

ECONOMIC ASPECTS OF THE PENSION PROBLEM

As It Appears Sixty Years Later

In Two Parts. Part Two: Productivity Revisited

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In Part One I discussed the clear and present danger to pension rights: deflation as manifested by the interest rates structure that has been falling for almost thirty years, while most observers still think that the real danger is inflation. In this concluding part I carry out a deeper analysis of the pension problem, looking at the marginal productivity of labor and capital.

Higher marginal productivity: boon or bane?

The main point of Mises in discussing the pension problem is that *the only means to increase permanently the wages and benefits payable to workers is to increase the per capita quota of capital invested in the methods of production, thereby raising the marginal productivity of labor.* (See References, *Planning for Freedom*, p 6.) This is certainly true so far as it goes. It is also true that, if we project this observation to the world at large, then we can conclude that in order to have a progressive world economy and receding poverty, global capital accumulation must accelerate relative to increase in population. The greater the quantity and the better the quality of tools, the greater will be the output of the marginal worker, that is, the greater will be the marginal productivity of labor.

One may get the impression from reading Mises that an increase in marginal productivity is *always* beneficial to society — as indeed it would have been under the conditions he envisaged. However, in the case of a monetary system that admits both large swings and a prolonged slide in interest rates, this is not true. If the matter were simply increasing marginal productivity, monetary policy would be a valid means of “turning the stone into bread”. All it would take is central bank action to keep raising the rate of interest indefinitely. Under this scheme the marginal producer whose capital produces at the marginal rate of productivity is forced to close down his operations. His marginal equipment and plants are idled. His workers producing, as they are, at the marginal rate of productivity of labor are laid off.

We conclude that *the marginal productivity of both capital and labor automatically rises as a consequence of a rise in the interest rate structure*. However, in this case the rise in productivity, far from being a boon, is a bane to society, as it makes output and employment shrink. The trick is precisely to make marginal productivity rise *along with* rising output and employment.

Gold standard: a safeguard against deflation

No one has asked how it is possible that an increase in marginal productivity could be beneficial to society in one instance, and harmful to it in another. The point is that the gold standard is an absolute prerequisite for a rise in marginal productivity to be beneficial. Only the gold standard can prevent wholesale capital consumption. Only the gold standard can provide the necessary background of stable interest rates or, more precisely, a gentle fall in the rate of interest due to an acceleration in the accumulation of capital as compared to population growth, so that a steady rise in marginal productivity along with production and employment be assured. This brings the role of pension funds into a sharp focus. An increase in population growth rates, whenever they may occur, will soon enough cause an acceleration of capital accumulation due to an increase in the demand for pension rights. The new capital thus created must be put to work in an optimal way.

Without the proviso on stable interest rates that can only be guaranteed by a gold standard it is possible that increasing marginal productivity may lead to diminishing of output and employment, that is to say, to deflation. *The gold standard, contrary to the propaganda of its detractors, is the chief guarantor that deflation will not occur while marginal productivity keeps increasing —*

assuming that private pension funds provide fully funded plans for the benefit of the prospective pensioners. Only investments in improvements of production methods can make sure that future pensions can be paid when they are due.

Thesis, anti-thesis, synthesis

Mises built his theory of interest exclusively on the basis of time preference and categorically rejected the idea that the productivity of capital had anything to do with the rate of interest. The fact is that a *synthesis* between the two competing and seemingly antagonistic theories is possible, as I have shown in my lectures in which I developed my own theory of interest that extends Carl Menger's idea of distinguishing between the asked and bid price from the commodity to the bond market.

I start by defining the rate of interest as that rate at which the coupons will amortize the market price of the gold bond. As the latter could well be higher or lower than face value, the actual rate of interest could be *lower* or *higher* than the coupon rate. It is important to note that the relation between the two is *inverse*. Only in the statistically rare event when the market price of the bond coincides with its face value will the rate of interest be equal to the coupon rate.

With Menger's insight that the market does not produce one price for the gold bond but, in fact, it produces two: the higher *asked price* and the lower *bid price*. Transactions take place between these two extremes. This means that the actual rate of interest varies between the floor and the ceiling, and vary it does inversely with the bond price, so that the asked price corresponds to the floor, and the bid price to the ceiling of the range for the rate of interest.

My theory asserts that the floor for the rate of interest is determined by marginal time preference, i.e., time preference of the marginal bondholder. The ceiling is determined by the marginal productivity of capital, i.e., the productivity of the marginal producer. The rate of interest could not fall through the floor because it would be resisted by the marginal bondholder selling his bond (a future good) to keep the proceeds in gold (a present good). Nor could it go through the ceiling because it would be resisted by the marginal producer selling his capital goods to put the proceeds into higher-yielding bonds.

Thus the floor and the ceiling are conceptually different. They are subject to different forces acting independently of one another. In more detail, the floor is regulated by the arbitrage of the marginal bondholder between the bond market and the gold market according to marginal time preference and, by contrast, the ceiling is regulated by the arbitrage of the marginal producer between the capital goods market and the bond market according to the marginal productivity of capital.

