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A MATHEMATICAL VERSION OF GARRISON'S MODEL

NICOLÁS CACHANOSKY AND ALEXANDRE PADILLA

ABSTRACT: We develop a simple mathematical version of Garrison's model. The purpose to develop a mathematical framework is to (1) show how such representation can be used and (2) layout a path for future work that requires a more flexible version of Garrison's treatment than the graphical exposition. While the graphical model is limited to three dimensions, a mathematical version can include more variables of interest. First, we develop the mathematical framework of Garrison's treatment. Then we apply it to the cases of increase in savings, secular growth, and the Austrian business cycle theory.

KEYWORDS: business cycle, Austrian School, Garrison

JEL CLASSIFICATION: B53, E32

1. INTRODUCTION

The contemporary literature on the Austrian business cycle theory (ABCT) is notably influenced by Garrison's model (2001).

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This model offers clear guidelines to highlight the distinctive aspects embedded in the ABCT, specifically the effects of interest rate movements in the structure of production. The impact of Garrison's model has been of such extent that, sometimes, it seems that Garrison's model is being interpreted as being *the* ABCT instead of being *one of the possible* representations of the ABCT.¹

In the theoretical literature, different extensions to the model have tried to account for open economies, growth, and risk (Cachanosky, 2014b; Fillieule, 2005; Ravier, 2011; Young, 2009, 2015). These papers extend Garrison's models work by adding missing pieces that would allow for the model to offer a better explanation to business cycles such as the subprime crisis. In the empirical literature, the model has been used to illustrate how the predictions of the model can be seen with the available data. Typically, data at the industrial level are categorized as different stages of production and then the observed behavior is compared with the model's predicted behavior (Lester and Wolff, 2013; Luther and Cohen, 2014; Mulligan, 2002, 2013; Powell, 2002; Young, 2005, 2012, 2015).² Both of these approaches present challenges. The literature shows that extensions to the model are not easy to display or interpret and that the empirical work requires putting forward assumptions too restrictive to either be realistic or offer valuable results.

Furthermore, according to Garrison (2001, p. xii), the graphical representation he offers should be interpreted to be more a pedagogical tool than a model to drive empirical research and develop theoretical nuances of the ABCT (*italics* original, **bold** added):

In the early 1970s I entered the graduate program at the University of Missouri, Kansas City, where I learned the intermediate and (at the time)

¹ While we are not arguing this is a "bad" thing, the model and Hayek's triangle have also received some critical reviews (Barnett II & Block, 2006; Hülsmann, 2001). For an alternative framework to the ABCT in the field of finance, see Cachanosky & Lewin (2016) and Lewin & Cachanosky (2016).

² Some authors offer an alternative approach; instead of categorizing industries as stages of production, the interest rate sensitivity of industries is compared. In the Garrison's model framework, this means that each industry is argued to have a Hayekian triangle of a different size regardless of its position as a stage of production in the production structure (Cachanosky, 2014a, 2015b; Young, 2012). This approach does not deal with the problem of defining stages of production and still looks at industrial level data rather than aggregates.

advanced versions of Keynesianism. Having read and by then reread the *General Theory*, **the ISLM framework struck me as a clever pedagogical tool** but one that, like Samuelson's gloss, left the heart and soul out of Keynes's vision of the macroeconomy. **It was at that time that I first conceived of an Austrian counterpart to ISLM** – with a treatment of the fundamental issues of the economy's self-regulating capabilities emerging from a comparison of the two contrasting graphical frameworks.³

Garrison's model value is also one of its main limitations. Like a demand and supply graph, Garrison's model is able to say a great deal with just a few lines. But because Garrison's model is a graphical one, it can only deal with at most three relationships (dimensions) at once. Besides the rapid increase in graphical complexity, the model is limited in the number of relationships it can handle at the same time. It is noteworthy that given the influence of Garrison's model on contemporary ABCT literature, there is no mathematical framework of Garrison's model that would allow for a more flexible model. If a graphical model exists, then a mathematical version is already implied in the model. This is the contribution of this paper. We introduce a mathematical, and arguably simple, model of Garrison's graphical model. This simple model is not intended to be a definite version of Garrison's model not to change what the model has to say, but a first step toward more complex and flexible versions as the contemporary applied ABCT literature seems to require.

