

INTEREST AND THE LENGTH OF PRODUCTION: A REPLY

MATEUSZ MACHAJ

ABSTRACT: The article responds to the main points raised by Howden (2016) in his comment on Machaj (2015). Most of them appear not to argue against the model developed in my paper, but argue in favor of most likely scenarios to happen in empirical reality and therefore most probable events to be depicted in the model.

KEYWORDS: capital theory, interest, production structure, labor intensity

JEL CLASSIFICATION: B13, B53, D24, E43

I would like to thank Dr. David Howden for appreciating my article and attempting to criticize its extension of the Rothbardian framework of monetary approach to the production structure. Howden's polemical comments allow me to clarify my initial article on the issue. The response below generally acknowledges relevant points, as I believe most of the quibble comes from my unclarity of presenting the framework.

Before I move to specific points, let me briefly summarize what has been done in the first article. The Austrian tradition for a long

Mateusz Machaj (mateusz.machaj@uwro.edu.pl) is on the Faculty of Social and Economic Studies, Jan Evangelista Purkyně University in Usti nad Labem; and the Institute of Economic Sciences, the University of Wrocław.

time assumed that increased savings leading to lower interest rate increase length of production. In the recent years two important scholars illustrated that under equilibrium the production actually shrinks with lower interest rates (although increased savings are prolonging it). In my extension of Rothbard's framework—at the same time fully compatible with Fillieule (2007) and Hülsmann (2011)—it is shown that decreased interest rate cannot be tied in a monotonic manner to the length of production either way. When interest falls, the production can get shorter or longer, depending on the additional variable called intertemporal labor intensity (ILI). Each of the important Austrian contributions to capital theory, among others, e.g., Rothbard (2004), Hülsmann, Huerta de Soto (2006), Fillieule, Skousen (1990), Hayek (1931), assumes a specific height of this variable. The aim of my graphs was to show that depending on how big or small ILI is, a lower interest rate may lead to longer or shorter processes. Moreover, I also showed that putting a specific *ceteris paribus* clause on ILI variable is challenging and debatable either way. Additionally, I am not questioning the fact that interest rate falls because of a higher amount of savings.

My work is hardly anything new. Most of it stems from Rothbard's trapezoid and other Austrian approaches. I merely noticed that all those methods, or actually *examples*, simply differ in the spending pattern on labor (with originary factors) and capital goods. With that in mind I would like to address some of the key points raised by Howden.

1. *Does it matter for the length of production who saves the money?* (Howden 2015, p. 346)

In the extension of the Rothbardian framework I did not place an assumption—which would be very limiting—about the sources of increased savings. As Howden states, it simply does matter who saves the money invested in the productive structure, whether the savings is on the part of capitalists or workers. The confusion stems possibly from the fact that in the model it is assumed that workers are pure consumers, therefore *by assumption they cannot save*. Such an assumption is made for simplicity. Once any of the workers decides to save his income, he immediately becomes part of the capitalist-entrepreneur group. By assuming that under equilibrium workers (and original owners) spend all of their income I was merely following Rothbard and Böhm-Bawerk's tradition.

Yet if required, the assumption could be abolished without any problems for the model.

I am therefore in total agreement with Howden that total savings are important for the structure, and the exact composition is of secondary issue. I did not claim otherwise.

2. *Can total savings increase with total consumption staying at the same level?* (Howden 2015, p. 348)

Here is perhaps my biggest objection to Howden's statements, for he seems to be denying the possibility of increased total savings with no corresponding decrease in total consumption. The solution is fairly easy and has been demonstrated in Rothbard's framework too. The intertemporal circular flow, Rothbard's trapezoid, is built in such a way (as is any circular flow actually) that one person's spending is someone else's income. In equilibrium, capitalists' spending on consumption is their net income. All monetary surpluses that they earn are spent fully on consumption (such is the state of equilibrium). Now, assume that capitalists suddenly (*for whatever reason*¹) decide to save all of that income and spend it fully on higher wages of workers.

