determinants of the growth of population; the impact of technical change triggered by competitive conditions on economic growth and income distribution; the role of the scarcity of renewable and the exhaustion of depletable resources in all this; the conflict over the distribution of income between workers and the propertied classes and between capitalists and landowners; the role of money and the banking sector in easing economic transactions, but also in endangering the stability of the system; foreign trade as an important channel to deepen the division of labour and raise labour productivity; and the means and ways government has to influence the course of things.

In contrast, marginalist authors start from the behaviour of the needy individual.² This leads to the elaboration of Robinsonades, contemplating the production and consumption of an isolated agent such as Robinson Crusoe (before he met Friday) in Daniel Defoe’s novel with the same title. Marginalist economics, as Lionel Robbins (1932) put it, studies “human behavior as a relationship between ends and scarce means which have alternative uses.” *Homo oeconomicus*, economic man, enters and soon completely occupies the stage. Marginalism endorses *methodological individualism*, which does not take society as we encounter it, but seeks to reconstruct it in terms of the interaction of self-seeking individuals. The perspective assumed revolves around the concept of the *scarcity* of goods and services and the options available to *homo oeconomicus* to make the best of it. Within this framework social relations may be relatively

² For details, see Kurz (2016: chap. 5).

unimportant and economic interaction weak. Depending on the set of givens or data of the theory – preferences of agents, their initial endowments of goods and means of production and the set of technical alternatives from which they can choose to produce the various goods – an *equilibrium* may exist in which several agents (in the extreme: all of them) remain in a state of autarky and only a few (none) get involved in what a commentator once called “a little trading on the side.” As can be shown, social cohesion vanishes entirely when one takes the spatial dimension of economic activity into account in the simplest case possible. Then the competitive price mechanism can explain neither the emergence of spatial economic concentration nor extensive trade streams. In fact, with constant returns to scale, economic activity will be evenly distributed across a homogeneous plain, carried out by autarkic units of production and consumption. There is no society in any meaningful sense.

This paper is based analytically on the most advanced form of classical political economy represented by Sraffa (1951, 1960). Space limitations prevent me from providing a full exposition of its fascinating details and a comprehensive treatment of the subject matter. At the same time an attempt will be made to be faithful to what major classical authors actually wrote. This applies especially to Ricardo’s writings, because we owe him important insights into the working of the economic system and corrections of the doctrine of Adam Smith. While a common core can be discerned in the economic analyses of the classical authors, which consists essentially in their explanation of all property incomes (rents, profits and interest) in terms of the *surplus product* that obtains for a given system of production in use and given real wages, differences between them can only be touched upon in passing. For a discussion of similarities and differences between them, see, inter alia, Garegnani (1984), Kurz and Salvadori (1995, 1998) and Kurz (2010, 2015, 2016).

3. Political economy, economics, sociology

The difference between the two kinds of approaches, classical and marginalist, is well expressed in the distinction between *political economy* and *economics*, the former being used for the classical and the latter for the marginalist school of thought. Closely related is the fact that at the time of the classical economists a separate discipline, *sociology*, did not yet exist. Sociology is widely seen to go back, in France, to Auguste Comte’s

lectures on positive philosophy in the late 1830s. Conceived as the investigation of complex social facts, he saw sociology to be the last discipline in his classification of the sciences after mathematics, astronomy, physics, chemistry and biology to reach the status of a positive science. It came last because of the extreme complexity of its explanandum. Eighteenth century political economy, Comte was convinced, was still primitive and lacked the necessary precision with which the phenomena under consideration ought to be determined. He also insisted that political economy relied too much on egoism, whereas what was needed in modern industrial societies was to contain it in terms of altruism. It deserves to be mentioned that especially the German Historical School was also a movement that found fault with the focus on *homo oeconomicus* and a narrow concept of rationality. Sociological inquiry, the study of social relationships and interaction, clearly predates the proper foundation of the discipline and was an integral part of classical political economy. The need for a separate discipline with this name was especially felt only after marginalism and *homo oeconomicus* had begun to disseminate and gain in importance, which implied removing from the economic discourse sociological themes, concerns and concepts, including that of social class.

4. Homo mercans, homo laborans and homo inventivus

In order to understand the economic world, one has to understand human beings, man's nature and disposition, his innate characteristic features, his urges and desires, his physical, mental and emotional faculties, and so on. In *A Treatise of Human Nature* (1739) David Hume (1711-1776) developed a naturalistic view of man and opposed philosophical rationalism by arguing that passion rather than reason governs human behaviour. Adam Smith in *The Theory of Moral Sentiments* (1759) took issue with the moral doctrines of his time and argued that moral judgment is nothing innate to man but the result of a dynamic interaction of people. By observing others and the judgments they form of one-self and third parties, makes one aware of oneself and of how one is perceived by others. The natural desire to achieve "mutual sympathy of sentiments" with them shapes peoples' habits and eventually their norms of behaviour and conscience, which is the faculty that constrains self-interest. The way this is effectuated is via an "impartial spectator" – the "man within the breast"

– whose approval individuals seek. While in the *Theory of Moral Sentiments* Smith developed a theory of the roots of peoples' moral behaviour, in *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776) he focused attention first and foremost on the economic sphere and therefore on self-interest. In this work he was especially concerned with how competition would serve as a device that holds self-interest in check.³

In order to survive, humans have to consume, and in order to consume they have to produce. The starting point of Smith's is an empirical anthropology. Man has been endowed with faculties and motives that condition him towards association, cooperation and competition, development and growth. Smith discerned "a certain propensity in human nature ... to truck, barter, and exchange one thing for another" (WN I.ii.1). But man is not only able to communicate, truck, barter and exchange, he is also in need of it: "In civilized society he stands at all times in need of the cooperation and assistance of great multitudes, while his whole life is scarce sufficient to gain the friendship of a few persons" (WN I. ii.2). From this Smith concluded that:

man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and shew them that it is for their own advantage to do for him what he requires of them. Whoever offers to another a bargain of any kind, proposes to do this. Give me that which I want, and you shall have this which you want, is the meaning of every such offer; and it is in this manner that we obtain from one another the far greater part of those good offices which we stand in need of. (WN I.ii.2)

Smith exemplified the *double coincidence of wants* in one of the best-known passages of the *Wealth of Nations*: "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but

³ There has been a controversy about whether Smith's two major works are compatible with one another, known as "Das Adam Smith Problem." There is now widespread agreement that they are, with the two works emphasizing different aspects of human nature and the particular situations in which they come to the fore.

from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages” (WN I.ii.2). Finally, he also saw the division of labour – which in his view is the main source of material opulence – rooted in the propensity under consideration: “it is this same trucking disposition which originally gives occasion to the division of labour” (WN I.ii.3).

