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Smith and Ricardo on the long-run effects of the growth of government expenditure, taxation, and debt: is their theory relevant today?

Giuseppe Tullio

A vast literature has developed in the last decade or so both in Europe and the United States about the causes of high unemployment and slow economic growth in Europe. The debate has centered principally on whether the high unemployment has been caused by high wages or low aggregate demand. The influence of taxation on wages has attracted surprisingly little attention. What Smith and Ricardo had to say about it and about the consequence of the growth of government expenditure on the profit rate, capital accumulation, and employment has attracted even less attention.[1] Their theory and the conclusions derived from it are dismissed today on the grounds that some of their assumptions, notably the subsistence theory of wages and the idea that government expenditure is wasted,[2] are not valid any longer. This paper argues that Smith and Ricardo's contribution contains a number of elements which are still relevant in understanding the consequences of the growth of government expenditure that has occurred in Europe in the last decades and that their main conclusion—that the consequences are negative for employment, capital accumulation, and economic growth—is still valid.

One important issue in this context is whether bond and tax financing are equivalent. Tax equivalence was wrongly attributed to Ricardo. This paper argues, in line with Smith and Ricardo, that bond and tax financing are not equivalent in Europe. However, independently of the financing method, increases in government expenditure have caused private capital accumulation and private employment to decline. Tax-financed increases in government expenditure have raised wages by more than they have raised commodity prices, and this has lowered the profit rate, private capital accumulation, and private employment. Bond-financed increases in

Correspondence may be addressed to the author, Università di Cagliari, Via S. Margherita 8, 09124 Cagliari, Italy.

1. No claim is made here that they were the only ones among the classical economists to have analyzed the problem.
2. On wars or on maintaining kings' and princes' lavish standards of living.

government spending have crowded out private investment and lowered capital accumulation and eventually also private employment.

Government expenditure, tax revenues, and public debts have increased substantially in the last twenty-five years in many industrial countries; the growth has been particularly marked in Europe. From 1960 to 1986 in eight countries of the European Community[3] the ratio of general government expenditure, which includes expenditures by local authorities, increased on average by about 18 points in relation to gross domestic product (GDP) to 50.4 percent, as opposed to an increase of 8.5 points in the United States, where it reached 35.3 percent in 1986.[4] In Europe the fastest-growing category of government expenditure was social-security transfers to households, followed by government final consumption expenditure, interest payments on the public debt, and transfers to firms, while public investment fell in relation to GDP in most countries.[5] Social-security transfers to households accounted for about one-half of the growth of current expenditure; there was a marked difference in the growth of this category among the eight countries, with the smallest increase occurring in Germany (3.8 percent of GDP) and the highest in France (12.8 percent) and Italy (12.0 percent).[6] The growth of government consumption expenditures amounted to about 5 percentage points of GDP, and the growth of interest payments to about 4 percentage points.

Tax receipts rose by about 14 points in relation to GDP in the eight European countries during the same period, as opposed to only 4.5 in the United States. The gross public debt for the average of nine countries of the European Community (the eight above plus Spain) rose to about 59 percent of GDP at the end of 1986, an increase of about 20 points from the end of 1972. In the United States public debt amounted at the end of 1984 to about 37 percent of GDP and had increased by about 12 points compared to the end of 1972. However, most of the increase occurred in the 1980s: the U.S. federal debt increased from 33.5 percent of GNP in 1980 to 50.6 percent in 1986. From 1960 to 1986 employment grew very little in the European Community, 0.10 percent per year on average,[7] while in the United States and Japan it grew at a healthy rate of 1.9 and 1.0 percent per year respectively.

This paper is divided into two sections: the first briefly reviews Smith

3. The present twelve excluding Greece, Portugal, Spain, and Ireland.

4. Source: Commission of the European Communities, European Economy and Economic Report of the President, various issues.

5. Italy is the only large country in the Community where public investment increased in relation to GDP.

6. The value households attribute to one dollar of transfers may be much higher than the value they attribute to one dollar of government consumption expenditure. This is important for the effect of taxation on wages, for the reasons described in Section II.