Does their decision of decreased consumption change the amount of total savings? Absolutely, additional money is withheld from consumption and spent in the production structure for higher wages. Does this lead to a decrease in total consumption? Absolutely not, since wages are then in turn fully spent on consumption. To use a numerical example as simple as possible: assume that total profits of capitalists are equal to one million monetary units, and in equilibrium they are fully spent on consumption. If they decide to not consume and save all that income, total savings go up by one million dollars. The immediate effect would also be a decrease in consumption by one million dollars. But wait a minute—the money saved by capitalist is not hoarded in their cash balances; it is being invested in the productive structure. Assume now that all

¹ Reasons could be multiple. One non-controversial example is: decreased time preference on the part of capitalists, so that they are ready to accept lower returns with the same waiting time and overall output. Lower time preference lowers the "D" (discounting) factor in DMVP, Discounted Marginal Value Product, so overall DMVP gets higher (with MVP being the same). In other words, wages are higher for doing exactly the same thing.

of that money goes for higher wages of workers, who then in turn spend it fully on consumption. Wages are higher by one million dollars, and so is consumption. Decreased consumption on the part of capitalists by one million dollars is balanced by increased consumption of workers by one million dollars. At the same time that total savings (productive expenditures) are higher, so is the wage fund. And the interest rate is also lower despite the same levels of total consumption in the economy.

Notice that I am not claiming that such scenario is likely. Naturally all of the additional savings by capitalists do not have to be spent on higher wages: it can be hoarded (something which I did not analyze, because like Rothbard I assume a form of monetary equilibrium), or spent on capital goods or both capital goods and labor (something I do analyze in the paper briefly discussing possible scenarios and their likelihood).

3. *Is there no causal explanation of why the interest rate falls?* (Howden 2015, p. 350)

Despite the limited scope of the paper, my answer to the question would be very simple, as it poses no great challenge. The interest rate falls, because capitalists decide to save more of their income and invest it in the structure of production. I did not deny that interest rate depends crucially on savings decisions. It does. What was questioned was the idea that particular movements in the interest rates (up or down) because of changes in savings have to always be transferred in a monotonic manner into necessary longer (Rothbard, Huerta de Soto etc.) or shorter production structure (Fillieule, Hülsmann). Both of the sides seem to have missed the importance of intertemporal labor intensity.

Henceforth the interest rate falls, because capitalists decide to save more. Something what Howden believes, and I am in complete agreement with him on this.

4. *Is there no explanation of why the intertemporal labor intensity shifts occur?* (Howden 2015, p. 353)

I have not studied extensively how shifts in labor spending occur in the production structure just as the economist drawing demand-supply schedules does not have to fully and extensively discuss causes for the curve-shifts. Nevertheless, in the last section of the article I have claimed that it is an empirical question. I also

suggested that with increased production of capital goods, relatively more labor is to be hired in the later stages of production in the service sector.

The shifts in spending occur, because they are done by capitalist-entrepreneurs *for some reason*. They believe they have found increased value, wrong factor prices which do not reflect discounted output value. Such a belief in profit opportunity leads to changes in the spending pattern. Theoretically shifts can happen either way, although historical experience suggests to us that allocation of labor would dominate in favor of the later stages of production.

In the later part of his comment Howden is approaching more general problems, which are addressed towards the much broader issue of *how exactly* one should measure the “length” of production. I believe it to be something discussed outside of the simple model I presented in my initial paper. I am open to further advancements, since the exact empirical dimension for “length” has been haunting the Austrians since Böhm-Bawerk. My aim there was to extend the existing Austrian framework wonderfully constructed by Rothbard.

There the explanation for changing of the spending pattern is also not difficult: it is a conscious decision on part of the entrepreneurs/capitalists. I fully follow Rothbard in that line.

Additional thoughts

I would also like to refer to the side issue—which does not concern the major aspect of the model—about Howden’s suggestion that higher wages are to be paid out only when the “capital stock” is increased (Howden, 2015, p. 354). If he means some amount of capital goods, then the statement is true under three very crucial assumptions (putting aside the quite important Lachmannian dimension problem of measuring capital stock!): fixed knowledge, some form of homogeneity of labor, and fixed time preferences. With such limiting assumptions, bidding for higher wages would happen only with more capital stock. But are we not going too far? After all, time preference may change, the discounting factor may fall, so that DMP gets higher—that is the whole point of Rothbard’s trapezoid (see footnote 2). Even without an increased “capital stock,” more savings may simply lower interest rates, because capital owners are ready to accept a lower reward for Rothbardian waiting in the trapezoid.