Mises passed over these instances of arbitrage. In particular, he missed the arbitrage of the marginal producer who, in leaving his own capital goods idle and buying the bonds of his more productive colleagues whenever interest rates rise and, conversely, selling the bonds at a profit and redeploying his own idled capital goods when interest rates fall, provides a clear manifestation of human action playing a fundamental role in regulating the rate of interest. As this analysis shows, there is an interaction between changes in the marginal productivity of capital and the rate of interest — something Mises overlooked when he dismissed productivity considerations from his theory of interest. I had to go back to Menger for inspiration to make the correction. My theory of the origin of interest is motivated by Carl Menger's theory of the origin of money.

Is there life after Mises?

I am an admirer of Mises who unquestionably made a great contribution to economic thought. After Menger, he will in all probability prove to have been the greatest economist of the 20th century. But Mises was a modest man and never took the view that his own word should be taken as dogma. He would have been made uncomfortable by those of his followers today who, effectively, frown upon further economic research by treating Mises' work as the last word, and who automatically disagree with anyone who proposes a different view. No branch of human knowledge can advance under such circumstances. “

I have always considered it my duty to point out errors, whatever the consequences. This attitude on my part is in fact completely uncontentious — it is merely a way of advancing knowledge “without fear or favor”. So it is unfortunate that, when it involves something Mises said, I am the object of personal attacks by those who seem to want to preserve his work, frozen in time — instead of treating it as an important contribution that serves as a basis

for further research and better understanding. I can do no better than quoting Mises himself:

Calling names is quite out of place if the accuser is not in the position to demonstrate clearly in what the deficiency of the smeared author's doctrine consists. The only thing that matters is whether a doctrine is sound or unsound. This is to be established by facts and deductive reasoning. If no tenable arguments can be advanced to invalidate a theory, it does not in the least detract from its correctness if the author is called names... Those who call authors with whom they disagree names merely confess their inability to discover any fault in their adversaries' theories.

Marginal productivity of labor

In *Human Action* Mises does not treat marginal productivity. There is one sentence on the marginal productivity of labor in the essay *Planning for Freedom*. I have quoted that sentence above. More can be found on this subject in his *The Anti-Capitalistic Mentality* (see References).

Following Mises I define the marginal productivity of labor to be the change in net output upon the elimination of a marginal worker from the labor force. A worker is called marginal if his contribution to net output is smaller (at any rate, no greater) than that of any other worker. It is that worker whose job has become obsolete as it is no longer justified on grounds of productivity and will be terminated by the producer at the first opportunity. (In his original definition Mises did not qualify the noun "worker" with the adjective "marginal". This would appear to leave the concept of marginal productivity of labor ambiguous.)

It is important to distinguish between two distinct possibilities of increasing marginal productivity of labor, and to analyze the difference.

Marginal productivity may increase when workers reaching retirement age are replaced by newly trained workers aided by newer, better tools. The new marginal worker produces more than the recently retired marginal worker. This means that the marginal productivity of labor has increased. Note that total output and employment has also increased. We may call this the progressive way of increasing the marginal productivity of labor.

The other possibility is very different. Here the marginal worker has been laid off without replacement. The next most productive worker now becomes the marginal worker. There is no improvement in tools and production methods, only a shift of the margin from less to more productive labor. As a result, both output and employment shrink. We may call this the

retrogressive way of increasing the marginal productivity of labor. As an example how this might happen, consider an increase in the rate of interest. It will turn marginal workers into submarginal workers, earmarking them for layoff, thereby increasing the marginal productivity but decreasing total output and employment.

The difference between the progressive and retrogressive increase in the marginal productivity of labor can also be seen in relation to capital. In the progressive case there is capital accumulation. Newly perfected tools are introduced and freshly trained workers employed. This is a dynamic change that cannot help but increase total output and employment. In the retrogressive case, the change has increased marginal productivity at the expense of employment, and there is capital decumulation. Material factors that are still serviceable are phased out of production, along with the elimination of marginal workers. No new factors of production are introduced, only the attrition of workers and their obsolescent tools is stepped up.

Marginal productivity of capital

Apparently Mises has never defined the concept of the marginal productivity of capital formally (although he refers to it in *Human Action* and also in *The Anti-Capitalistic Mentality*). Presumably he shied away from developing this aspect of the theory because it would reveal that a position according to which productivity has nothing to do with the rate of interest is untenable.

I define the marginal productivity of capital as the change in net output which occurs when a marginal material factor is withdrawn from production. A material factor of production is marginal if its contribution to net output is smaller (or, at any rate, no greater) than that of any other of the same value. It is that piece of equipment or plant that the producer discards first — because it is insufficiently productive — at which time another piece of equipment or plant with a higher productivity takes its place.