7. Average geometric growth rate.

and Ricardo's theory about the effects of growth in government expenditure, taxation, and debts; the second shows that if labor unions possess some degree of monopoly power which makes after-tax wages rigid downwards or if the worker's marginal benefit from increased government expenditure is smaller than the marginal cost he is forced to pay for it, Smith and Ricardo's theory maintains historical relevance today.

I. *Smith and Ricardo's Theory*

The two key assumptions of Smith and Ricardo are (1) that after-tax wages are rigidly fixed in the long run at the level of subsistence (this implies that tax increases will not lead to a reduction in after-tax wages but instead to an increase in wages, before tax) and (2) that incremental government expenditure (as they observed it in the United Kingdom during their lifetime) is wasted on wars or unproductive expenditure, raising the standard of living of royal families and of the aristocracy. From these two assumptions four propositions follow:

1. Taxes upon the wages of labor, taxes upon necessities, and, in part, taxes on luxuries lead to an increase in wages. The rise in wages resulting from taxes on luxuries is explained by the fact that (according to Smith and Ricardo) laborers also consume luxuries. But since they consume little of them, the effect on wages of an indirect tax on luxuries is assumed to be small. To the extent that taxes upon the wages of labor, necessities, and luxuries lead to a smaller percentage increase in the price of the product than in wages, they are taxes on profits.
2. The higher product wage leads to a reduction in the demand for labor by the private sector, for a given capital stock. But since in the long run the capital stock falls (see point 3 below), the reduction in the demand for labor will be even higher.
3. In an open economy taxes on profits cause an outflow of capital until the after-tax profit rate is again equalized across countries; in a closed economy the adjustment occurs via a reduction in capital accumulation. Hence a reduction in employment in the private sector and a reduction in capital accumulation cause deindustrialization, or in Smith's words, "declension of industry." The rate of profit will fall during the adjustment process; however, in the long run it will be the same or even higher, if cultivation of marginal land is sufficiently discouraged. It follows that a tax on labor will be finally paid by consumers and/or landlords.[8]

8. Smith and Ricardo differed on this point. Smith held that in the long run the tax on labor would be paid by landlords and consumers; Ricardo, on consumers only. See also the last paragraph of section I.1.

4. Government bonds are net wealth, and the growth in unproductive public expenditure financed by issuing bonds causes both a reduction in capital accumulation and deindustrialization in the long run.

The remainder of this section is devoted to a deeper analysis of these four propositions.

1. *On the effect of labor taxes on wages and the fact that taxes on labor are taxes on profits*

Smith and Ricardo held that taxes upon the wages of labor and indirect taxes on necessities lead to a proportional increase in wages, leaving the after-tax wage unchanged: "a direct tax upon the wages of labour can have no other effect than to raise them somewhat higher than the tax" (Smith 1976, 864). Exact calculations in shillings and pence follow this sentence, to show how a 20 percent tax on wages raises them by 20 percent, for a pretax wage of 10 shillings per week. The reason offered for the downward rigidity of the after-tax wage is that it must remain at or above the subsistence wage depending on the rate of growth of the supply of labor needed to satisfy the growth of the demand for it. The subsistence wage is a long-run concept and is itself influenced by cultural determinants: "[the natural price of labor] varies at different times in the same country and very materially differs in different countries. It essentially depends on the habits and customs of the people" (Ricardo 1976, 54–55). Smith argued that "the labouring poor will not now be contented with the same food, clothing and lodging which satisfied them in former times" (Smith 1976, 96) and that necessities include "not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without" (870).

For both Smith and Ricardo the positive effect on wages as a result of taxation of labor and necessities "does not in fact stand or fall with the subsistence assumption" (Hollander 1979, 387). In a growing economy in which population growth must be positive, the subsistence wage (or wage basket) must be redefined. The larger the required rate of population growth, the larger the wage basket.