Hence, Smith established two crucial axioms upon which his analytical edifice rests:

1. The market is a natural form of organising economic affairs, because it reflects natural faculties of man.
2. Man’s well-being depends on the proper exertion of his trucking disposition and thus on the functioning of markets, because they lead to an ever-deeper division of labour, increase labour productivity and raise income per capita, Smith’s measure of the wealth of a nation.

Smith’s economic agent is a *homo mercans* and *homo laborans*, but she is also a *homo inventivus*. Smith emphasized: “the desire of bettering our condition ... comes with us from the womb, and never leaves us till we go into the grave” (WN II.iii.28). It prompts people to save and accumulate capital, expand markets, deepen the division of labour and carry out “improvements” in each and every sector of the economy. It makes them invent machines to abbreviate the toil and trouble of work and to increase the social productivity of labour. In short, it makes them innovate and revolutionize production processes and economic organisation.

5. Socio-economic classes

The classical economists distinguished between “three grand orders of men” or social classes – landlords, workers and capitalists. Interestingly, Smith classified them not only in terms of a single dimension: whether and which kind of property they possess – land and natural resources, labour power and industrial, commercial and financial capital. He also saw another dimension to be of great importance: social classes may be distinguished according their members’ access to information and

knowledge. *Landlords*, Smith wrote, receive revenue (rent) that “costs them neither labour nor care, but comes to them ... independent of any plan or project of their own.” This makes them indolent and “renders them too often, not only ignorant, but incapable of that application of mind which is necessary in order to foresee and understand the consequences of any publick regulation” (WN I.xi.p.8). Things are worse with respect to the second order of people: the *worker*’s “condition leaves him no time to receive the necessary information, and his education and habits are commonly such as to render him unfit to judge even though he was fully informed.” The worker is most in danger of being manipulated: “In the publick deliberation, therefore, his voice is little heard and less regarded, except upon some particular occasions, when his clamour is animated, set on, and supported by his employers, *not for his, but their own particular purposes*” (WN I.xi.p.9; emphasis added). The people that are best informed in economic and political matters are *merchants* and *master manufacturers*, who “during their whole lives ... are engaged in plans and projects” and who therefore “have frequently more acuteness of understanding than the greater part of country gentlemen” (WN I.xi.p.10). These men, possessed of a “superior knowledge of their own interest,” are on the one hand the source of economic development. Their selfishness may, however, be detrimental to the interests of the other classes and society at large, because they are keen “to narrow the competition [in order to raise] their profits above what they naturally would be, to levy, for their own benefit, an absurd tax upon the rest of their fellow-citizens.” Smith added:

The proposal of any new law or regulation of commerce which comes from this order, ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. *It comes from an order of men, whose interest is never exactly the same with that of the publick, who have generally an interest to deceive and even to oppress the publick, and who accordingly have, upon many occasions, both deceived and oppressed it.* (WN I.xi.p.10; emphasis added)

Those who are better informed and capable of interpreting pieces of information may use their superior knowledge to the detriment of

customers, consumers and, in general, workers: asymmetric information gives rise to moral hazard. Smith deplored the “wretched spirit of monopoly” (WN IV.ii.21) that never sleeps and seeks to reap extra profits, not by “improvements” of technology, that is, innovations, but by narrowing competition.

6. Information asymmetries and the banking trade

Information asymmetries play a particularly important role in the banking and financial sector. Bankers, Smith stressed, are often willing to take risks, knowing that in case of failure the potential costs of their decisions will be borne by others. Investment projects whose expected profitability is abnormally high are as a rule also more risky. As the recent financial crisis illustrated, this important fact has been ignored once again. People fell victim to “irrational exuberance” (Alan Greenspan). Smith’s respective observations read like a commentary on the crisis. With the (occasionally hypertrophic) growth of a bank’s business, Smith emphasized, bankers “can know very little about [their debtors].” They give credit to “chimerical projectors,” who would employ the money “in extravagant undertaking, which ... they would probably never be able to complete, and which, if they should be completed, would never repay the expense which they had really cost” (WN II.ii.77).

The problem, to which Smith pointed here, is that these investors are willing to offer high rates of interest to banks because they expect very high profits from their “extravagant” undertakings and, should these fail, do not intend to pay back the debt. The “sober and frugal debtors,” who “might have less of the grand and the marvellous, [but] more of the solid and the profitable,” on the contrary would, after careful calculation, be prepared to pay only a lower rate of interest. Banks can therefore be expected to go for the chimerical and not for the sober and frugal. This leads to an *adverse selection*, which transfers a great part of the capital of a country “from prudent and profitable, to imprudent and unprofitable undertakings” (WN II.ii.77). This is why Smith opted in favour of regulating the banking trade, because its failures may involve a systemic risk, and insisted: “The obligation of building party walls, in order to prevent the communication of fire, is a violation of natural liberty, exactly of the same kind with the regulations of the banking trade which are here proposed” (WN II.ii.94). More generally, good government has to control

and retrench the dark sides of selfishness. This will stimulate diligence, industry and creativity. The “science of the legislator,” Smith elaborated, was designed to show the way to good government. He left no doubt that the regulatory task cannot be accomplished once and for all, because self-seeking agents will always try to find ways to circumvent them. What is at stake is a race between the cleverness of legislators and the cunning of business people.

The classical economists were well aware of conflicts of interest between different classes and groups of people. The view that they saw society to be harmonious amounts to a travesty of facts. They also identified the sources of conflict and the potential causes of economic malfunctioning or crises and proposed policy measures to mitigate their destructive effects.

7. Money and currency

Ricardo started his professional career as a stockjobber at the London Exchange and monetary issues therefore played an important role in his economics. He is typically portrayed as a representative of orthodox monetary views and a strict advocate of a narrow quantity theory of money, according to which the price level in an economy is proportional to the quantity of money in the system. However, this view does not do justice to Ricardo and ignores the fact that his monetary theory, while characterised by a remarkable continuity, was not something that stood on its own feet. It rather developed in close correspondence with the elaboration of his theory of value. Ricardo’s monetary analysis has to be seen against the inflationary tendencies in Britain at the time of the Napoleonic wars.