The next section develops the mathematical model for Garrison's model. Section 3 applies the model to two scenarios, increase in savings and secular growth. Section 4 applies the model to the ABCT case. Section 5 offers some suggestions of how this framework can be extended to offer different variations on a theme. Section 6 offers concluding remarks.

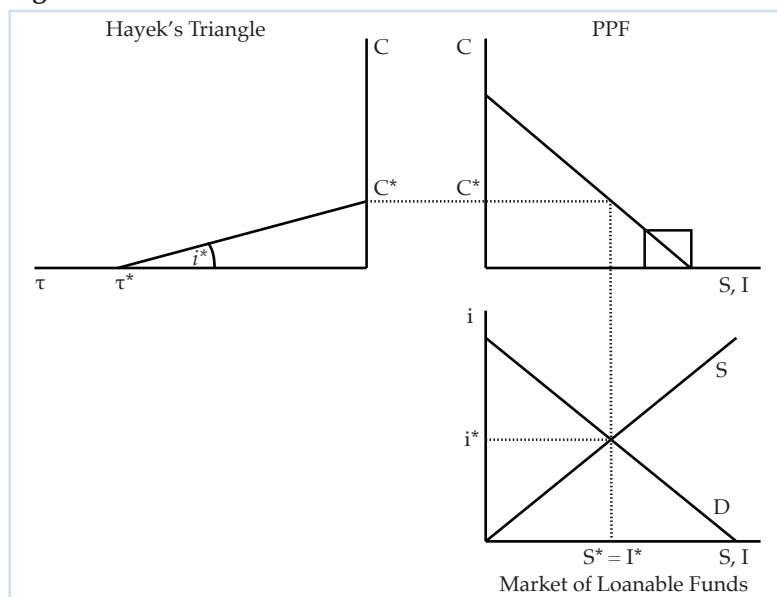
2. A MATHEMATICAL MODEL FOR GARRISON'S MODEL

Our mathematical version of Garrison's model requires making a few simplifications. The main difference between our version and

³ For Garrison (2001, p. xiii) the model goes from being a pedagogical tool to be an instrument of persuasion (in the classroom): "But because the interlocking graphics impose a certain discipline on the theorizing, they help in demonstrating the coherence of the Austrian vision. For many students, then, the framework goes beyond exposition to persuasion."

Garrison's model is that we use a linear production possibilities frontier (PPF). The reason for this is that a model with linear PPF facilitates algebraic calculations. As stated in the introduction, the purpose of this model is to offer some mathematical foundations to Garrison's model, not a complex or a more realistic model. Figure 1 depicts the Garrison's model we use in this paper.⁴

Figure 1: Garrison's Model with a Linear PPF



Before presenting the mathematical counterpart of this graph, a few clarifications are required. First, the interest rate defined in the market of loanable funds should be interpreted as a rate that *represents* the market yield (interest) curve. Investment decisions are valued with long-term interest rates, not with short-term interest rates (i.e. federal funds rate.) The ABCT argues that a credit expansion by the Federal Reserve puts into motion ABCT effects *if* the discount rate used by investors is affected as well. Put differently, this representation implicitly assumes parallel shifts of

⁴ This would be figure 3.7 in Garrison (2001, p. 50).

