SMITH ON NATURAL WAGES AND PROFITS
(Chapters VIII and IX of *The Wealth of Nations*[1])
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1 The background

When Smith begins work on the specifics of natural wages and profits, he has already set out his conception of "natural price": This is the price, for any given commodity, which yields a revenue just sufficient to reward labor, stock and land at their "natural" rates. In this context, the natural remuneration of the "factors of production" (to use a modern term, not found in Smith) simply means the ruling social average return. He has argued that natural price, so defined, provides a "center of gravity" for actual market price. If the price of a commodity is above its natural level, it follows that the return to the factors must be above the natural or average rate. In that case we'd expect to see resources drawn into the production of the commodity in question: supply of the commodity will expand and price will fall, towards the natural level. If a price is below its natural level, the factors must be receiving below-average returns, so resources will tend to be withdrawn from the industry in question, supply will shrink, and market price will rise.

Smith holds that natural price is obtained by adding up the natural rewards to the factors of production.[2] To deepen his theory of value, therefore, it is incumbent upon him to provide an account of what determines the natural rates of wages, profit and rent—that is, what accounts for variations in the ruling social average of these returns, over historical time and between different nations at a point in time. He begins with wages.

2 Natural wages

Smith observes that in the struggle between "master" and employee, the masters typically have the upper hand, and will pay wages as low as they can manage (p. 169). Nonetheless there exists a floor below which the masters cannot long depress wages (p. 170). I'll call this the "reproduction minimum": it is the lowest (real) wage that permits the workforce both to survive and to reproduce over time, the lowest wage consistent with a stable size of labor force over the long run. If the masters push wages below this level they're cutting their own throats.

Smith recognizes that wages are not always and everywhere restricted to the reproduction minimum: they can be substantially higher. What accounts for this? One might at first suppose that wages would tend to be higher in wealthier economies, but Smith insists this is not so. Wages are high, he says, not in economies with the *greatest wealth* but rather in economies where the *rate of increase in national wealth* is greatest: "It is not the actual greatness of national wealth, but its continual increase, which occasions a rise in the wages of labour" (p. 172). The governing factor is not the level of economic development but its time-derivative. He at first simply asserts this, then provides some evidence for his assertion (his comparison on pp. 172–3 between the Britain and North America of his day—Britain is richer but the increase of wealth is more rapid in America; wages are higher in America). Finally he gives us (the elements of) a theoretical argument as to why this should be so. I will try to reconstruct this argument.

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[1] Pages references are to the Penguin edition of *The Wealth of Nations*, ed. Andrew Skinner.

[2] Note that this is not the only possible perspective: one can, for instance, conceive of natural price as determined by the total direct and indirect labor-time required to produce a commodity, and to conceive of the rewards to the "factors" as a *decomposition* of natural price, rather than as independent magnitudes that are *added up* to yield natural price. This was David Ricardo's view.

Let $\hat{W}$ denote the reproduction minimum wage. Smith postulates that the rate of increase of population is an increasing function of the wage, with a zero rate of increase corresponding to $\hat{W}$. I think we can take it that, as a first approximation, he reckons the supply of labor forthcoming at any point in time is dependent only on demographics and not on the wage (that is, the short-run labor supply curve is vertical). To capture this we can write:

$$\Delta L_s = f(W - \hat{W}) \qquad f(0) = 0; \quad f' > 0 \tag{1}$$

Smith also argues that the increase in the aggregate demand for labor is governed by the rate of accumulation of "stock" or capital. Let r denote this rate of accumulation, then:

$$\Delta L_d = g(r) \qquad g(0) = 0; \quad g' > 0 \tag{2}$$

Suppose we "start" with the labor market in equilibrium, with $L_s = L_d$. Maintenance of equilibrium then requires that $\Delta L_s = \Delta L_d$. Setting equations (1) and (2) equal, we have

$$f(W - \hat{W}) = g(r) \tag{3}$$

If accumulation of stock were to cease, we'd have $r = 0$ and hence $g(r) = 0$. That implies that $f(W - \hat{W}) = 0$ too, but the only way to achieve that is by having $W = \hat{W}$, i.e. the wage equals the reproduction minimum. Thus in a static society, regardless of the *level* of national wealth that has been achieved, the reproduction minimum seems to be the only wage level consistent with equilibrium in the labor market.

