J.-B. SAY ON UNEMPLOYMENT AND PUBLIC WORKS

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THE OTHER SYMPOSIUM PAPERS: A FEW COMMENTS

Steven Kates' valuable paper on J.-B. Say is essentially right in its three basic points. Say, like James Mill and Ricardo, was at pains to emphasize that there could be no *general* deficiency of demand, or at least, not for any substantial period. Second, none of these authors denied the existence of business fluctuations or, I may add, of unemployment. Third, Keynes' description of the positions of Say and Malthus leaves much to be desired. In short, I have much more with which to agree than with which to differ in the Kates article. Indeed, the bulk of my note is dedicated to showing that both Say's and Ricardo's concerns about unemployment were deeper than even the Kates article suggests, that this concern even led Say to advocate a clear Keynesian remedy for unemployment: public works. Correspondingly, I will show that Ricardo's disquiet about joblessness constitutes a good part of his reversal on the role of machinery (i.e., innovation) that so distressed his adherents.

Still, I do have a few minor differences with Kates' position, and it seems desirable to get them out of the way before turning to the main substance of this note. First, while anyone who reads Say, James Mill and Ricardo with care must agree that the nonexistence of general gluts was *one of their central points,* it seems equally clear that it was only one among a set of contentions that they considered to constitute vital components of their general position in the discussion. For example, all three of these authors, in Kates' words, "find... it beyond comprehension that someone should recommend wasteful expenditure as a way of generating wealth. Spending is a depletion of wealth while saving adds to it" [Kates, 197] This, in the form of their repeated and emphasized distinction between "productive and unproductive consumption," surely is a very different point from denial of "the possibility of demand failure" [*ibid.,* 192] which Kates would have us take as the unique and true meaning of Say's law. I find that a bit odd, given the fact, pointed out by Kates, that the term "Say's law" is modern, and that none of the three classical authors who are the focus of the discussion would have known what to make of the term. My own conclusion, then, is that the "Say's law" discussion encompassed a number of different propositions, all of them important to the three authors, denial of the possibility of demand failure being only one of them.[1] The term "Say's law" should therefore be recognized as ambiguous, at best, and is perhaps best interpreted to mean what Keynes and Lange claimed Say to have asserted, not what Say really did state.[2] In what follows, I deliberately use the term vaguely, to connote the complex of ideas that was the focus of the classical discussion under consideration here.

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Professor Jonsson's valuable paper takes the Kates' analysis one step further, showing why improper choice of output quantity of some commodity must affect effective demand through coordination failure, even if it entails neither Keynesian nor Malthusian underconsumption. His argument, in essence, is that excess supply of one good must be accompanied by excess demand for some other, or as he quotes McCulloch, "every excess in one class must be countervailed by an equal deficiency in some other class." Jonsson then observes that whenever quantity demanded does not equal quantity supplied, *ex ante*, the amount actually sold must equal the smaller of the two: "Remember, in any market which does not clear, the short side always dominates...". Those who fail to sell what they had intended of one commodity will then buy less than they had desired of another good, so that "...people may attempt to sell more than they attempt to buy" [Jonsson, 208]. He concludes that, "if everyone plans to trade honestly" total excess demand in the economy must equal zero, *ex ante*. When there is disequilibrium in some particular markets, however, "people may attempt to sell more than they attempt to buy...this implies that when it comes to the actual excess demands as opposed to the *ex ante* excess demands ... across markets, we will find [a nonzero sum of the values of quantities demanded minus quantities supplied]. Note that a glut in any market is likely to change this into a strict inequality." [*ibid.*, 209]. In other words, in this account of the classical model, *ex post* value of quantities demanded of all commodities together may well fall short of the *ex ante* values of the quantities supplied.

I must agree with Jonsson that the classical economists *were* deeply concerned about the causes of gluts and unemployment, that they denied the possibility of demand failure in the underconsumptionist sense, as Kates also emphasizes, and that coordination failure stemming from (temporary) disequilibrium in particular markets is part of their story they repeatedly emphasize.