the yield curve, but no changes in the slope of the yield curve.⁵ Second, the PPF is not represented in terms of units of goods, like guns and butter, but in dollar amounts. This also means that one more dollar spent in consumption (investment) is one less dollar spent in investment (consumption) making a straight line PPF with slope negative one a plausible assumption. Total income (Y) is separated into consumption (C) and investments (I) (that in equilibrium is equal to savings [S]). This means that monetary illusion can confuse nominal increases of C and I with real increases (the exact location of the PPF is uncertain). Third, the base of the Hayekian triangle is intended to capture Böhm-Bawerk's average period of production (APP). This means that the base of the triangle does not measure pure-time, but value-time. As Garrison (2001, p. 49) clarifies, "[t]wo dollars' worth of resources tied up in the production process for three years amounts to six dollar-years (neglecting compounding) of production time." Because the triangle assumes a constant flow of value-time, the APP is located in the middle of the base of the triangle. The length of the base (τ), then, measures the total period of production (TPP). The fact that the APP is one half of the TPP rests on a set of important assumptions. First, there is no compounding of returns. Second, there is a constant flow of value-in-time (this explains why the triangle hypotenuse is a straight line).⁶ Finally, Austrians usually object to the interpretation that, in the ABCT, there is *overinvestment* when the theory argues for *malinvestment*. The model, however, is open to such confusion. The PPF is in aggregate terms and Garrison shows how the economy locates itself (temporarily) beyond its potential output where the level of investment is *above its potential* or when the unemployment is below its natural rate. τ increases as well. This suggests *overinvestment*. *More* roundabout methods of production can also be interpreted as *overinvestment* rather than *malinvestment* because this concept is associated with capital intensity. We do not claim that the ABCT argues for *malinvestment* while Garrison's model argues that the main problem is

⁵ Bernanke and Blinder (1992, 919) argue that the federal funds rate "is a good indicator of monetary policy," and that the "Federal fund rate is *particularly* informative [of future movements in real macroeconomic variables]."

⁶ For a more detailed discussion, see Cachanosky and Lewin (2014a), Cachanosky and Lewin (2014b) and Lewin and Cachanosky (2014).

overinvestment, but it should be pointed out that the model itself is open to the latter interpretation.

The model has four equations, (1) supply and (2) demand for loanable funds, (3) the PPF, and (4) Hayek's triangle hypotenuse. The unknowns in the model are I, r, C , and τ .

$$(1) I^D = A - \alpha i$$

$$(2) I^S = B + \beta i$$

$$(3) \bar{Y} = C + I$$

$$(4) C = i\tau$$

Where I^D and I^S are the demand (investment) and supply (savings) for loanable funds respectively. \bar{Y} is a given value of total output that is divided between consumption (C) and investment (I); this is the PPF. We should note that we assume this is a closed economy with no government.⁷ The Hayekian triangle's hypotenuse is represented by the fourth equation, which has a zero intercept and slope i . Also $A, B > 0, A > B$, and $\alpha, \beta > 0$.

The model can easily be solved. First, from the market of loanable funds we can obtain the interest rate and investment values of equilibrium. Second, the equilibrium level of investment can be used to obtain the equilibrium level of consumption. Third, with the level of consumption and of the interest rate the total and average period of production in equilibrium can be calculated.

$$(5) i^* = \frac{A - B}{\alpha + \beta}$$

$$(6) I^* = \frac{\beta A + \alpha B}{\alpha + \beta}$$

$$(7) C^* = \bar{Y} - \frac{\beta A + \alpha B}{\alpha + \beta} = \frac{(\alpha + \beta)\bar{Y} - (\beta A + \alpha B)}{\alpha + \beta}$$

$$(8) \tau^* = \frac{(\alpha + \beta)\bar{Y} - (\beta A + \alpha B)}{A - B}$$

⁷ For a treatment of Garrison's model with government, see Ravier and Cachanosky (2015).

$$(9) APP^* = \frac{1}{2} \cdot \tau^*$$

An increase in the demand for loanable funds ($\Delta A > 0$) or a reduction in the slope of the demand ($\Delta \alpha < 0$) implies an increase in i^* and I^* . Similar effects can be tracked for changes in the supply of savings in the market for loanable funds through a comparative static analysis of each parameter for i^* or I^* .

We should note that the consumption function is a linear function with an intercept \bar{Y} and a slope equal to negative one with respect to I^* . This also means that, in our model, all else equal, an increase in \bar{Y} results in an increase in consumption but not in investment. This is because the PPF is assumed to be linear where each dollar that is not spent in C is spent in I . An increase in demand ($\Delta A > 0$) or supply ($\Delta B > 0$) for loanable funds reduces the level of consumption as more resources are devoted to investment *given* a level of output. Finally, we can obtain τ (TPP) and the APP from the Hayekian triangle. The total and average periods of production are directly related to the size of the economy (\bar{Y}). Since τ^* has to be positive, it follows from equations (7) and (9) that investment cannot be larger than the output: $\bar{Y} \geq \frac{\beta A + \alpha B}{\alpha + \beta} = I$.