As I also argued in my paper, we do not have to limit Rothbard's important contribution with such features. We can easily abolish both of the first two assumptions. First of all, additional knowledge—leading, for example, to better management or to technological advancement—can favor increased wages even without an increased stock of capital goods (a case always tied to the real-world capitalist processes²). Second of all, and perhaps a derivate of the former, the same worker does not have to have the same marginal productivity in each sector, or each stage. Even without investing in “human capital” and training the worker, the entrepreneur may simply discover higher potential for the specific factor of production elsewhere. Again, even without increased capital stock. Of course we can introduce the third assumption under equilibrium: that it has to be the best of all possible worlds. But then we limit the framework further and also completely disarm ourselves to discuss the process of change, since no change would be initiated in the best possible world. It is also important to keep in mind that wages in Rothbard's trapezoid are nominal, not real.

At the end of the article, Howden attempts to move deeper into the capital issues by trying to address the concept of “capital intensity.” In general he seems to believe that the whole concept of “length” of production should be treated with caution, and perhaps even abolished in favor of his examples of capital intensiveness. I have no problem with the arguments and I believe this to be a promising future research possibility, which in no way contradicts my sketching of the Rothbardian trapezoid (apart from the fact that calling higher capital intensity as “lengthening” may be stretching the meaning of the word). If any of his suggestions stand in the way of my graphs, then he is in reality addressing the Rothbardian framework in general, not my broader presentation of it, as I only provided supplementary examples of how additional savings may alter the structure. Actually, anyone can experience the same thing by simply trying to invent their own trapezoids with unique numerical examples, and not just repeating the already existing ones. The simple pedagogy of the Rothbardian framework is actually very illuminating.

² Economic history of the West clearly shows that increases in wages and overall output greatly surpass increases in the capital stock.

Howden could argue that the structure empirically can only move the way described in *Man, Economy, and State*. This is something I believe is hard to do, though not impossible. Yet even under such a strict generalization the illustration from my article would serve some purpose: to show that something is impossible, or hardly possible. This is a notion I am not denying, but actually softly arguing for as empirically labor is being reallocated into the service sector. Hence, in the end, Rothbard is generally focusing on empirically relevant cases in which a lower interest rate (caused no doubt by increased savings) does lead to longer processes after all. My argument, however, is that this movement is not the result of lowered interest, but of building more of the capital structure supplemented by reallocation of labor into later stages of production (a decrease in the intertemporal labor intensity). In other words, it appears that somewhat contrary to Filleiule (2007) and Hülsmann (2011), Rothbard was right, but for the wrong reasons.

REFERENCES

- Fillieule, Renaud. 2007. "A Formal Model in Hayekian Macroeconomics: The Proportional Goods-in-Process Structure of Production" *Quarterly Journal of Austrian Economics* 10, no. 3: 193–208.
- Hayek, Friedrich A. von. 1931. "Prices and Production." In Joseph Salerno, ed., *Prices and Production and Other Essays*. Auburn, Ala.: Ludwig von Mises Institute, 2008.
- Howden, David. 2016. "The Interest Rate and the Length of Production: A Comment" *Quarterly Journal of Austrian Economics* 19, no. 4: 345–358.
- Hülsmann, Jörg Guido. 2011. "The Structure of Production Reconsidered." Working paper. Available at http://granem.univ-angers.fr/_resources/Cahiers/2011/DT_GRANEM_034.pdf.
- Huerta de Soto, Jesús. 2006. *Money, Bank Credit, and Economic Cycles*. Auburn, Ala.: Ludwig von Mises Institute.
- Machaj, Mateusz. 2015. "The Interest Rate and the Length of Production: An Attempt at Reformulation" *Quarterly Journal of Austrian Economics* 18, no. 3: 272–293.
- Rothbard, Murray N. 2004. *Man, Economy, and State with Power and Market*. Auburn, Ala.: Ludwig von Mises Institute.
- Skousen, Mark. 1990. *The Structure of Production*. New York: New York University Press.