Still, here too, I suggest that several *caveats* are appropriate. First, the Jonsson argument seems to go well beyond anything I can remember in the literature of classical economics. I doubt whether any of them ever thought the analysis through in the terms presented. Here I note that no quotation from the classics is offered that confirms their acceptance of the Jonsson interpretation of *aggregate demand deficiency*. So far as I know, the classical economists simply did not think in that way. Modern writers are certainly entitled to show how gaps in classical arguments can be filled (thus, see the section entitled, "Compatibility of Unemployment with the Law of Markets?", below), but it is another matter to argue that the modern interpretation is what they really had in mind. Second, I must reemphasize that the classical discussion of matters related to the "law of markets" has many facets, and that Jonsson's discussion deals only with one of them.[3]

Finally, I will argue in what follows, that while our three classical authors did indeed believe firmly that a general glut of underconsumption type, or at least one of any substantial duration, is impossible, they also believed something similar about individual commodities. As I have just agreed, they repeatedly pointed out that miscalculation *can* lead to an undersupply or an oversupply of some particular good. However, they argued that market forces can be relied upon to correct the mistake through adjustment of quantity supplied, *and can be expected to do so with dispatch.* They recognized one exception, but one that is very significant. That exception is the supply of labor, that requires many years to adapt itself to the state of demand. That is, it takes a long time to eliminate an oversupply or an undersupply of this special commodity. Thus, in what follows, I will focus on *unemployment* (rather than on general gluts or business cycles), a subject the other authors have, happily, left for me to discuss.

WAS INVOLUNTARY UNEMPLOYMENT RULED OUT BY SAY AND RICARDO?

At least since the appearance of the *General Theory*, much of the economic literature has seemed to presume that a purpose of "Say's law" was to prove that involuntary unemployment was impossible. It will be shown here that, on the contrary, J.-B. Say considered unemployment to be a very real phenomenon and a very real cause for concern. Indeed, he explicitly advocated public employment as a suitable means to deal with the problem. Lest this be considered yet another piece of evidence for the well-justified conclusion that J.-B. Say was a highly unreliable proponent of Say's law, at least as we understand the concept today, it will also be shown that even so uncompromising an advocate of the principle as David Ricardo was also disquieted by the possibility of unemployment, attributing it to precisely the same causes as Say. I have found no explicit discussion by any of the early writers of the compatibility of unemployment with whatever variant of Say's law he may have accepted. But I will nevertheless speculate on the ways in which belief in the possibility of unemployment might have been reconciled by a classical economist with the view, held at the same time, that a "universal glut" of commodities was impossible, and that even a glut in a single good would rapidly be eliminated by the market mechanism.

The note will end with a brief reminder that Adam Smith provided several clear (if brief) statements of Say's law well before Say published his first (and far less complete) statement of the law. The supplementary observation on this point to be offered here is that Say, who had been accused of being too slavish a devotee of Smith, himself accused Smith of failure to understand at least some variant of the "Law of Markets" and its attendant issues.

UNEMPLOYMENT AND THE INTRODUCTION OF MACHINERY

The reader will, of course, recall Ricardo's change of position on the effects of the introduction of machinery[4] and the controversy that followed when, in the final edition of his *Principles*, he asserted that it would adversely affect the economic position of workers, at least in the short run. It is less commonly recognized that the same point aroused the concern of J.-B. Say, who concluded that new machinery might not only depress earnings, but that it was also likely to lead to unemployment. As he put it:

> Whenever a new machine, or a new more expeditious process is substituted in the place of human labour previously in activity, part of the industrious human agents, whose service is thus ingeniously dispensed with, must needs be thrown out of employ. Whence many objections have been raised against the use of machinery, which has

been often obstructed by popular violence, and sometimes by the act of authority itself.

...This...however advantageous to the community at large, as we shall presently see, is always attended with some painful circumstances. For the distress of a capitalist, when his funds are unprofitably engaged or in a state of inactivity, is nothing to that of an industrious population deprived of the means of subsistence.

Inasmuch as a machinery produces that evil, it is clearly objectionable. But there are circumstances that commonly accompany its introduction, and wonderfully reduce the mischiefs, while at the same time they give full play to the benefits of the innovation. For,

1. New machines are slowly constructed, and still more slowly brought into use; so as to give time for those who are interested, to take their measures, and for the public administration to provide a remedy.