In February 1816 Ricardo published some proposals for a secure currency (see *Works* IV: 43-141), in which he put forward anew his “Ingot Plan.” The plan suggested a return to the Gold Standard by making bank notes convertible not into specie (coins), but into bullion (gold ingots), which implied the demonetization of gold in domestic circulation. This would have several desirable effects: it would allow Britain to continue to use paper money as the actual means of payment, which Ricardo endorsed; it would reduce the need for gold reserves held by the Bank of England and thus mitigate the upward pressure on the value of gold; and, last but not least, it would curb the huge profits pocketed by the governors and

directors of the Bank (which remained a private institution until 1946), who benefited from the appreciation of gold. These profits, Ricardo insisted, belonged to the public. The House of Commons decided on a plan for the gradual return to note convertibility in bullion, starting in early 1820 and ending in May 1821 at the pre-1797 parity. During this period Ricardo's Ingot Plan was implemented. However, immediately after the old parity had been restored, the Bank of England decided to return to note convertibility in coin. This led to huge profits reaped by its directors, who in anticipation of the move had accumulated large amounts of gold, which they now sold to their bank at very favourable terms – precisely the kind of self-enrichment Ricardo had chastised.

In 1823 Ricardo composed a plan for the establishment of a National Bank, which was published posthumously in February 1824 (see *Works* IV: 271–300). His plan had first taken shape in 1815 and was then put forward in the first edition of the *Principles* (*Works* I: 361–3). Of the two operations that the Bank of England performed – issuing paper currency and advancing loans to merchants and so on – the former should be taken away from it and given to independent commissioners, who act as bankers to the government, but are “totally independent of the control of ministers”. This would not thwart the provision of the economy with money, but “in a free country, with an enlightened legislature” (*Works* I: 362) transfer a part of the profits of the Bank to the national Treasury and thus to the public.

In the *Principles* Ricardo had pointed out the important role of a standard of value, which was supposed to provide a solid basis upon which to assess the causes of changes in the prices of commodities. After some deliberation he decided to take gold to be a standard that performed reasonably well vis-à-vis the requirement of being an “invariable standard of value” in the sense that it was produced across time with roughly always the same amount of labour needed directly and indirectly per ounce. On the one hand, gold was a commodity like any other commodity, and its value was regulated as that of other commodities by the amount of labour expended in its production (see below). On the other hand, gold served as money under the gold standard and as such was not a commodity. The “only use” of the standard, Ricardo insisted, “is to regulate the quantity, and by the quantity the value of a currency” (*Works* IV: 59). If the state coins money and charges a seignorage for coinage, “the coined piece of money will generally exceed the value of the uncoined piece of metal by

the whole seignorage charged” (*Works I*: 353). Hence the value of gold (of a given weight and fineness) and the value of money will differ and the difference will depend on the quantity of money provided. Ricardo was concerned with proposing an ideal monetary system, which he defined in the following way: “A currency is in its most perfect state when it consists wholly of paper money, but of paper money of an equal value with the gold which it professes to represent.” (*Works I*: 361). Hence the quantity of paper money in circulation “should be regulated according to the value of the metal which is declared to be the standard” (*Works I*: 354). This does not require that paper money should be payable in specie to secure its value. It suffices that “paper might be increased with every fall in the value of gold, or, which is the same thing in its effects, with every rise in the price of goods” (*Works I*: 354). According to Ricardo the increase in the price level during the suspension of the convertibility of bank notes between 1797 and 1821 was first and foremost the result of printing too much money and thus of disregarding the role of the monetary standard.

Deleplace (2015: 355) concluded: “Ricardo’s concept of monetary standard ... had a revolutionary content, which put it far ahead of its time.” According to Bonar (1923: 298), Ricardo’s Ingot Plan “was to be the euthanasia of metal currency.” This is perhaps expressed too strongly, because in Ricardo’s view gold was to preserve both its role as domestic monetary standard and at the same time (as bullion) to serve as the means of settlement of international debts.

In Ricardo we encounter the purchasing power theory of exchange rates and the theory of a gold currency including the mechanism that is seen to bring about an equalisation of the balance of payments. In the Bullion controversy, which generated important insights into the functioning of a monetary system without convertibility, Ricardo fought on the side of the “bullionists” who argued in favour of a swift return to the gold standard. An increase of the domestic relative to the foreign price level leads via the flow of commodities and capital to a falling external value of the domestic currency and thus prompts a tendency towards the parity of its purchasing power at home and abroad.

8. The classical surplus approach to value and distribution

The litmus test of what is classical political economy is how its representatives approach the problem of value and distribution, that is,

explain the sharing out of the product amongst the various claimants (workers, capitalists and landowners) and which system of relative prices supports this distribution. Notwithstanding important differences between different authors, close scrutiny shows that the unifying element is that they all deal with the problem essentially in the same way: they explain the *general rate of profits* in the economy, the *rents* paid to the proprietors of the different types of land and the *ordinary or "natural" prices* ruling in markets *at a given time and place* in terms of the following givens or *independent variables* (see Sraffa 1951, 1960):

1. The total quantities of the various commodities produced during a year.
2. The set of methods of production actually employed in producing these quantities, where this set reflects the technological knowledge available to producers.
3. The real wage rate (or, in the case of heterogeneous labour, the set of real wage rates) in terms of a given bundle of commodities workers can afford with their money wage paid per unit of time (hour or work-day or ...).
4. The various qualities of land available in the economy to be used in production.

We may illustrate the classical *surplus approach* to value and distribution in terms of an exceedingly simple example. Assume that there is only a single commodity, wheat alias corn, that is being produced and used as a consumption good to feed people and as a production good needed in the production of itself (as seed). Assume further that there is only a single quality of land available and that land exists in abundance. Landowners competing for tenants who cultivate the land bid the rent down to zero so that in our thought experiment we get rid of the problem of rent. There is only one kind of labour and the wage rate per unit of it is given. A numerical example may illustrate the main ideas. Assume that altogether 100.000 tons of corn are being produced during the year by 200.000 workers, each of which receives a wage in terms of corn at the beginning of the year to feed himself and his family that amounts to 0.3 tons of corn per year. Total wages paid annually thus equal $200.000 \times 0.3 = 60.000$ tons of corn. Assume that seed that has to be put up with at the beginning of the year equals 20.000 tons of corn. Wages and seed are for

simplicity taken to equal total *cost of production* and thus amount to $60.000 + 20.000 = 80.000$ tons of corn. They constitute the physical *capital*, consisting of means of production (seed) and means of sustenance in the support of workers and their families (wages), that has to be advanced at the beginning of the *period or production*, which is supposed to be a year. The *surplus product*, which in our case will be appropriated as *profits* by capital owners, is equal to 20.000 tons of corn. The ratio of profits and capital invested gives the *rate of profits*, which in the example is

$$\text{Rate of profits} = \text{Profits/Capital} = 20.000/80.000 = 0.25 \text{ or } 25 \text{ per cent}$$

9. Necessaries vs. luxuries

Corn in our example is what the classical authors called a “necessary” because it is indispensable in the reproduction of the workforce and, via it, also in the reproduction of the social product as a whole. Other commodities that the classical authors considered necessities include clothes, dwellings, etc., or “wage goods” more generally, and commodities needed in their production, such as coal and iron. These commodities were needed directly or indirectly in each and every line of production, whereas “luxuries” were not, being pure consumption goods enjoyed by the propertied classes, capitalists and landowners.