We can calculate the area of the Hayekian triangle (H) which is the sum of all stages of production. This would be analogous to the gross domestic expenditures (GDE).⁸ This area amounts to the total time-value investment of the structure of production and can be obtained by multiplying t with C and dividing by two:

$$(10) H = \frac{1}{2} \cdot \frac{[(\alpha + \beta)\bar{Y} - (\beta A + \alpha B)]^2}{(\alpha + \beta)(A - B)}$$

3. APPLICATIONS

3.1 Increase in Savings

A change in time preference towards an increase in savings can be captured by a positive change in B ($\Delta B > 0$). This means

⁸ The Gross Domestic Product (GDP) equals Gross Output (GO) plus Intermediate Expenditures (IE), and GO equals GDP plus Intermediate Investment (II). Then, $GO = GDP + II$ and $GDE = GO + IE$.

that, at the same interest rate in the market, economic agents are willing to supply more loanable funds. The comparative statics are straightforward.

$$(11) \frac{\partial i^*}{\partial B} = -\frac{1}{\alpha + \beta} < 0$$

$$(12) \frac{\partial I^*}{\partial B} = \frac{\alpha}{\alpha + \beta} > 0$$

$$(13) \frac{\partial C^*}{\partial B} = -\frac{\alpha}{\alpha + \beta} < 0$$

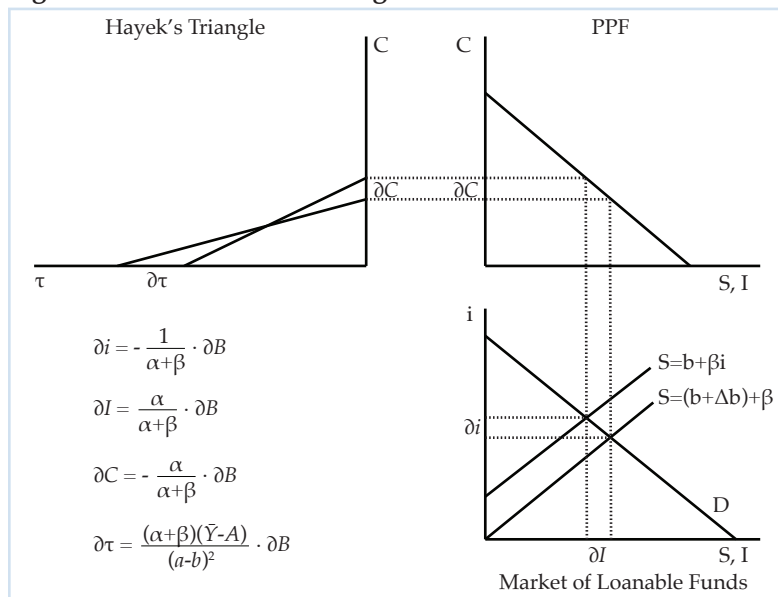
$$(14) \frac{\partial \tau^*}{\partial B} = \frac{(\alpha + \beta)(\bar{Y} - A)}{(A - B)^2} \gtrless 0$$

As expected, the increase in savings reduces the interest rates. It results also in an increase in investment equal to the reduction in

consumption $\left(\frac{\partial I^*}{\partial B} + \frac{\partial C^*}{\partial B} = 0 \right)$. But the effect on τ (and, therefore, on the APP) depends on the sign of $(\bar{Y} - A)$. Intuitively, this captures the opposite effects on APP of (1) a fall in interest rates and (2) a