2. Machines cannot be constructed without considerable labour, which gives occupation to the hands they throw out of employ. For instance, the supply of a city with water by conduits gives increased occupation to carpenters, masons, smiths, paviors, &c. in the construction of the works, the laying down the main and branch pipes, &c. &c.

3. The condition of consumers at large, and consequently, amongst them, of the class of labourers affected by the innovation, is improved by the reduced value of the product that class was occupied upon.

Besides it would be vain to attempt to avoid the transient evil, consequential upon the invention of a new machine, by prohibiting it employment. If beneficial, it is or will be introduced somewhere or other; its products will be cheaper than those of labour conducted on the old principle; and sooner or later that cheapness will run away with the consumption and demand. Had the cotton spinners on the old principle, who destroyed the spinning-jennies on their introduction into Normandy, in 1789, succeeded in their object France must have abandoned the cotton manufacture; everybody would have bought the foreign article, or used some substitute; and the spinners of Normandy, who, in the end, most of them, found employment in the new establishments, would have been yet worse off for employment. [1951 (1834), 86-87, footnote omitted]

In sum, while Say believed that innovation was beneficial to society as a whole and that opposition to it was ultimately self-defeating, he was convinced that any labor-saving innovation must necessarily throw workers "out of employ" in the short run.[5] Moreover, he stressed the seriousness of the problem, concluding that "the distress of a capitalist" deprived of profitable investment opportunities "...is nothing to that of an industrious population deprived of the means of subsistence."

He went a significant step further, arguing that a virtuous government should seek to alleviate the problem and, like a good Keynesian, proposed public works as a suitable remedy:

> Without having recourse to local or temporary restrictions on the use of new methods or machinery, which are invasions of the property of the inventors or fabricators, a benevolent administration can make provision for the employment of supplanted or inactive labour in the construction of works of public utility at the public expense, as of canals, roads, churches, or the like; in extended colonization; in the transfer of population from one spot to another. Employment is the more readily found for the hands thrown out of work by machinery because they are commonly already inured to labour [*ibid.*, 87, footnote].[6]

RICARDO AND UNEMPLOYMENT

The English classical economists who were Say's contemporaries justifiably had little confidence in Say as a reliable ally in the discussions that we describe today as the "Say's law controversies."

With a degree of good judgment, Say raised questions about Ricardo's uncompromising position on the Law of Markets, but in the process virtually conceded that its logic hardly holds universally, i.e., he admitted, in effect, that a general glut was, indeed, possible.

Thus, at one point Say virtually gave away the entire position:

> Mr. Ricardo pretends that, in spite of taxes and other obstructions...all capitals saved are still employed, because capitalists will not lose the interest. There are, on the contrary, many savings unemployed on account of the difficulty in employing them...besides, Mr. Ricardo is contradicted by what happened to us in 1813, when interest of money fell so low for want of good opportunities of employing it—and by what is happening to us at this moment in which the capitals sleep at the bottom of the coffers of the capitalists [*Letters to Mr. Malthus*, 36, *Oeuvres Diverses*, 477].[7]

No wonder Ricardo complained to Malthus,

> I have also written some notes on M. Say's letters to you with which I am by no means pleased...for the opinions which we hold in common, he does not give such satisfactory reasons as might I think be advanced. In fact he yields points to you, which may almost be consid-

ered as giving up the question and affording you a triumph [1951 (24 November 1820), Vol. VIII, 301-302].