We may illustrate luxuries’ different role in the economic system by extending our numerical example to include whisky, a good consumed by the rich, which workers cannot afford. Whisky is produced by means of corn. Assume that 10.000 tons of the surplus product of corn in the above numerical example are used to produce 5.000 hectolitres of whisky. Assume in addition that of the 10.000 tons 6.000 tons are used to pay 20.000 workers, each of which gets the same wage per unit of labour employed as in corn production, that is 0.3 tons. The remaining 4.000 tons of corn are processed into whisky.

In conditions of free competition, capital employed in the whisky industry will yield the same rate of profit as capital employed in corn production, that is, 25 per cent. This implies that the price per hectolitre of whisky, p_w , has to adjust in such a way relative to the price per ton of corn, p_c , that the capitals advanced in both sectors of the economy yield the same rate of profits. In corn production the price of the aggregate output equals

$$100.000p_c = (1 + r) 80.000p_c \quad (1)$$

and in whisky production it equals

$$5.000p_w = (1 + r) 10.000p_c. \quad (2)$$

From equation (1) we get the already known $r = 0.25$. Plugging this in equation (2) allows us to determine the price ratio of the two commodities,

$$p_w/p_c = 2.5. \quad (3)$$

That is, one hectolitre of whisky is worth 2.5 tons of corn.

The important message of this little illustration of the classical approach to value and distribution is this: The set of data or independent variables 1.–4., specified in the above, suffice to determine the general rate of profits, r , and the relative competitive price of whisky, p_w/p_c . No other data are needed. As Sraffa (1960) has shown, this holds true also in more general cases, with many commodities, several means of production, wage goods and luxuries, scarce land and so on, on which more below.

10. “Natural” vs. “market price”

The price ratio determined in (3) reflects what Adam Smith and David Ricardo called “natural”, “normal” or “ordinary prices” and Ricardo, Robert Torrens and Karl Marx called “prices of production.” The characteristic feature of these prices is that they reflect the permanent and systematic forces at work in competitive conditions and cover costs of production of the various commodities plus a *uniform* rate of profits on the capitals invested. “Actual” or “market prices” are in addition subject to a multiplicity of “accidental” and “temporary” factors interfering with the fundamental forces. By their very nature, markets prices defy an explanation that is sufficiently general. The classical economists’ therefore focused on the determination of prices of production.

The uniformity of the rate of profits reflects the successful working of competitive forces. The natural price, Smith insisted, is

the central price, to which the prices of all commodities are continually gravitating. Different accidents may sometimes keep

them suspended a good deal above it, and sometimes force them down even somewhat below it. But whatever may be the obstacles which hinder them from settling in this center of repose and continuance, they are constantly tending towards it. (Smith, WN I.vii.15)

The “gravitation” of market prices towards prices of production, or rather their “oscillations” around them, is the result of the behaviour especially of profit-seeking capitalists. Ricardo explained:

While every man is free to employ his capital where he pleases, he will naturally seek for it that employment which is most advantageous; he will naturally be dissatisfied with a profit of 10 per cent, if by removing his capital he can obtain a profit of 15 per cent. This restless desire on the part of all the employers of stock [capital], to quit a less profitable for a more advantageous business, has a strong tendency to equalize the rate of profits of all, or to fix them in such proportions, as may in the estimation of the parties, compensate for any advantage which one may have, or may appear to have over the other. (Ricardo, *Works* I: 88-9)

Relative changes in the employment of capital across the economy are taken to bring about a tendency towards a uniform rate of profits. In this context Ricardo drew the attention to the role of financial capitalists, who are possessed of “a circulating capital [i.e. liquid funds] of a large amount” borrowed by industrial capitalists. Because of this “floating capital,” Ricardo surmised, profit rate deviations are reduced more rapidly. On the basis of this presumption he felt entitled to abstract altogether from the “temporary effects” produced by “accidental causes” and to focus on “the laws which regulate natural prices, natural wages and natural profits, effects totally independent of these accidental causes” (*Works* I: 89-92).

11. Quantities of “labour embodied”

Up until now we have not talked about “labour values” or quantities of “labour embodied” in the different commodities. However, what was later called the “labour theory of value” is widely, but somewhat erroneously, considered the linchpin of classical political economy. According to it commodities exchange in proportion to the amounts of labour needed

directly and indirectly in their production: Expressed in terms of a famous example adapted from Adam Smith, if altogether 20 units of labour are needed to catch a beaver and 10 units to hunt a deer, then two deer should be worth, or exchange for, one beaver. Ricardo is typically seen to have been the most ardent advocate of the labour theory of value. Alas, he took the labour embodied principle only as a makeshift solution to a problem, the complexity of which he could not fully master. He actually spoke “of labour as being *the foundation of all value*, and the relative quantity of labour as *almost exclusively* determining the relative value of commodities” (*Works* I: 20; emphasis added). Quantities of labour embodied alone, he insisted, do not explain *exactly* the relative values of commodities. The reason for this is that not only quantities of labour matter, but also how they are distributed over time, that is, when they are spent in the course of the production of the various commodities. Assume that in order to catch a beaver one has first to produce a trap, which takes 18 units of labour, followed by 2 units to collect the animal. In order to hunt a deer one has first to produce a spear, which takes 3 units, followed by 7 units to trace and kill the animal. Beaver production obviously needs relatively more indirect labour (spent on producing a means of production or capital good), whereas deer production needs relatively more direct labour (spent on tracing and culling the beast). In competitive conditions the wages paid to workers in early periods of time engaged in producing means of production have to be discounted forward at the ruling rate of profits. Since in our example beaver production needs not only absolutely more labour, but also relatively more indirect labour than deer production, a beaver will be worth more than two deer, as the labour theory of value implies.