If on the other hand we have $r > 0$, and hence $g(r) > 0$, labor-market equilibrium requires that $f(W - \hat{W}) > 0$, which implies that $W > \hat{W}$. The wage will stand above the minimum in a rapidly growing economy.

We can spell out the mechanism a bit more with reference to Figure 1. Start with the wage at W_0, in excess of the reproduction minimum, and the short-run labor supply curve L_s. Since $W > \hat{W}$ population will be increasing, and hence (with a time lag) so will the size of the labor force. The short-run labor supply curve therefore moves out towards L_s'. This will tend to drive the wage down towards the reproduction minimum, irrespective of the level of national wealth, *unless* there is an offsetting increase in labor demand (the shift from L_d to L_d'. But this offset will be present only in an economy where stock is increasing at a sufficient rate.

If Smith reckons there is a long-run tendency for accumulation to slow down as economies mature (and it seems he does), then his theory of the natural rate of wages has a rather pessimistic conclusion. Things don't look good for labor in the long run. Notice, however, the way in which the pessimistic result depends, crucially, on the postulate that population growth is an increasing function of the wage.

Consider the possibility that in the long run the rate of increase in population (and workforce) is *inversely* related to the general level of wages. With historical hindsight this does not seem to be far from the truth. In that case what happens if we "start" at some point with the happy situation of $W > \hat{W}$? We will not see the automatic increase in L_s that Smith expected, and there's no reason to expect the wage to be driven down to $\hat{W}$, even if accumulation is slow or non-existent.

It's worth noting that the idea of a long-run tendency for wages to be driven towards a reproduction minimum is not exclusive to Adam Smith; it's part of the common currency of classical political economy. Other authors who envisaged such a tendency (for instance Malthus, Ricardo and Marx)
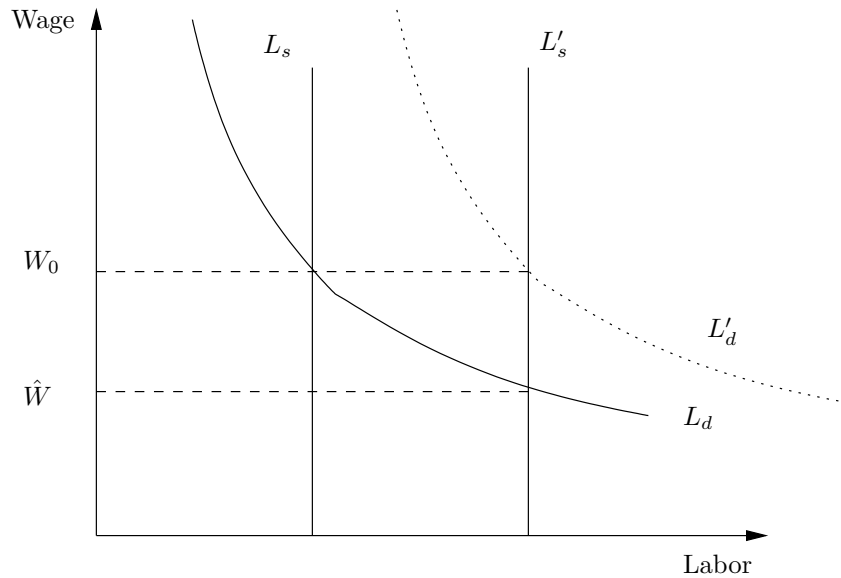
Figure 1: Smith's labor market

had somewhat different arguments leading to this conclusion, however, so we can't assume that by "disposing of" Smith's argument we have totally undercut the grounds for classical pessimism on this score.

3 Natural profits

Exposition

Right at the start of Chapter IX Smith gives us an idea of where he's headed: accumulation of capital tends to lower the rate of profit.