One could, perhaps, be led to suspect that Say's views on unemployment were yet another manifestation of the unreliability of his position on the Say's law issue. Yet this is clearly not so, or at least it is not all there is to be said on the matter. Ricardo was surely never exceeded as an undeviating proponent of the proposition that there can never be a general shortfall of demand relative to supply[8] (though Mill senior no doubt matched his zeal on this subject). Yet Ricardo, too, granted the possibility of unemployment for limited, though perhaps substantial, periods, and, like Say, attributed the problem to the introduction of (labor-saving) machinery.[9]

While Ricardo's famous chapter on machinery primarily emphasized the danger that innovation can reduce the economy's total outlay on wages, he also noted several times that this was likely to be accompanied by a decline in employment, as the shrinking wages fund reduced the number of gainfully employed individuals it could support. In Ricardo's words,

> I am [now] convinced that the substitution of machinery for human labour is often very injurious to the interests of the class of labourers.
>
> My mistake arose from the supposition, that whenever the net income of a society increased, its gross income would also increase; I now, however, see reason to be satisfied that the one fund, from which landlords and capitalists derive their revenue, may increase, while the other, that upon which the labouring class mainly depend, may diminish, and therefore it follows, if I am right, that the same cause which may increase the net revenue of the country *may* at the same time *render the population redundant*, and deteriorate the condition of the labourer...
>
> In this case, then, although the net produce will not be diminished in value, although its power of purchasing commodities may be greatly increased, the gross produce will have fallen...and as the power of supporting a population, and employing labour, depends always on the gross produce of a nation, and not on its net produce, there will necessarily be a diminution in the demand for labour, population will become redundant, and the situation of the labouring classes will be that of distress and poverty.
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> As, however, the power of saving from revenue to add to capital, must depend on the efficiency of the net revenue, to satisfy the wants of the capitalist, it could not fail to follow from the reduction in the price of commodities consequent on the introduction of machinery, that with the same wants he would have increased means of saving—increased facility of transferring revenue into capital. But with every increase of capital he would employ more labourers; and, therefore, a portion of the people thrown out of work in the first instance, would be subsequently employed; and if the increased production, in consequence of the employment of the machine, was so great as to afford, in the shape of net produce, as great a quantity of food and necessaries as existed before in the form of gross produce, there would be the same ability to employ the whole population, and, therefore, there would not necessarily be any redundancy of people.
>
> All I wish to prove is, that the discovery and use of machinery may be attended with a diminution of gross produce; and whenever that is the case, it will be injurious to the labouring class, as some of their number will be thrown out of employment, and population will become redundant, compared with the funds which are to employ it. [1951, Vol. I, 388-90, italics added]

COMPATIBILITY OF UNEMPLOYMENT WITH THE LAW OF MARKETS?

The proponents of the ideas associated with the "Law of Markets" apparently did not recognize that there might be an inconsistency in their espousal of that position and their conclusion that unemployment can arise (and can apparently persist for considerable periods) in the course of the normal workings of the economy. Since, so far as I know, they never explicitly discussed the relationship between the two issues, it is entirely possible that it never occurred to them that a conflict may be involved.

There is also an alternative possibility—that they believed the labor market to be different in some pertinent attributes from all other markets, and that they felt these differences made the two positions compatible. While the discussion that follows clearly involves a large element of conjecture, it is not inappropriate to consider what the special attributes of the labor market recognized by the classical economists might have been.

First, let us remind ourselves briefly how the mechanism of the Law of Markets worked out for individual commodities. Of course, we know that Say's law, even in its strongest variant, does not require each and every market to be in equilibrium. So far as the law itself is concerned, there can be an excess supply of good A, which can even persist for some substantial interval, provided that there is an equal excess demand for some other good or combination of goods. The classical economists recognized this possibility quite explicitly as early as 1807 [Mill, 84-85]. But from the very beginning they argued that though the Law of Markets did not require it, in practice, a glut of even a single commodity was certain to be very transitory. Ricardo described the pertinent relationships thus:

> Whoever is possessed of a commodity is necessarily a demander, either he wishes to consume the commodity himself, and then no purchaser is wanted; or he wishes to sell it, and purchase some other thing with the money, which shall either be consumed by him, or be made instrumental to future production. The commodity he possesses will obtain him this or it will not. If it will, the object is accomplished,