Ricardo also believed that in the short run the response of wages to the tax would be positive. He relied on two arguments: the competition between private employers and the government in the labor market; and the expectations of employers.[9] As to the first mechanism,

> the fund raised by the tax is employed by the government in maintaining labourers, unproductive indeed, but still labourers. If [the

9. See also Hollander 1979, 390–94.

> price of] labour were not to rise when wages are taxed, there would be a great increase in the competition for labour, because the owners of capital . . . would have the same funds for employing labour; whilst the government who received the tax would have an additional fund for the same purpose. Government and the people thus become competitors and the consequence of their competition is a rise in the price of labour. (Ricardo 1976, 144)

As to the role of expectations, which are particularly important in the case of taxes raised to pay a subsidy to a foreign country, he argued that it is in the interest of all parties concerned that the product wage should rise and that the after-tax wage should not fall, in order to avoid unnecessary fluctuations in the rate of growth of the labor force (Ricardo 1951–73, 7:196). In Samuel Hollander's view of Ricardo's position (1979, 390 n. 232), the possibility of a less than proportional increase in wages and hence of reduced after-tax wages is greater in the short run than in the long run.

Ricardo argued that the burden of the tax falls on stockholders (profits):

> Taxes on wages will raise wages and therefore will diminish the rate of the profits of stock (capital). . . . A tax on wages is wholly a tax on profits; a tax on necessaries is partly a tax on profits and partly a tax on rich consumers. (1976, 140)

> Taxes are not necessarily taxes on capital because they are laid on capital. (95)

Smith believed that it falls initially on stockholders and ultimately on landlords (rents) and rich consumers, because eventually entrepreneurs increase the price of their commodities:

> this enhancement of price [of labor], together with the profit of those who advance it, must be finally paid by the landlords and consumers. (1976, 865)

Ricardo criticized Smith for overlooking the fact that since marginal land already earns zero rent, the tax on labor cannot fall on the rentier class. However, Ricardo must have implicity assumed that the amount of active land would not decrease. If land is phased out of production, the previously inframarginal, now marginal, land earns a zero rent. Total rent payments must therefore fall, because less land is cultivated, and at a lower average rent. In a growth context total rent payments will be smaller as a result of taxation than otherwise. This holds in the context of Smith and Ricardo's initial assumptions, whether the economy is open or not and whether there is capital accumulation or not.

2. *On the effect of a higher product wage on the demand for labor and of a lower after-tax wage on the supply of labor*

Having established that a tax on wages leads to an increase in wages and to a smaller percentage increase in the price of the product, thus resulting in a higher product wage, Smith and Ricardo analyzed the effects on the demand for labor by firms and on private capital accumulation.

> If direct taxes upon the wages of labour have not always occasioned a proportionable rise in those wages, it is because they have generally occasioned a considerable fall in the demand for labor. (Smith 1976, 865)

The demand for labor falls not only as a result of the direct effect of the higher product wage, but also because of the indirect effect via lower capital accumulation.

> Taxes, then, generally as far as they impair the real capital of the country, diminish the demand for labour and therefore it is probable, but not a necessary nor a peculiar consequence of a tax on wages, that though wages would rise, they would not rise by a sum precisely equal to the tax. (Ricardo 1976, 145)

A crucial link in both authors' taxation theorem is the negative effect of a fall in the after-tax wage on the supply of labor (population growth). Smith relied predominantly (though not exclusively) on the infant death rate as the central mechanism linking population growth to the after-tax wage; Ricardo relied predominantly (though not exclusively) upon the marriage rate (see Hollander 1979, 383 n. 209).

3. *On the effect of taxation of labor on capital accumulation and capital outflows*

With fixed after-tax wages, the reduction in the rate of profits will reduce the supply of capital. This will eventually have repercussions on the after-tax wage itself and on the rate of population growth. The adjustment can occur either through migration (of labor and/or capital) or through a fall in the growth rate of the supply of factors of production until a new equilibrium is reached. Ricardo stated, for instance:

> Notwithstanding the immense expenditure of the English government during the last 20 years, there can be little doubt but that the increased production on the part of the people has more than compensated for it. . . . Still, however, it is certain that, but for taxation, this increase of capital would have been much greater. There are no taxes which have not a tendency to lessen the power to accumulate. (1976, 95)

He also expressed a concern for the competitive position of the open economy vis-à-vis foreign countries:

> it may be objected against such a tax [on raw products] . . . that raising wages and lowering profits is a discouragement to accumulation, and acts in the same way as the natural poverty of soil . . . that by raising the prices of raw produce the prices of all commodities into which raw produce enters would be raised, and that therefore we should not meet the foreign manufacturer on equal terms in the general market. (101)

Be that as it may, for the understanding of today's European developments, they both reach the important conclusion that taxes which are "too high" lead to deindustrialization and economic decay. Smith argued that "the declension of industry, the decrease of employment for the poor, the diminution of the annual produce of the land and labour of the country, have generally been the effects of such taxes" (1976, 865).