> The increase of stock, which raises wages, tends to lower profit. When the stocks of many rich merchants are turned into the same trade their mutual competition naturally tends to lower its profit; and when there is a like increase of stock in all the different trades carried on in the same society, the same competition must produce the same effect in them all. (p. 190)

This passage not only announces his theme; it also provides an argument as to why accumulation should lower profit. This argument, I should say, is highly suspect. We'll return to its problems shortly.

Smith next wants to try to illustrate his claim empirically. But here he faces an obstacle: it is very difficult to measure the ruling rate of profit in a given economy at a given phase of history. He proposes to get around this by using a *proxy measure*, namely the rate of interest. It is a bit easier to get data on the rate of interest, and Smith argues that there ought to be a fair degree of correlation between the two variables, profit and interest. If the interest rate is high, that indicates that people are willing to pay high interest on borrowed funds. We can infer that there must be highly profitable real investment opportunities to make such borrowing worthwhile: the ruling rate of profit is high. If the ruling interest rate is low, that says that people are *not* willing to pay high

interest on borrowed funds, which would seem to indicate that the opportunities for profit-making are limited, or the ruling rate of profit is low. (There is a possible problem with this argument too; again, we'll return to it below.)

On this basis Smith is able to provide some facts that, on the face of it, support the idea that the rate of profit tends to fall as capital accumulates. For instance, he points out that there was a sustained trend fall in interest rates in England from the time of Henry VIII to his own day, a period over which "the wealth and revenue of the country have been continually advancing", while as of the 1770s Holland, "a richer country than England", had lower interest rates than England.[3]

Critique

Let's examine the theoretical claim with which Smith begins. He's saying that what applies at the micro level—namely, that "when the stocks of many rich merchants are turned into the same trade their mutual competition naturally tends to lower its profit"—applies equally at the macro level: "when there is a like increase of stock in all the different trades carried on in the same society, the same competition must produce the same effect in them all." But it's not obvious that this should be so.

The "micro" mechanism to which Smith refers is nothing other than the mechanism that ensures convergence of market prices towards natural prices. If a particular trade is showing above-average profit (market price above natural price) then capital will tend to flood in, and competition among the suppliers will lower the price and lower the profit. This is OK. Using a standard modern diagram, we can represent the idea in Figure 2.
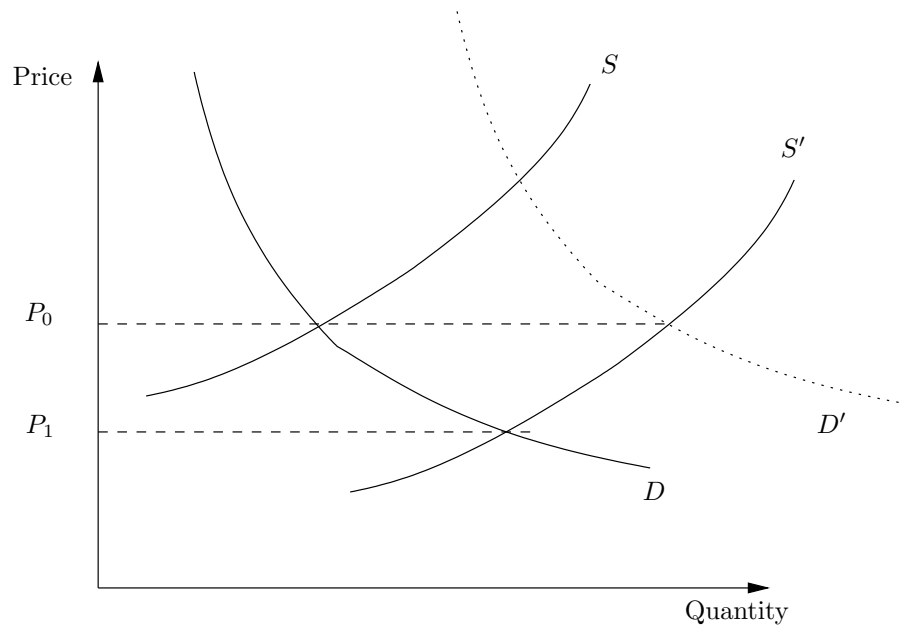

Figure 2: Entry of capital to a trade lowers price

We have an initial short-run equilibrium at price P_0, but (let's say) this price is above the natural

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[3]The low rate of profit that tends to emerge as the national economy matures is not necessarily a very bad thing, Smith reckons. With a large stock of capital, the *amount* of profit realized in a mature economy may be very substantial, even if the *rate* is low.