The deviation of relative competitive prices from labour values can also be illustrated in terms of our corn-whisky example. Let v_c be the labour value of a ton of corn and v_w the labour value of a hectolitre of whisky. Then the following equation describes in labour units corn production:

$$100.000v_c = 2000.000 + 20.000v_c \quad (4)$$

Gross output of corn is possessed of a labour value of $100.000v_c$, which is made up of 200.000 units of direct labour and $20.000v_c$ units of indirect labour “embodied” in the seed capital put up with. Solving the equation with respect to v_c gives

$$v_c = 2.5,$$

that is, 2.5 man years are needed altogether to produce a ton of corn (2 man years are needed directly and 0.5 years indirectly via the used-up input of corn in corn production.) As regards whisky production, the following labour value accounting applies:

$$5.000v_w = 20.000 + 4.000 v_c. \quad (5)$$

Plugging $v_c = 2.5$ into equation (5) and solving it for v_w gives

$$v_w = 6.$$

The ratio of the two labour values equals

$$v_w/v_c = 6/2.5 = 2.4. \quad (6)$$

Comparing equations (3) and (6) shows that relative competitive prices deviate from relative labour values: In price terms, whisky is more expensive relatively to corn than in labour value terms, i.e., 2.5 vs. 2.4. The reason for this is that whisky is produced with relatively more indirect labour, incorporated in the capital good corn, than corn itself. Put differently, the ratio of corn input to direct labour input in whisky production is larger than in corn production: $4.000 \text{ corn}/20.000 \text{ labour} = 1/5 > 20.000 \text{ corn}/200.00 \text{ labour} = 1/10$. The difference between 2.5 and 2.4 expresses the compound interest effect of discounting forward wages paid in a more or less distant past.

Ricardo was clear that the labour theory of value does not completely correctly determine relative prices, but he felt that it provided an approximation that was good enough to adopt it as a simplifying device or makeshift solution.⁴ He therefore in the *Principles of Political Economy*

⁴If commodities are produced by means of commodities, and if we wish to discuss a system with numerous commodities, prices (but also labour values) could only be determined by solving a system of simultaneous equations; see Sraffa (1960) and Kurz and Salvadori (1995). The mathematics needed were not at the disposal of the classical economists (and Marx), who therefore attempted to tackle the problem in terms of the tools available to them and by invoking simplifying assumptions, such as, in Ricardo, that production is not a circular process, but a

developed his argument *as if* the theory happened to be strictly true. To be clear, Ricardo (like Smith) was not of the opinion that labour is the only source and substance of value, as Marx was later to contend.

12. The “fundamental law of distribution”

According to Ricardo, the “principal problem in Political Economy” consisted in establishing the “laws” that regulate the distribution of the product between capitalists, workers and landowners in a dynamic socio-economic setting. That is, in conditions in which capital accumulates, the population grows, the scarcity of some natural resources increases, there is technical progress and there is foreign trade (*Works I: 5*).

In the above we have assumed that the real wage rate is given. But what determines its level? Adam Smith had already pointed out that there is a conflict over the distribution of income. The “common wages of labour,” he observed, depend “every where upon the contract usually made between those two parties, *whose interests are by no means the same.*” In fact, “The workmen desire to get as much, the masters to give as little as possible. The former are disposed to combine in order to raise, the latter in order to lower the wages of labour” (WN I.viii.11; emphasis added). Smith insisted that

It is not, however, difficult to foresee which of the two parties must, upon all ordinary occasions, have the advantage in the *dispute, and force the other into compliance with their terms.* [1] The masters, being fewer in number, can combine much more easily; and [2] the law, besides, authorises, or at least does not prohibit their combinations, while it prohibits those of the workmen. ... [3] In all such disputes the masters can hold out much longer. A landlord, a farmer, a master manufacturer, or merchant, though they did not employ a single workman, could generally live a year or two upon the stocks which they have already acquired. Many workmen could not subsist a week, few could subsist a month, and scarce any a year

linear one leading from inputs of “unassisted labour,” i.e., labour operating without any produced means of production, via a finite number of steps on which intermediate products (means of production and means of subsistence) are produced, to the final output.

without employment. (WN I.viii.12; emphasis added)

Because of reasons [1]–[3], the bargaining position of the “labouring poor” is weak and they must typically accept the conditions dictated by employers in the “dispute” over wages. “Masters,” Smith added, “are always and every where in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above their actual rate. To violate this combination is every where a most unpopular action, and a sort of reproach to a master among his neighbours and equals.” He went on: “We seldom, indeed, hear of this combination, because it is the usual, and one may say, the natural state of things which nobody ever hears of” (WN I.viii.13). It is only in phases of a rapid accumulation of capital and thus a swift expansion in the demand for “hands” that masters would break the combination and bid up wages in order to attract more workers. Ricardo confirmed Smith’s point of view in terms of his “fundamental law of distribution.” The law implies that for a given system of production actually in use there is an inverse relationship between the share of real wages and the general rate of profits: “The greater the portion of the result of labour that is given to the labourer, the smaller must be the rate of profits, and vice versa” (*Works* VIII: 194). Wages and the rate of profits could not both rise in technologically stationary conditions, as some writers had wrongly contended. The harmonious view of society implicit in their contention was naïve and ignored the constraint binding changes in the distributive variables.

The law can be exemplified with regard to the above example with two sectors. Assume that the wage rate per annum happens to be larger, i.e., 0.32 instead of 0.3 tons, then total wages paid in corn production amount to 64.000 tons of corn and the sum total of corn capital employed to 84.000 tons. The surplus to be distributed in the form of profits would correspondingly be smaller and equal 16.000 tons. The rate of profits would be lower and equal 16.000/84.00, that is, just a little more than 19 per cent instead of the previous 25 per cent. Calculating the price of whisky in terms of corn in the new situation gives 2.476: whisky would be relatively cheaper, because due to the lower rate of profits, the compound interest effect would be smaller.

If wages absorbed the entire surplus, there could be no profits and the rate of profits would be nil. In this case, the ratio of the two prices would be equal to the ratio of the two labour values: $(p_w/p_c)|_{r=0} = (v_w/v_c)$. The labour theory of value therefore explains relative prices correctly in a

profitless economy (which, however, is of little interest to Ricardo). Outside it (and putting on one side the extremely special case in which all commodities exhibit proportional labour input profiles) the labour theory of value is at best approximately true, as Ricardo in fact assumed.

13. Natural resources and the problem of their scarcity

We now have to bring natural resources and the scarcity of land(s) into the picture. Smith had argued in accordance with the physiocrats that ground rent was an expression of the “fertility of nature.” Nature was taken to cooperate with man for free and increase man’s productivity. This is also the reason why Smith was of the opinion that agriculture was more productive than manufacturing. Ricardo strongly opposed this view: rent is an expression of how nature is “niggardly”! If land of the best quality and location were available in unlimited quantity, he insisted, there could be no ground rent, because cost-minimizing producers would be able to meet society’s need for corn at every level by using only the best kind of land. But because this kind of land is not available in abundance but becomes *scarce* at some point as production increases, it is necessary to meet effectual demand by also cultivating inferior lands, which exhibits higher unit costs of production, or by cultivating the best quality of land more intensively, which is also only possible at rising unit costs. As a result, returns fall either extensively or intensively, leading to *extensive* or *intensive rents*.