4. *On the fact that government bonds are net wealth and that an increase in public debt has negative effects on capital accumulation and on the size of the industrial sector*

The equivalence of bond financing and taxation has been wrongly attributed to Ricardo. Ricardo stated clearly that there is no tax equivalence and no perfect rationality:[10]

> [The system of borrowing] is a system which tends to make us less thrifty—to blind us to the real situation. If the expenses of a war be 40 millions per annum, and the share which a man would have to contribute towards that annual expense were £100, he would endeavour on being at once called upon for his portion, to save speedily the £100 from his income. By the system of loans he is called upon to pay only the interest of this £100, or £5 per annum, and considers that he does enough by saving this £5 from his expenditure, and then deludes himself with the belief that he is as rich as before. (1976, 163)

If people fully discounted future tax liabilities, they would perceive a reduction in the present value of their future disposable income stream and adjust consumption downwards accordingly. Since actual current disposable income would be unchanged, the average saving rate would increase.

10. See also Feldstein 1982. Feldstein correctly pointed out that Ricardo had not regarded bond finance and taxation as equivalent and called the theory that regards them as equivalent the "Pre-Ricardian equivalence proposition."

With less than full discounting of future tax liabilities, private savings would not be forthcoming to an extent sufficient to finance the government budget deficit at unchanged interest rates. Interest rates would increase, thus crowding out private expenditures and investment in particular. However, by spending the proceeds of bond sales on productive investment, the government can outweigh the negative effects of the bond issues on the country's capital stock. For this reason governments could issue debt to finance public investment. As to the best means to pay for a war, Ricardo argued in the statement above that tax finance was preferable because it would avoid the capital consumption involved in debt creation. His position was different, however, from that of other classical economists, who believed that debt finance of war was acceptable.

Smith devoted the last chapter of his *Wealth of Nations* to public debt. He thought that debt issue would reduce the stock of private capital by the same amount as the increase in debt:

> The publick expense, however, when defrayed in this manner [by taxation], no doubt hinders more or less the further accumulation of new capital [by reducing saving]; but it does not occasion the destruction of any actually existing capital. When the publick expense is defrayed by funding, it is defrayed by the annual destruction of some capital which had before existed in the country. (1976, 925)

What he means in this passage is that while taxation reduces consumption necessarily and to a lesser extent also household savings, government bond issues do not alter the disposable income of households, nor their saving or consumption. Because existing savings are used to buy government bonds, there is proportionally less savings available to finance private capital formation. This one-to-one substitution of government debt for private capital is based on the assumption that the proceeds of the sale of bonds are not used to finance investment and that the additional current government expenditure has no value for the worker-voter.

In discussing the consequences of the excessive growth of public debt in Europe, Smith describes some of the problems that one is very familiar with today in European countries where public debt has grown substantially:

> When funding, besides, has made a certain progress, the multiplication of taxes which it brings along with it sometimes impairs as much the ability of private people to accumulate even in time of peace. . . . The private revenue of the inhabitants of Great Britain is at present as much encumbered in time of peace, their ability to accumulate is as much impaired as it would have been in the time of the most expensive war, had the pernicious system of funding never been adopted. (1976, 926)

Smith not only thought that public debts had grown too much in Europe in his time but also hinted at the possibility of a decline because of excessive public debts: "The progress of the enormous debts which at present oppress, and will in the long run probably ruin, all the great nations of Europe, has been pretty uniform" (1976, 911).