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level. At capital enters the supply expands from S to S' and the price falls to P_1. Profit will fall too.

Note, however, that we have implicitly assumed the demand curve for the product remains in its original position, at D. Clearly, if the demand curve were also to move outward (say, to D'), the expansion of supply would be consistent with the price remaining at P_0.

Now my point is that the *ceteris paribus* assumption, that the demand curve does not move, is perfectly reasonable if we are doing micro analysis: if we're analysing what's going on in one particular "trade" or market in isolation. If the supply of pizza, or wristwatches, expands, there is no reason to suppose the demand for these items will expand at the same time. But this seems incoherent at the macro level: how can capital ('stock') be expanding *in the aggregate*, yet there's no change in demand? As capital expands there will be a greater demand for labor (Smith made this point earlier) so presumably there will be more people employed and/or higher wages. So, in modern parlance, consumers' incomes will increase and the demand for consumer products will expand. Besides, the expansion of capital and supply means that capitalists will be demanding more non-labor inputs: the demand for "producer goods" must also be expanding. Smith's argument seems fallacious: what applies at the micro level need not (in this case, *cannot*) apply at the macro level.

As with my earlier comment regarding the long-run tendency of wages, if this critique of Smith is successful that does not mean we have proved that there is no tendency for the rate of profit to fall as capital accumulation proceeds. We have cast doubt on one argument to that effect, but there may be others (in fact, once again, Ricardo and Marx have different ones).

Profit rate and interest rate

One follow-up to the above: What do we make of Smith's empirical evidence? Take for example the trend fall in the interest rate in England from the 16th to the 18th century.

One possibility is that this trend in interest rates did indeed reflect a trend fall in the rate of profit as capital accumulated (but a fall occurring for some reason other than the erroneous one given by Smith).

I'll briefly introduce a second possibility here. When Smith argues that the rate of interest is a reasonable proxy for the rate of profit, he makes a fair case for expecting a somewhat close correlation between the interest on borrowed funds and the return on investment projects financed by borrowing. But we shouldn't leap to the conclusion that this correlation necessarily reflects the determination of the ruling rate of interest by the ruling rate of profit. The "causal arrow" could point the other way, with the ruling interest rate governing the rate of profit.

This possibility may be illustrated by the case of the UK economy under Margaret Thatcher's administration in the 1980s. Her government pursued a very tight monetary policy which sent interest rates to record levels. After a few years the profitability of British industry had increased substantially. What was going on? Basically, the high interest rates (partly via their side effect of a sharp appreciation of the pound sterling) had driven large sections of British industry out of business. The sections with the lowest profitability were the first to go; the sections that were left were ones where profitability was high (and had been high all along). Industry shrank, leaving only the most profitable sections in existence, and thus the average rate of profit rose. The converse of this would be that in an era of low interest rates, investment would expand and projects that were not worthwhile at high interest rates would be embarked upon: average profitability would tend to fall.

I wonder if this could have some bearing on Smith's historical data. Consider this story (which I offer as hypothesis rather than established fact): In the time of Henry VIII lending was generally perceived as quite risky, and lenders demanded a high interest rate if they were to make funds available. Since the cost of funds to borrowers was high, only the most profitable investment opportunities were pursued. As England developed over the following 250 years the financial system matured and lenders no longer required such a substantial premium for risk. With borrowed funds available more cheaply, investment increased, no longer being restricted to the most highly profitable options. The average rate of profit fell.