If, for example, demand is large and cultivation is expanded on plots of inferior land, production costs per quarter of corn will be higher. In order for the larger quantity to be brought forth the corn price will have to rise. The higher price for corn enables the owners of the superior quality of land – who continue to produce at lower unit cost – to collect a rent from their tenants, which is just large enough to result in equal costs (inclusive of rent) on both qualities of land. In this new situation, no rent is paid on the inferior land, which is not scarce and which represents what later was called “marginal” land in the given situation. Ground rent is therefore a *differential rent* attributable to differences in production costs per quarter of corn. To Ricardo, trained in the financial markets, the connection between the annual rent per hectare of a piece of land of given quality m , q_m , and the land price per hectare, p_m , was clear. If one discounts all future annual rent payments at the prevailing interest rate i in order to get their

so-called present or *capital value*, one arrives at the formula for the eternal rent: $p_m = q_m/i$. If the lease is, for example, £100 and the interest rate 5 per cent (or 0.05), the price per hectare of that land amounts to £2.000.

With society's growing need for corn, and setting aside technological progress, the unit cost of corn would rise, as would the price of corn, the money wage rate (to keep real wages constant) and ground rents on all cultivated lands. Therefore, for a given real (and rising money) wage rate and a decreasing fertility of marginal land, there would necessarily ensue a falling tendency of the rate of profits for producers in agriculture and, via the mobility of capital, in the economy as a whole. This was Ricardo's explanation of the *tendency of the rate of profits to fall*. Such a tendency was the logical outcome in the hypothetical case where there was no technological progress. But since there typically *is* technological progress, Ricardo insisted: "it is difficult to say where the limit is at which you would cease to accumulate wealth, and to derive profit from its employment" (*Works IV*: 179). The widespread view (see, for example, Rostow 1990: 34, 87; Blaug 2009; Solow 2010) that Ricardo saw the stationary state lurking around the corner therefore cannot be sustained. It mistakes Ricardo's method of *counterfactual reasoning* – What would happen, if there were no technical progress, but capital accumulated and the population grew? – for a statement about actual economic development. Yet Ricardo clearly was no Horseman of the Apocalypse as his intellectual counterpart Thomas Robert Malthus, who saw mankind forever exposed to misery and deprivation. Despite clear evidence to the contrary, Ricardo is frequently taken to share Malthus' pessimism. Nothing could be further from the truth. (See also below the section on the "law of population".)

Ricardo was able to put this rent theory to lucrative use: he took a large part of the fortune he had gained at the stock exchange after the defeat of the Napoleonic troops in the Battle of Waterloo in 1815 to buy land and become one of England's wealthiest landowners. He understood: should the accelerating accumulation of capital and the ensuing shortage of lands following Waterloo mean that the lease on the land in the above-mentioned example rose to £180, and the interest rate (as a result of the tendency of the rate of profits to fall) sink to 3 per cent (or 0.03), the price of land would treble and rise to £6.000. Not a bad deal at all! While Ricardo rejected Smith's theory of rent, he confirmed the latter's dictum that landlords "love to reap where they never sowed" (WN I.vi.8): when land is

getting more and more scarce, ground rents and land prices will rise. Landlords are the lucky beneficiaries of a development of the economy to which they contributed nothing.

14. Technical and organizational change

If capital accumulates and the population grows, less and less fertile lands have to be cultivated. With a fairly constant real wage rate, the rate of profits is bound to fall. Since capital accumulation is closely related to the rate of profits,⁵ a fall in the latter entails a fall in the former: the system tends towards a *stationary state*, economic growth comes to a standstill. Ricardo saw technical and organizational change as a factor that countervails the niggardliness of nature.

For Adam Smith, the division of labour was the most important engine of economic growth and lever of increases in labour productivity and per capita income. Initially, he argued, there was a division of labour within and then between firms and regions in a given country, and finally between countries. The division of labour (i) yields gains from specialization, (ii) saves time that is lost in changing from one task or job to another, and most importantly, (iii) promotes the development of machinery. Labour power is replaced by machine power, and production is mechanized – a process for which there is no end in sight.

Interestingly, Smith anticipated the emergence of a sector of the economy that today is known as research and development (*R&D*). He referred to new trades and occupations, including “that of those who are called philosophers or men of speculation [i.e. scientists], whose trade it is, not to do any thing, but to observe every thing; and who, upon that account, are often capable of combining together the powers of the most distant and dissimilar objects. In the progress of society, philosophy or speculation becomes, like every other employment, the principal or sole trade and occupation of a particular class of citizens.” (WN I.i.9) The new knowledge that is systematically produced enables “improvements” in production and organization. Two centuries before the emergence of the concept of a “knowledge society,” Smith had already explicitly identified the “quantity of science” as the foundation of society’s productive powers.

⁵ In a fully classical spirit, Karl Marx was to call the rate of profits “the stimulus of

The motor of the wealth-producing machine, Smith insisted, was capital accumulation. It set in motion a virtuous circle: by enlarging markets, capital accumulation facilitated a deeper division of labour, which led to higher productivity and as a consequence to higher profits and incomes more generally, leading in turn to further capital accumulation, and so on and so forth. There emerges the picture of an incessant upward spiral: capital accumulation is both the source and the effect of the continual transformation to which the market system is subjected – the process is characterized by *circular and cumulative causation*: innovation feeds on itself.

Ricardo deepened substantially the analysis. New methods of production replace old ones and new commodities and the methods to produce them enter the system. If technical change affects the production of wage goods, i.e., “necessaries,” or capital goods needed directly or indirectly in the production of wage goods, then for a given real wage rate (a given rate of profits) the rate of profits (the wage rate) will increase. As early as in the *Essay on Profits* of 1815, Ricardo stressed that “it is no longer questioned” that improved machinery “has a decided tendency to raise the real wage of labour” (*Works* IV: 35). This is possible without a fall in the general rate of profits, because improved machinery reduces the quantity of labour needed directly and indirectly in the production of the various commodities: it reduces “the sacrifices of labour” (*Works* IV: 397).

Clearly, to increase real wages was no intention of those who introduced improved machinery, it is rather the unintended consequence of their profit seeking efforts: by accelerating capital accumulation, the growth of the demand for labour power increases, which exerts an upward pressure on wages. However, if technical change affects only “luxuries,” consumed by the propertied classes, the general rate of profits will not change, given the real wage rate; only the prices of luxuries will fall relative to those of necessities.