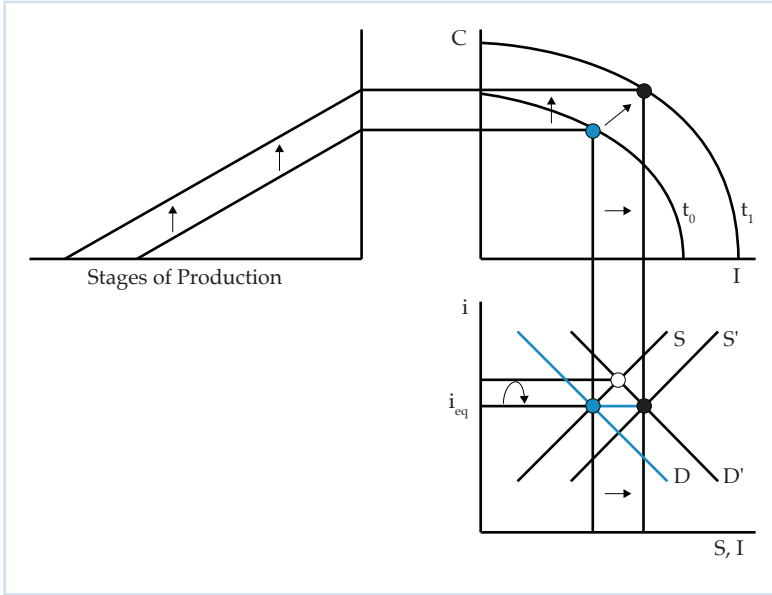
fall in consumption. Finally, we should add that, because, $\frac{\partial C^*}{\partial B}$, if $\frac{\partial \tau^*}{\partial B}$, then $\frac{\partial H^*}{\partial B}$ (the area of the Hayekian triangle decreases as well because both, height (C) and width (τ) are falling). Figure 2 shows the results (with an increase in τ).⁹

⁹ This would be Figure 4.2 in Garrison (2001, p. 62).

Figure 2: An Increase in Savings in Garrison's Model

3.2 Secular Growth

Garrison (2001, Chapter 4) presents the case of secular (technology-induced) growth. Garrison assumes that the technology growth has no effect on the level of interest rates. This case can be divided in two steps. First, the new technology increases the demand for savings by the firms. Second, there is an increase in the supply of savings *after* income increases. Therefore, the interest rate rises first and then it returns to its original level. Figure 3 reproduces Garrison's (2001, p. 59) Figure 4.1.

Figure 3: Garrison's Secular (Technology-Induced) Growth

To follow Garrison's exposition as closely as possible, we need to make three modifications to our model. First, we modify the market for loanable funds to make demand and supply of savings depends on technology and income respectively; this allows following Garrison's two steps. Second, we need to add time (t). Third, we need to add a production function to capture growth. The model now becomes the following:

$$(15) I_t^D = A_t(Z_t) - \alpha i_t$$

$$(16) I_t^S = B_t(Y_{t-1}) + \beta i_t$$

$$(17) Y_t = C_t + I_t$$

$$(18) C_t = i_t \tau_t$$

$$(19) Y_t = Z_t(K_t^{1-\gamma} \bar{L}_t^\gamma)$$

$$(20) K_t = (1-\delta)K_{t-1} + I_t$$

Subscript t denotes time, Y is not a given value anymore and follows a Cobb-Douglas production function where Z is technology, K as capital, \bar{L} as a given amount of labor, and $\gamma \in (0,1)$.

Finally, $\delta \in (0,1)$ is the depreciation rate. For a steady state where $K_{(t+1)}=K_t$, we need $I_t^*=\delta K_t$. This means that the equilibrium interest rate in the loanable funds market yields an investment value of δK_t . The equilibrium conditions now become the following:

$$(21) \ i^* = \frac{A_t(Z_t) - B_t(Y_{t-1})}{\alpha + \beta}$$

$$(22) \ I^* = \frac{\beta A_t(Z_t) + \alpha B_t(Y_{t-1})}{\alpha + \beta}$$

$$(23) \ C^* = \frac{(\alpha + \beta) \bar{Y} - (\beta A_t(Z_t) + \alpha B_t(Y_{t-1}))}{\alpha + \beta}$$

$$(24) \ \tau^* = \frac{(\alpha + \beta) Y_t - (\beta A_t(Z_t) + \alpha B_t(Y_{t-1}))}{A_t(Z_t) - B_t(Y_{t-1})}$$

$$(25) \ APP^* = \frac{1}{2} \cdot \tau(Z_t, Y_{t-1})^*$$

$$(26) \ K_t^* = \frac{\beta A_t(Z_t) + \alpha B_t(Y_{t-1})}{(\alpha + \beta)}$$

$$(27) \ Y_t^* = Z_t \left(\left(\frac{\beta A_t(Z_t) + \alpha B_t(Y_{t-1})}{\delta(\alpha + \beta)} \right)^{1-\epsilon} \cdot \bar{L}_t \right)$$