> and his commodity has found market. If it will not what does it prove? That he has not adapted his means well to his end, he has miscalculated. He wants for example cotton goods, and he has produced cloth with a view to obtain them. Either there are cotton goods in the market or there are not—if there are, the proprietor wishes to sell them only with a view to purchase some other commodity—he does not want cloth, but he does want silks, linen, or wine—this at once indicates that the proprietor of cloth has mistaken the means by which to possess himself of cotton goods, he ought to have produced silks, linen or wine; if he had, there would not have been a glut of any commodity, as it is there is certainly a glut of one, namely cloth; and perhaps of two, because the cotton goods may not be required by any other person. But there may be no cotton goods in the market, what then should the person wanting them have produced to obtain them. Why if there be no commodity with which he can purchase them, which is the most extravagant supposition, he can instead of producing cloth which he does not want, produce himself cotton goods which he does want. [1951, Vol. I, 305-306]

James Mill makes it even clearer that such an isolated glut of one or a few commodities will be eliminated *rapidly* by the flow-of-capital mechanism that Smith had described some three decades earlier. Capital will leave the arena in which overproduction has occurred (and in which profits must be low or even negative) and instead be directed to commodities in short supply where profits are to be made, simultaneously reducing both excess demands and excess supplies. The key to this adjustment process, then, is flexibility in production, which can readily adapt the outputs of commodities to the quantities demanded.

The important observation for our purposes here is Ricardo's explicit recognition that matters are very different in the labor market,[10] where, he tells us,

> It is very easy to perceive why, when the capital of a country increases irregularly, wages should rise, whilst the price of corn remains stationary, or rises in a less proportion; and why, when the capital of a country diminishes, wages should fall whilst corn remains stationary, or falls in a much less proportion, *and this too for a considerable time*; the reason is, because labour is a commodity which cannot be increased and diminished at pleasure. If there are too few hats in the market for the demand, the price will rise, but only for a short time; for in the course of one year, by employing more capital in that trade, any reasonable addition may be made to the quantity of hats, and therefore their market price cannot long very much exceed their natural price; but it is not so with men; you cannot increase their number in one or two years when there is an increase of capital, nor can you rapidly diminish their number when capital is in a retrograde state; and, therefore, the number of hands increasing or diminishing slowly, while the funds for the maintenance of labour increase or diminish rapidly, there must be a considerable interval before the price of labour is exactly regulated by the price of corn and necessaries.... [1951, Vol. I, 165, italics added]

This cannot be all there is to the matter. Walras' Law tells us that if there is an excess supply of labor there must be a simultaneous excess demand for some commodity or money. But the rapid supply-adjustment argument appears to preclude *any* such balancing. Even the money market cannot provide the required *enduring* excess demand. This may be taken to be a direct consequence of the strictest variant of Say's law, or it can be deduced from the assumption that the money supply is made up of precious metals that are supplied by profit-seeking private enterprise. Indeed, according to Say, even in the case of paper monetary instruments the market works so that (excess) demand creates its own supply. As he explains the matter,

> Sales cannot be said to be dull because money is scarce, but because other products are so. There is always money enough to conduct the circulation and mutual interchange of other values, when those values really exist. Should the increase of traffic require more money to facilitate it, the want is easily supplied. In such cases, merchants know well enough how to find substitutes for the product serving as the medium of exchange or money;[11] and money itself soon pours in. [1834, 134]

One is left with only a weak conjecture—that if forced to think in Walras' Law terms the classical economists would have argued that the unemployed workers were indeed demanding money (or, rather, consumption goods) in exchange for their labor, a demand that went unsatisfied for lack of takers. In this sense, and in this sense only, excess demands were not effective.

It is worth noting, in any event, that this line of argument calls for an excess supply of labor to be accompanied by an excess *demand* for commodities, which is the opposite of an excess *supply*, i.e., of the universal glut whose possibility the authors in question so steadfastly denied.

After all this discussion it may perhaps be wise to recognize that, given the paucity of any kind of evidence, we surely cannot rule out the possibility that these authors simply never considered that there was a problem of consistency raised by their adherence to a strong form of Say's law and their acceptance of the possibility of involuntary unemployment which may not cure itself in short order. In any event, it is clear that they did not use the Law of Markets to deny the occurrence of unemployment, and that the notion of a theory of unemployment would have been anathema to them only if it were based on a model requiring the occurrence of a universal glut of commodities.