Ricardo was convinced that technical progress typically reduces the amount of labour needed directly and indirectly to produce the various commodities. Yet this could be effectuated in numerous ways. We owe Ricardo a rich typology of different forms of technical progress (direct labour saving, indirect labour or capital saving, land saving and so on) and

capitalist production and condition as well as driver of accumulation.”

the insight that these forms may affect employment, income distribution and other important economic magnitudes in very different ways. In the chapter on machinery, added to the third edition of the *Principles* (1821), Ricardo discussed a particular form of technical progress, which, he insisted, “is often very injurious to the interests of the class of labourers” (*Works* I: 388). The case under consideration is “the substitution of machinery for human labour” that reduces the gross product. It is characterised by an increase both in labour productivity and in the capital-to-output ratio, and thus a decrease in the maximum rate of profits: it is both labour saving and (fixed) capital using. The gross-product reducing mechanization entails what was later called “technological unemployment,” which will typically exert a downward pressure on real wages, viz. its injurious effect on workers.⁶

Ricardo argued that foreign trade increases the set of commodities and methods of production to which a country has access via imports bought with exports, and therefore can be expected to affect income distribution and relative prices via the channels mentioned above. He also had a clear understanding of *induced technical change*: A newly invented machine, for example, may not be introduced by cost-minimizing producers, because at the given real wage rate and prices it would not be profitable to do so: it has been born into an environment that is inimical to it. In Schumpeter’s words, it would be an “invention,” but would not (immediately) become an “innovation,” because the new knowledge would not be applied. However, as capital accumulates and the population grows, wages and prices typically change, which may eventually render the invention profitable (see Kurz 2015: section 7).

It is interesting to note that Ricardo even contemplated the limiting case of a *fully automated system of production* and pointed out: “If machinery could do all the work that labour now does, there would be no demand for labour. Nobody would be entitled to consume any thing who was not a capitalist, and who could not buy or hire a machine” (*Works* VIII: 399f). He thus anticipated in an extreme form the trend towards automation which advanced economies are currently experiencing. And he saw that

⁶ In Marx we encounter Ricardo’s case as the allegedly dominant form of technical progress in capitalism, characterized by a growing “organic composition of capital” and thus a falling maximum rate of profits, which will eventually, Marx was convinced, also force the actual rate of profits to fall.

this trend poses potentially serious problems as regards employment and income distribution.

15. The “law of population”

The doctrines of the classical economists are typically associated with some form or other of the Malthusian “law of population,” according to which any increase of real wages above bare subsistence spurs population growth, which counteracts any rise in real wages. Smith anticipated and Thomas Robert Malthus unswervingly advocated variants of this view. As regards the long-term trend of the real wage rate, the question then was whether technical progress would outweigh population growth: while Malthus was pessimistic, Smith was optimistic.

Ricardo assumed a given subsistence wage in one part of his economic analysis, but abandoned it in another one. Close scrutiny shows that he distinguished between the determination of the rate of profits and relative prices in *given* economic circumstances, that is, at a given time and place, and the movement of all distributive variables, including wages, in *changing* circumstances, that is, over time. In the former case, Ricardo insisted, as we have seen, that the rate of profits and relative prices are fully determined in terms of the given system of production and a given level of real wages. For an essentially tactical reason he was prepared to come partly Malthus’ way by assuming the law of population, because then the real wage rate could be taken as a given (“subsistence”) magnitude. This rendered the explanation of profits residually in terms of the surplus product a great deal easier and should have prevented Malthus from escaping the logic of Ricardo’s reasoning.

When Ricardo in his theory of capital accumulation and economic development then turned to a system incessantly in movement and transformation from within, he emphasized that the real wage rate can no longer be taken as given and constant and explicitly distanced himself from the Malthusian law of population. He stressed the historical and social dimensions of the natural wage (*Works I*: 96–7) and that “population may be so little stimulated by ample wages as to increase at the slowest rate – or it may even go in a retrograde direction” (*Works I*: 169). “Better education and improved habits” may break the connection between population and necessities (*Works II*: 115). Workers may get “more liberally rewarded” and thus participate in the sharing out of the surplus

product (*Works* I: 48). If this were the case for a prolonged period of time, a sort of ratchet effect may be observed: the higher real wages become customary and define a new level of “natural” wages. As early as in the *Essay on Profits*, Ricardo stressed that “it is no longer questioned” that improved machinery “has a decided tendency to raise the real wage of labour” (*Works* IV: 35; see also VIII: 171).

It follows that the concept of “natural wages” in Ricardo is defined with reference to the wealth of a society and the growth regime it experiences and must not be interpreted as indicating a given and constant real wage rate – nothing of this sort. An implication of this is that Ricardo felt the need to replace the real (that is, commodity) wage rate by a share concept, or “proportional wages” (Sraffa 1951: lii), that is, “the proportion of the annual labour of the country ... devoted to the support of the labourers” (*Works* I: 49). It was on the basis of this wage concept that he asserted his fundamental proposition on distribution: the rate of profits depends inversely on proportional wages (see Gehrke 2011).

To conclude, the classical surplus explanation of profits applies both in a regime, in which the law of population holds, and in a regime, in which it doesn't. Ricardo's main concern was clearly with the latter.

15. Foreign trade

Smith was convinced that the mercantile system of monopolies, import restrictions and export promotion led to a misguided allocation of resources, dampened economic dynamism, and had unwanted distributional effects. It went against the liberal principles of “equality [in the sense of equal rights], liberty, and justice.” Smith was especially critical of the mercantilist promotion of cities (and therewith of industry) and foreign trade. This went against the “natural course of things,” in which agriculture is the first sector to develop, followed by industry and cities in tandem with domestic trade, and foreign commerce only in a final stage. Agriculture is said to have the highest added value, since in that sector “nature labours along with man” and “costs no expense.” This originally physiocratic idea would later be subjected to persuasive critique by Ricardo. But foreign trade, although it offered opportunities for higher profits, also harboured higher risks and greater insecurity for capital investment, according to Smith. The risk-averse capital owner therefore preferred to invest at home and, in pursuing his own advantage there,

provided for higher domestic employment and income: “He is . . . led by an invisible hand to promote an end which was no part of his intention.”

Smith was an eloquent advocate of free trade and what today is called “globalization.” But his advocacy was tied to an important condition: the advantages of free trade had to accrue to the benefit of *all* countries and parties involved, which again points to the importance of good government.

Ricardo regarded Smith’s explanation of how countries specialize based on absolute advantages in production costs for goods as incomplete. Assume, he argued, that the home country can produce all goods at lower costs than can be done abroad. Then, initially, it is only the home country that exports goods, which foreign countries import. This leads to an inflow of gold (the money commodity) at home and to an outflow from abroad (David Hume’s *price-specie flow mechanism*). According to the quantity theory of money, prices rise at home and fall abroad. At some point the prices of some commodities abroad fall below those at home, so that the absolute cost advantage reverses itself, and the foreign countries can now export the commodities under consideration. To which commodities does this apply?