II. *Is Smith and Ricardo's Theory Still Relevant Today?*

In this section I first argue that for Smith and Ricardo's conclusions still to hold, their assumption that current government outlays have no value for the worker-voter-taxpayer can be expressed as the hypothesis that the marginal dollar benefit of government outlays is smaller for the worker than the marginal dollar cost he is forced to pay in terms of forgone disposable income. Second, I briefly discuss the extent to which the real after-tax wage has been characterized by downward rigidity in European labor markets in the last quarter-century or so. Third, I address the challenge by Bailey (1962) and Barro (1974) to the hypothesis that government bonds are net wealth and assess its relevance in the present European context.

A sufficient condition for expecting workers to resist a reduction in the after-tax wage is that the size of government exceeds the socially optimum level, as revealed by the workers' preference, when additional taxes are imposed. If workers attribute to the incremental current government outlay a marginal dollar value which is smaller than the marginal dollar cost that they pay,[11] they will resist the increased taxation and try to obtain wage increases that compensate them for the higher taxes. The marginal costs and benefits of current government expenditure, as perceived by the workers, are influenced by the government's efficiency in supplying public goods and by the government's corruption or lack thereof. Smith emphasized the importance of these two factors in a discussion of taxation in Hamburg:

> This tax is generally supposed to be paid with great fidelity. In a small republick, where the people have entire confidence in their magistrates, are convinced of the necessity of the tax for the support of the state, and believe that it will be faithfully applied to that purpose, such conscientious and voluntary payment may sometimes be expected. It is not peculiar to the people of Hamburgh. (1976, 850)

If the marginal benefit of current government expenditure is lower than the marginal cost, workers cannot be indifferent toward more government expenditure and less private expenditure. As government expenditure in-

11. For a framework for analyzing the optimum size of government in terms of marginal benefit and cost curves of government outlays see Inman 1982.

creases, their standard of living would tend to fall in the absence of wage increases. The psychological nature of the subsistence wage, as shown in the previous section, makes the concept at least as applicable today as in Smith and Ricardo's times. In fact, the faster spread of information about new products and about standards of living, via modern mass communication techniques and advertising, may enhance the relevance of the concept today.

It goes without saying that the existence of strong labor unions may make it easier for workers to resist a fall in the real after-tax wage when taxation increases, if (as seems likely) centralized labor unions will take the value of the incremental government expenditure for their members into account at the bargaining table.

Another sufficient condition for downward wage rigidity is that labor unions possess some degree of monopoly power. It is widely believed that labor unions possess a substantial degree of monopoly power in Europe. This is especially true for the period after the mid-1960s, when a number of countries, particularly the United Kingdom, France, and Italy, recorded major wage explosions. In the 1980s this monopoly power has been reduced in connection with the remarkable increase in European unemployment and the return to power of more conservative governments in many countries. An important aspect of European wage bargaining is that it is centralized at the level of powerful labor unions that extend their influence over most branches of industry, rather that occurring at the industry level as in the United States. The centralized unions have sometimes had broad political objectives. For instance, it is believed that for some years in the mid-1970s Italian labor unions pursued an aggressive wage policy partly in order to bring about the downfall of Italian industry in the hope of fostering rapid political change. At the theoretical level the literature (see esp. Knoester and Van der Windt 1987) has adapted to this peculiarity of European labor markets by developing a "wage bargaining model" in which the wage rate is assumed to be determined by the interaction between the wage offered by firms and the wage demanded by labor unions, where the final outcome of the negotiations depends on the relative monopoly power of unions versus industry. Wage rigidity may also be influenced by transaction costs in changing nominal wages and long-term contracting. These two factors may be relatively more important in the United States, where labor unions are believed to be less powerful (see esp. Kneisner and Goldsmith 1987).