Again, it is important to distinguish between two distinct scenarios in which the marginal productivity of capital can increase, and to analyze the difference. The first is the scenario in which the producer plays an active role. In making investments to improve tools and methods of production he aims at producing a greater amount of goods than before. There is a dynamic shift from the less to the more productive through reshuffling workers and tools. Whether the removal of a marginal piece of equipment or plant simply means reassigning it to a new task in a way that would increase total output, or

whether it means scrapping and replacing it with brand new material factors, makes no difference. In neither case is there a contraction of output or employment; there might well be an increase. We may call this the progressive way of increasing the marginal productivity of capital.

The other scenario is very different. Here the producer plays a passive role. He responds to forces outside of his control and leaves marginal material factors of production idle, laying off workers who have been producing with the now-idle equipment in the now-idle plants. Marginal productivity increases solely on the strength of a shift to another marginal material factor that was already in service. There is no improvement in tools and production methods *per se*, only a shift of the margin from the less to the more productive. As a result, marginal tools and plants are rendered submarginal. Both output and employment shrink. We may call this the retrogressive way of increasing the marginal productivity of capital. Typically it occurs whenever the rate of interest rises.

An important special case is the action of the marginal entrepreneur. When there is an increase in the rate of interest, he sells his idle equipment or plant and buys bonds. This allows him to participate in the earnings of other producers whose material factors do produce at a higher productivity than his own. When the rate of interest subsequently declines, the marginal entrepreneur sell his bonds at a profit and, with the proceeds, buys new plant equipped with new tools. Now he can compete successfully with other producers.

Clearly, this is arbitrage between the capital goods market and the bond market. It reveals that the marginal productivity of capital sets the ceiling to the range within which the rate of interest can vary. The arbitrage of the marginal producer between the market for the material factors of production and the bond market is a most important instance of human action, one that promotes not only the stability of interest rates, but that also helps renew society's park of capital goods. Along with the analogous arbitrage of the marginal bondholder between the bond market and the gold market, they are indispensable for the understanding of the forces that govern the rate of interest, and their bearing upon the pension problem.

Relation between the marginal productivity of capital and labor

The first interesting question that arises in connection with the pension problem is the relation between the two marginal productivities: that of capital

and labor. The observation, made by Mises, that improvement in the marginal productivity of capital must precede and exceed that of labor, is justified by the necessity to create the funds needed to improve the quality of life of the working people. This is why the health of the pension plans has such an overwhelming importance. The first impetus in the long chain of improvements from the marginal productivity of capital, through the marginal productivity of labor, through the improvement in wages to the improvement of pensions must come from the pension funds themselves. If they are healthy (meaning fully funded), then they can serve as the source from which the capitalist borrows the funds, and lends them to the entrepreneur, who will invest them in either more tools or in research leading to new production methods.

The second question is how to allocate the potentially available new capital between simply purchasing more tools, or investing it in research and development to find improved production methods. Further analysis will show how this allocation problem is solved. Clearly, it cannot be solved at the level of the shop-floor, or even in the executive board-rooms. The decision must take into consideration demographic movements such as the net increase in the number of pensioners relative to the number of new entrants to the plans.

I have treated this allocation problem in my other writings by graduating to what I call the *hexagonal model of capital markets* involving six participants: the annuitant, the annuitand, the entrepreneur, the inventor, the capitalist and, finally, the investment banker (see References). Depending on the changing balance between the annuitands and annuitants (otherwise expressed, taking into account the demographic shifts between pensioners and workers), more or less funds will be allocated to the inventors working on improving production methods, as opposed to funds spent on the acquisition of more tools. The point is that the market will always find the “optimal mix”, fitting the given data, provided that it can operate freely, and the central bank is constitutionally barred from “regulating” the rate of interest.

Mises: happy warrior combatting inflation

The strength of Mises is in his unflagging criticism of inflationism. Unfortunately, sometimes this goes at the expense of drawing a clear line between inflationism and deflationism. Mises treats deflation in an off-hand fashion, as if it was merely a side-effect of previous inflation (credit expansion). Unfortunately, this hardly does justice to the problem. We now

know that deflation is a great problem of economics in its own right. For example, Mises deals with the perennial effort by the government and the banking system to suppress the rate of interest, if need be all the way to zero, only as a manifestation of inflation. He ignores the possibility that the government and banking system may succeed in pushing the rate of interest down all the way to zero without triggering hyperinflation, and in doing so unwittingly causing deflation. Declining interest rates are responsible for the hard-to-detect erosion and destruction of capital that is plaguing the world economy right now.

Incidentally, the same effect of artificially suppressing the rate of interest also furnishes a major part of the explanation for the Great Depression of the 1930's. In the same order of ideas I also mention that in the public mind the deliberate wrecking of the gold standard by the government is firmly associated with inflation. But as a more detailed analysis will show, the absence of gold standard could also cause deflation by making interest rates fall, namely, by rendering bullish bond speculation risk-free.

I hope that my contribution to the solution of the vexing problems of the theory of interest will help to end the century-old fratricidal war between the time preference and the productivity schools, and will bring us closer to the day when the Austrian theory of interest is universally recognized — just as the Austrian theory of value is recognized already.

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