DIGRESSION: SAY ON ADAM SMITH ON SAY'S LAW

That completes the discussion of the central theme of this paper. However, it may be permissible to employ the occasion to note one *curiosum* in Say's perception of Adam Smith's position on the Law of Markets. As with any doctrine, it is impossible to say who was its first formulator, since no matter how old a variant of a doctrine one judges to have been the earliest source, other scholars are likely to come up with prior documents that contain what are, perhaps, more primitive variants or even only hints of the thesis.

The Law of Markets is no exception. Smith's teacher, Frances Hutchinson, and a number of other predecessors have been listed as precursors on this subject [Thweatt, 1980]. Yet, *The Wealth of Nations* contains a number of passages that clearly express the Law of Markets and clearly explain the argument behind them. For example, the following passage from Smith[12] was explicitly cited by James Mill in 1804 in his review of some work by Lauderdale:[13]

> What is annually saved is as regularly consumed as what is annually spent, and nearly in the same time too, but it is consumed by a different set of people. That portion of his revenue which a rich man annually spends, is in most cases consumed by idle guests, and menial servants, who leave nothing behind them in return for their consumption. That portion which he annually saves, as for the sake of the profit it is immediately employed as a capital, is consumed in the same manner, and nearly in the same time too, but by a different set of people. [Smith, 1937, (1776), 321]

Now, Mill (who has sometimes been nominated for the role of father of the Law of Markets on the basis of his *Commerce Defended* [1807]) also reviewed the first edition of Say's *Traité* in 1805 and concluded that "not only are all the general principles copied from Smith, but...the author has copied too slavishly." All this may lead one to suspect that Say would at least have recognized Smith as a fellow proponent of the Law of Markets and as a precursor of his own views on the matter.

As a matter of fact, the opposite is true. He was (almost) unstinting in his praise of Smith: "The better we become acquainted with political economy, the more correctly shall we appreciate the importance of the improvements this science has received from him, as well as those he left to be accomplished" [1834, xliii]. Yet, Say attacked the completeness of Smith's analysis precisely on the point he had dealt with most explicitly in relation to the Law of Markets—the fact that demand for real investment ("reproductive consumption," as Say called it) constitutes no less effective a demand for goods than are the demands of final consumers. Say wrote,

> ...although the phenomena of the consumption of wealth are but the counterpart of its production, and although Dr. Smith's doctrine leads to its correct examination, he did not himself develop it; which precluded him from establishing numerous important truths. Thus, by not characterizing the two different kinds of consumption, namely, unproductive and reproductive, he does not satisfactorily demonstrate, that the consumption of values saved and accumulated in order to form capital, is as perfect as the consumption of values which are dissipated. [1834, xlii-xliii]

NOTES

1. I once attempted to document this contention, claiming that I had discerned "(at least) eight laws" [1977]. Unfortunately, I seem to have miscounted, and actually provided only seven!
2. Apparently Professor Jonsson takes me to assert that what Say "really meant" is what Becker and I called "Say's Identity" — that the sum of the values of goods (excluding money) demanded must be the same as the sum of the values supplied. I emphatically never meant to imply this. The idea is, of course, Lange's and I doubt whether any classical economists consistently held this view, though careless expression seems occasionally to make them sound so. On the other hand, I doubt whether any of them ever thought through the issue in such terms.
3. I also think Jonsson is somewhat unjustifiably severe in his judgment of Lange. Walras' law, surely, is an identity saying only that, in honest trades, the value of all items sold must equal the value of all items purchased. This is the *ex post* variant of what Jonsson so readily accepts *ex ante*.
4. For an exemplary discussion of the subject, see Rostow [1990].
5. Say's discussion of machinery and its unemployment consequences much antedates Ricardo's chapter on machinery [1821]. The quotations from Say just presented here also appear, virtually verbatim, in the fourth edition of the *Traité* [1819]. Much of the same material already had appeared in the first edition [1803]. The second edition [1814] and the third edition [1817] added Say's advocacy of public works, but in these earlier editions Say was considerably more optimistic about the transitory character of the unemployment problem. Thus, in the second and third editions the text's discussion, after mentioning the unemployment consequences of machinery, he continues: "But this evil, which is always transitory, cures itself promptly. The great expansion of an output [after the rise in its productivity that caused the unemployment] reduces its price. Its cheapness expands its use; and its production, though requiring less effort, will soon enough occupy more workers than before." In the accompanying footnote what is referred to in the fourth edition as "a benevolent administration" in the first to the third editions is "a capable administration" which "will find means to lighten this transitory and localized evil" and, besides public works, Say notes that for this purpose the government "can initially confine the use of a new machine to particular regions where labor is scarce and is demanded by other industries" [1814, second edition, 54-55, my translation].
6. The long run, in Say's view, is a very different matter:

   > So much for the immediate effect of the introduction of machinery. The ultimate effect is wholly in its favour...The multiplication of a product commonly reduces its price, that reduction extends its consumption; and so its employment to more hands than before. It is beyond question, that the manufacture of cotton now occupies more hands in England, France, and Germany, than it did before the introduction of the machinery that has abridged and perfected this branch of manufacture in so remarkable a degree...When printing was first brought into use, a multitude of copyists were of course immediately deprived of occupation; for it may be fairly reckoned, that one journeyman does the business of two hundred copyists. We may, therefore, conclude that 199 out of 200 were thrown out of work. What followed? Why, in a little time, the greater facility of reading printed than written books, the low price to which books fell, the stimulus this invention gave to authorship, whether devoted to amusement or instruction, the combination, in short of all these causes, operated so effectually as to set at work, in a very little time, more journeymen printers than there were formerly copyists. [1814, 88].

7. At another point, Say simply claimed victory over Malthus by resort to tautology:

   > Our discussion on *Débouchés* begins to be no more than a question of semantics. You wish me to accord the name "products" to goods that can satisfy a certain number of wants and which possess a certain value, even though that value is insufficient to repay the totality of their production costs. But the logic of my doctrine on production establishes clearly that there is no complete production unless all the inputs necessary for that piece of work are repayed by the

value of the product...everything that is *truly produced* that cannot be sold is an outlay made thoughtlessly and without producing anything; and my doctrine on *débouchés* remains intact [*Cours Complet*, 649, my translation; see also Malthus' comment on page 647]

8. It is noteworthy that because of his consistent devotion to this sort of position Ricardo, the self-made man of great wealth, was constantly accused by businessmen who were his fellow MPs of being an impractical theorist. On this, see Gordon [1976, 55, 85, etc.].
9. Ricardo nevertheless favored innovation for a variety of reasons. Contrary to what is usually believed about him, Ricardo was quite optimistic on the future of the British economy, and while technological change may not have been the primary reason for his sanguine views, it certainly played a role. On this, see Gordon [1976, 90-100, 131, 140], and Rostow [1990].
10. Over the years, Paul Samuelson and I have had some pleasant exchanges on this score; and a similar debate took place between Stigler [1981], who took a position closer to Samuelson's, and Hollander [1979], whose conclusions are more similar to mine. Samuelson points out, with justice, that Ricardo was hardly consistent in his statements on the speed of equilibration of the labor market (see, e.g., *op.cit.,* Ch. IX, 165) and that, therefore, it is appropriate to assume that in a Ricardian model wages will at all times closely approximate the currently accepted subsistence wage level. If it is, then, appropriate to ignore explicit passages such as the one I quote in the text, protracted unemployment would indeed be inconsistent with Ricardo's other positions.
11. "By bills at sight, or after date, bank-notes, running-credits, write-offs, &c. as at London and Amsterdam" (Say's footnote).
12. See also the noted passage on page 268 as well as the following:

    Goods can serve many other purposes besides purchasing money, but money can serve no other purpose besides purchasing goods. Money, therefore, necessarily runs after goods, but goods do not always or necessarily run after money. The man who buys, does not always mean to sell again, but frequently to use or to consume; whereas he who sells, always means to buy again.... It is not for its own sake that men desire money, but for the sake of what they can purchase with it. [Smith, 1776, 407]
13. For this reference and other citations of James Mill that follow, I am deeply indebted to Professor William O. Thweatt of Vanderbilt University.

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