3.2.1 Short-run effect

Taking this steady state as our initial position, assume now a positive shock to technology in period t .

$$(28) \ \frac{\partial i_t^*}{\partial Z_t} = \frac{A'(Z_t)}{\alpha + \beta} > 0$$

$$(29) \ \frac{\partial I_t^*}{\partial Z_t} = \frac{\beta A'(Z_t)}{\alpha + \beta} > 0$$

$$(30) \frac{\partial C_t^*}{\partial Z_t} = \frac{-\beta A_t'(Z_t)}{\alpha + \beta} > 0$$

$$(31) \frac{\partial \tau_t^*}{\partial Z_t} \leq 0$$

$$(32) \frac{\partial K_t^*}{\partial Z_t} = \frac{\beta A_t'(Z_t)}{\delta(\alpha + \beta)} > 0$$

$$(33) \frac{\partial Y_t}{\partial Z_t} = 1 \cdot \left(\frac{\partial K_t(Z_t)^{1-\gamma}}{\partial Z_t} (Z_t) \cdot \bar{L}_t^\gamma \right) > 0$$

In the short run, the effect on τ depends on whether the increase in C (height of the triangle) more than compensates the increase in i

(slope of the triangle); recall that $\tau_t = \frac{C_t}{i_t}$.¹⁰ Note that output (equation 33) increases because there is better technology *and* because there is an increase in capital (equation 32). The excess of investment over capital depreciation increase income in future periods and, with this effect, there is an increase in the supply of savings.

3.2.2 Long-run effect

In period $t+1$ the investment and the stock of capital continue to increase. The increase in K continues until period $T \geq t+1$ where, again, $I_T^* = \delta K_T^*$.

$$(34) \frac{\partial K_{t+1}}{\partial Z_t} = \frac{\beta A_t(Z_t)}{(\alpha + \beta)} > 0$$

$$10 \frac{\partial \tau_t^*}{\partial Z_t} = \frac{\left[(\alpha + \beta) \frac{\partial Y_t}{\partial Z_t} - \beta A_t(Z_t) \right] [A_t(Z_t) - B_t(Y_{t-1})] - (\alpha + \beta) Y_t - [\beta A_t(Z_t) + \alpha B_t(Y_{t-1})]}{(A_t(Z_t) + B_t(Y_t - 1))^2} \leq 0$$

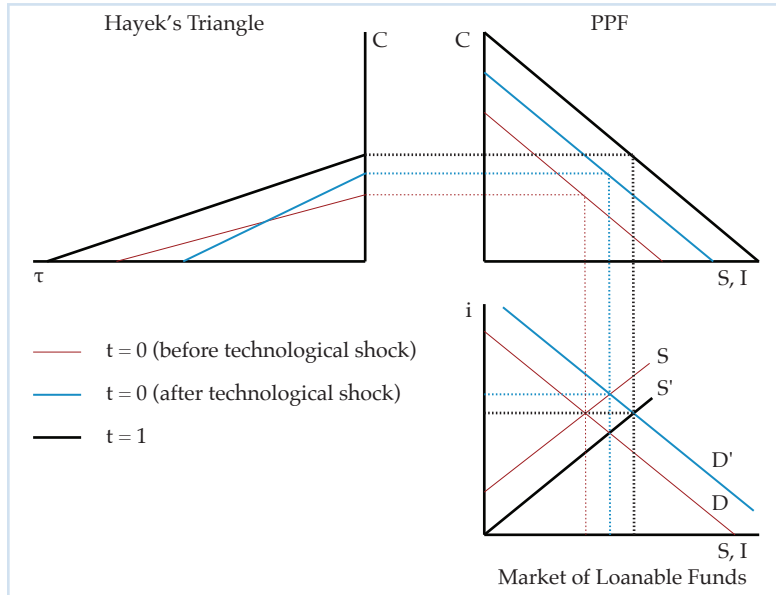
$$(35) \frac{\partial K_{t+1}}{\partial Y_t} = \frac{\alpha B'_{t+1}(Y_{t+1})}{(\alpha + \beta)} > 0$$

