COMMENT ON "A CAPITAL-BASED THEORY OF SECULAR GROWTH"

LUCAS M. ENGELHARDT

> The distinguishing feature of a recipe is that, once learned, it generally does not have to be learned again.
> — Murray N. Rothbard (2009, p. 11)

Andrew Young (2009) suggests a capital-based theory for secular growth that is consistent with Austrian capital theory. He argues that investment in intangible capital can create secular growth through a combination of external effects (because intangible capital is nonrivalrous), and opening paths for further innovation ("standing on the shoulders of giants"). In reality, all that is required for secular growth is that some form of nondepreciating capital is produced. So, the central insight from Young (p. 49)—that "technological change [is] the output of intangible investments and, therefore, a capital-based engine of sustainable secular growth"—is stronger and simpler than Young suggests. To demonstrate this, I will present two examples styled after Salerno (2001).

Suppose Robinson Crusoe has 24 hours a day in which to fish. With his current state of knowledge and with items that are freely available on his island, he can catch 1 fish per hour—giving a total income of 24 fish per day. He chooses to spend part of this income on various leisure activities (like sleep), so he doesn't necessarily catch 24 fish per day. Also, his time preference implies that he saves 12.5 percent of his income, and this "saving" is in the form of spending time working on some sort of investment. Consider two different investments: one in depreciating capital (a net), and one in nondepreciating capital (an idea for a more efficient fishing method). For depreciating capital, we have the following:

Lucas M. Engelhardt (engelhardt.26@osu.edu) is a graduate student at Ohio State University.

Before Capital is Complete

Total income: 24 fish
Savings Rate: 12.5 percent
Savings: 3 fish
Result: 3 hours work on a net

After Capital is Complete

Total income: 48 fish
Savings Rate: 12.5 percent
Savings 6 fish
Result: 3 hours work on a (replacement) net[1]

In this case, if the net depreciates, then the three hours of "savings" work will simply replace the net, and there will be no secular growth unless the savings rate increases. This is, in essence, the argument from Salerno (2001)—and from standard neoclassical growth theory. For capital accumulation (of depreciating capital) to lead to secular growth, it must be the case that time preferences continuously decrease. Now, consider the case of nondepreciating capital:

Before Capital is Complete

Total income: 24 fish
Savings Rate: 12.5 percent
Savings: 3 fish
Result: 3 hours thinking of a new idea

After Capital is Complete

Total income: 48 fish
Savings Rate: 12.5 percent
Savings: 6 fish
Result: 3 hours thinking of a new idea

In this case, there is room for secular growth even without "external effects"—in fact, there can be no external effects as Crusoe is the only actor in the economy. All that is required for secular growth is that ideas,

---

[1]I'm assuming something of a "consumption smoothing" behavior for simplicity. This avoids having to treat the "building" and "maintenance" periods for the capital differently.

once produced, are not forgotten—that is, that ideas are a form of "non-depreciating capital." Young's "intangible capital" is—at least in part—a form of nondepreciating capital.

Now, suppose that Crusoe had to study every morning to keep from forgetting ideas—that is, ideas depreciate. In that case, secular growth vanishes. If Crusoe is alone, the only difference between the net and the idea in the previous example is that one depreciates while the other does not. Since there is no one else on the island, nonrivalry is irrelevant. So, to give nonrivalry a chance, consider a case where there are two people on the island. Imagine that Friday is on the other side of the island, and that he benefits from a natural ability to use information in Crusoe's mind—that is, Crusoe's knowledge is nonrivalrous, so when he learns something there is an external effect. In that case, we still would not see secular growth as long as ideas depreciate.[2] If the savings rates for Friday and Crusoe stay constant, they will only maintain the depreciating capital (tangible or not, rivalrous or not) that they have accumulated. The only difference between this case and the case where Crusoe is alone is that an investment in ideas by Crusoe is more productive than in the case where he is alone.

If we think of technological ideas—Rothbard's "recipes"—as a form of nondepreciating capital, then investments in new recipes may possibly[3] provide an engine for sustainable secular growth. In itself, nonrivalry is not enough to provide this possibility—nor is it necessary.

REFERENCES

Garrison, Roger W. 2001. *Time and Money: The Macroeconomics of Capital Structure*. London: Routledge.

Rothbard, Murray N. 2009. *Man, Economy, and State with Power and Market*. Auburn, Ala.: Ludwig von Mises Institute.

Salerno, Joseph T. 2001. "Does the Concept of Secular Growth Have a Place in Capital-Based Macroeconomics?" *Quarterly Journal of Austrian Economics* 4 (3): 43–61.

Young, Andrew T. 2009. "A Capital-Based Theory of Secular Growth." *Quarterly Journal of Austrian Economics* 12 (1): 36–51.

---

[2]Also, it is impossible to achieve secular growth by "standing on the shoulders of giants," as the giants continuously "shrink."

[3]For growth rates to be sustained, it would have to be the case that the productivity of new ideas is constant—so, for example, each new idea would double Crusoe's catch. If there is a diminishing marginal productivity of ideas, then—as is true in endogenous growth models—sustainable secular growth will not occur.