Whatever the reasons for the downward rigidity of after-tax wages, evidence about the elasticity of the product wage with respect to tax increases can be obtained by estimating wage equations which include tax factors as independent variables. Recent studies (Knoester 1983; Knoester and Van der Windt 1987) suggest that the elasticity has been significant and substantial on OECD countries in the past quarter-century.[12] The authors tested for the elasticity of the product wage with respect to the sum of direct taxation of labor and social-security contributions, leaving aside the inflation tax on monetary and financial assets (which for some years and for some countries has been quite substantial).[13] For several countries they found a unitary elasticity of the product wage with respect to the sum of direct taxation and social-security contributions. My preliminary work (Tullio 1986) suggests that for the period 1960–84 the elasticity was on average the highest for direct taxes on income, followed by indirect taxes. It was the lowest for total social-security contributions, probably because they are associated with specific benefits. Moreover, the elasticity for direct taxation and for total social-security contributions has been significantly lower in the United States than in European countries. Gordon (1971), who separated U.S. employers' social-security payments from contributions of employees, found a very high and significant coefficient of the rate of change of the employers' social-security tax rate in wage equations. His estimates of the coefficients range from about 0.70 to 1.10 for the period from the first quarter of 1954 to the last quarter of 1970. His estimates of the coefficient of the changes in the employees' tax rate are much smaller, ranging from about 0.14 to about 0.24, but are still very significantly different from zero. Hamermesh (1981) shows that the increase in direct taxation and social-security contributions has significantly raised the natural rate of unemployment in the United States.

Section I.4 reviewed Smith and Ricardo's view of the nonequivalence of tax and bond financing. The remainder of this paper is devoted to the relevance of that view in today's context. Ricardo's hypothesis of nonequivalence was challenged in the post–World War II period by Bailey, who concluded: "If future tax liabilities implicit in deficit financing are accurately foreseen the level at which total tax receipts are set is immaterial, the behaviour of the community will be exactly the same as if the budget were continuously balanced" (1962, 77). A number of assumptions are required for Bailey's conclusions to hold: that individuals have infinite lives, that taxes are lump-sum, that capital markets are perfect, and that the government is perceived to satisfy the intertemporal budget constraint at the time of the fiscal change.

Barro (1974) has argued that the fact that life is finite does not change Bailey's conclusion if there is the possibility of intergenerational transfers. However, his conclusion still rests on the assumption that the present generation fully perceives the implication of debt financing for future govern-

12. Knoester's (1983) sample period is 1958–80; Knoester and Van der Windt's (1987) sample is 1960–82.

13. See Masera 1979 for an estimate of the inflation tax in Italy in the 1970s. Masera shows that in 1976 the inflation tax was higher than the direct taxation of all wage income.

ment interest payments and present and future generations' tax liabilities. Even if the more sophisticated class of bondholders correctly understands this implication, the classes which are more likely to bear most of the burden of future tax payments might not be aware of it. Furthermore, Bernheim, Shleifer, and Summers (1985) have shown that if bequests are "strategic," i.e., if parents make bequests conditional upon a specific behavior of their children, the equivalence theorem does not hold.

If taxes are not lump-sum, bond financing, which implies lower taxes now and higher taxes in the future, influences the supply of labor and the allocation of resources, and bond financing and taxation cannot be equivalent. Barsky, Mankiw, and Zeldes (1986) have shown that when progressive taxation is levied on risky income, the marginal propensity to consume out of a tax cut, coupled with a future tax increase, can be substantial. Indeed they show that under plausible assumptions the marginal propensity to consume out of the tax cut can be quite close to the Keynesian value that ignores the future tax liabilities.

Leiderman and Blejer (1987) have analyzed the implications of the fact that a change in the ratio of taxes to debt may signal to agents changes in future fiscal policies, and how this may affect current consumption. They conclude that if one takes into account expectational effects, equivalence will not hold. Empirical tests of the equivalence proposition performed by estimating a consumption function may be biased if unexpected taxes, transfer, expenditures, and public debt are not also included in the regression.

Hence it is reasonable to conclude, in line with Ricardo and Feldstein, that there is today no full discounting of future tax liabilities and that government bonds are at least to a large extent net wealth. Under these circumstances the effect of debt financing on saving and capital formation will be worse than the effect of tax financing.

The main conclusion of this paper is that the large increase in government expenditure in Europe has played an important role in causing high unemployment and low growth of employment. Tax financing has probably been more damaging to the creation of employment than has bond financing. The extensive literature on the causes of unemployment in Europe has not sufficiently stressed the negative role that the increase in government expenditure has played in the long run.

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