Ricardo developed the *principle of comparative advantage* as an answer and exemplified it in terms of the trade in cloth and wine between England and Portugal. Assume that, in Portugal, 90 hours of labour are needed to produce a bale of cloth and 80 hours for a cask of wine. In England, meanwhile, it takes 100 hours for cloth and 120 hours for wine. Portugal possesses an absolute advantage with respect to both products, and with respect to wine also a comparative (relative) advantage: the cost difference for wine (80/120) is greater than for cloth (90/100). (Correspondingly England faces an absolute disadvantage with respect to both products but a comparative advantage with respect to cloth.) For Portuguese producers, it is worthwhile to specialize in the production and export of wine while importing cloth from England, where the English absolute disadvantage is comparatively small.

We may explain Ricardo’s important principle, which Paul A. Samuelson called both “true” and “nontrivial,” in another way, drawing attention to the involved possibility of *arbitrage*, meaning here the exploitation of price differences in the two countries involved. Assume that the two countries have their own currencies, which are supposed to be nonconvertible – Portugal the Portuguese real and England the pound.

Assume that the money prices of the quantities of cloth and wine in the two countries are proportional to the quantities of labour spent in producing them, and assume for simplicity that the numbers are the same, the only difference being that now, instead of Portuguese and English labour, we have reals and pounds (Table 1).

Table 1:

<i>Price in Reals (Portugal) and Pounds (England) of a given quantity of</i>	<i>Cloth</i>	<i>Wine</i>
In Portugal (Real)	90	80
In England (Pound)	100	120

One can easily see that trade would be favourable to merchants of both countries. (In the following, for simplicity, we set aside transportation costs.) Take the case of an English merchant. He may buy for £100 a given quantity of cloth, ship it to Portugal, and sell it there for 90 reals. With this sum of money he may then buy wine from a Portuguese wine grower and get altogether $90/80 = 9/8$ units of wine, where one unit costs 80 reals. This quantity of wine he then ships to England and sells for $9/8 \times £120 = £135$. He thus yields a profit of $£135 - £100 = £35$ or a rate of profit of 35 per cent on an investment of £100 over the time it took to export cloth and import wine. (It deserves to be noted that the English merchant can use the same ship to export and import goods from and to England.) A similar consideration applies to a Portuguese merchant.

The remarkable fact here is (as opposed to the previous explanation with gold as the universal means of payment) that while commodities are exported and imported, the currencies of the two countries do not cross borders: they stay in the countries of origin; there are no flows of money into and out of a country.

What applies to specialization between countries also applies to trade between people. The happy message of Ricardo's finding is this: whoever is inferior to another person in everything can nonetheless become involved in a division of labour that is mutually advantageous. In this way, Ricardo added an important verse to Adam Smith's hymn of praise on the beneficent effects of the division of labour.

16. The role of government and the state, and taxation

Smith differentiated, in a new way, between the subareas of economic activity that should be reserved for the government and state and those that should be left to the private sector. The government, according to his view, should only take on tasks that private agents are either incapable of carrying out or cannot do as well as government can (or can do only at a higher cost). Once the legitimate tasks of the state are fixed, the means to finance them must be decided. According to Smith, the maxim to follow is that the private sector should not be burdened with excessive taxation.

Smith's remarks on this matter are frequently interpreted as a plea for a "minimal" or "night watchman state." This interpretation is untenable. The *Wealth of Nations* includes an impressive set of tasks for the state. Smith was concerned with transforming the old authoritarian state into a modern constitutional and achievement-oriented state that reacts appropriately to the changing needs of the day. He recognized, for instance, that the division of labour could have negative by-products: the devaluation of artisanal skills and the replacement of adult with child labour. He called for state-financed elementary school education to cushion the negative consequences of this development. He listed other responsibilities of the state, including the administration of justice, policing, and national defence; the provision of infrastructure to facilitate the movement of people and commodities; and the organization of large-scale projects in the general interest. In light of historical experiences – especially the introduction on a large scale of paper money in France at the beginning of the eighteenth century and the ensuing Mississippi Bubble – Smith also advocated, as we have already heard, regulating the unstable banking sector, since "those exertions of the natural liberty of a few individuals, which might endanger the security of the whole society, are, and ought to be, restrained by the laws of all governments." And while he considered paper money on a par with technical progress, because it allowed a society to save on the costly provision of gold and silver, he warned that the commerce and industry of a country "cannot be altogether so secure, when they are thus, as it were, suspended upon the *Daedalian wings of paper money*." According to Greek mythology, Daedalus was a gifted craftsman who built wings of wax and feathers with which he and his son Icarus escaped from the island of Crete after having been imprisoned by Minos.

But hubris – or was it “irrational exuberance”? – made Icarus ignore his father’s warnings: he got too close to the sun, which made the wax in his wings melt, and he fell into the sea and died.

Taxes should be proportionally equal, according to Smith, who thus addressed both the *ability-to-pay principle* (that taxation should be based on income) and the *equivalence principle* (that taxation should be based on the benefits experienced as a result of government activity).

In the *Principles* Ricardo devoted a substantial space and a great deal of attention to taxation and especially the problem of tax incidence and the impact of taxes on the pace of capital accumulation and economic growth. He insisted: “There are no taxes which have not a tendency to lessen the power to accumulate. All taxes must either fall on capital or revenue” (*Works* I: 152). However, he added, the burden of a tax is not necessarily borne by whoever pays it. This insight is then illustrated in a number of cases involving both direct and indirect taxes. For example, on the premise that workers are paid a subsistence wage, a tax on wages could not be borne by workers: nominal wages would rise leaving real wages constant and the tax would accordingly be shifted to capitalists. A similar reasoning applies to the case in which a tax is laid on wage goods or “necessaries.” The price of the wage goods and as a consequence the nominal wage would increase. Taxes on “luxuries” on the contrary “fall on those only who make use of them” (*Works* I: 205).

In full accordance with his doctrine that rent does not enter the price of commodities Ricardo insisted that “A tax on rent would affect rent only; it would fall wholly on landlords, and could not be shifted to any class of consumers” (*Works* I: 173). A tax on profits would increase the prices of the products: “if a tax in proportion to profits were laid on all trades, every commodity would be raised in price” (*Works* I: 205). Depending on the consumption patterns of the different classes of society this would affect their respective members differently. A rise in the price of wage goods would again entail a corresponding adjustment of nominal wages: “Whatever raises the wages of labour, lowers the profits of stock; therefore every tax on any commodity consumed by the labourer, has a tendency to lower the rate of profits” (*Works* I: 205), and, as a consequence, the rate of capital accumulation.

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