$$(36) \frac{\partial Y_{t+1}}{\partial K_{t+1}} = Z_{t+1} \left(\frac{L_{t+1}}{K_{t+1}} \right)^\gamma > 0$$

$$(37) \frac{\partial I_{t+1}^S}{\partial Y_t} = B'_{t+1}(Y_t) > 0$$

If the increase in I_T^S is such that $i_t^* = i_T^*$ then we obtain Garrison's secular growth graphical representation shown in Figure 3. The effects of our model are captured in Figure 4.

Figure 4: Garrison's Model with Secular Growth



4. GARRISON'S VERSION OF THE AUSTRIAN BUSINESS CYCLE THEORY

Garrison's representation of the ABCT overlaps Figure 1 with the effects of an expansion of credit by the monetary authorities. The monetary authorities' action results in a secondary supply of loanable funds that reduces i and produces an unstable situation where I and C try to increase at the same time beyond the limits of the PPF. The detachment of i from economic agents' time preference results in saving and investment not being equal anymore. The reduction in i increases τ , but the increase in consumption increases the height of the triangle. The inconsistency of trying to increase I and C (the boom) for a given \bar{Y} pulls the triangle on both sides, "breaking" the hypotenuse of the Hayekian triangle. The exact location where the hypotenuse breaks depends on the slope and relative effects on C and τ . The longer this tension is in place and the farther away i is from the equilibrium level, the more *malinvestment* is accumulated and the costlier the correction (the bust) will be. To capture Garrison's version of the ABCT we need to add a function that represents the supply of loanable funds with the monetary authority intervention (G).

$$(38) I^D = A - \alpha i$$

$$(39) I^S = B + \beta i$$

$$(40) I_g^S = B + G + \beta i$$

$$(41) Y = C + I$$

$$(42) C = i\tau$$

Where G represents the credit expansion by the monetary authorities. Garrison's model applied to the ABCT requires us to pay attention to three sets of points. First, the equilibrium values absent the central bank intervention, denoted with superscript $*$ (already solved above). Second, the values that originate from the supply of credit with the monetary expansion of the central bank. These are denoted with a subscript g . Third, the values that originate from the supply of loanable funds without the government. These private market values are denoted with the subscript p . Following the same steps than above, we can solve the model for the case of credit expansion

$$(43) i_g^* = \frac{A-B-G}{\alpha+\beta}$$

$$(44) i_g^* = \frac{(\beta A + \alpha B) + \alpha G}{\alpha + \beta}$$

$$(45) C_g^* = \frac{(\alpha + \beta) \bar{Y} - (\beta A + \alpha B) - \alpha G}{\alpha + \beta}$$

$$(46) \tau_g^* = \frac{(\alpha + \beta) \bar{Y} - (\alpha B + \beta A) - \alpha G}{A - B - G}$$

$$(47) APP_g = \frac{1}{2} \left[\frac{(\alpha + \beta) \bar{Y} - (\alpha B + \beta A) - \alpha G}{A - B - G} \right]$$

From equation 46 we can calculate the change in τ when there is an increase in credit ($\Delta G > 0$) and the elasticity of τ with respect to G $\left(\varepsilon_{\frac{\tau}{G}} \right)$. These two measures give us a proxy of the degree of roundaboutness sensitivity to the central bank intervention in the market for loanable funds.¹¹

$$(48) \frac{\partial \tau}{\partial G} = \frac{(\alpha + \beta)(\bar{Y} - A)}{(A - B - G)^2}$$

$$(49) \varepsilon_{\frac{\tau}{G}} = \frac{(\alpha + \beta)(\bar{Y} - A)}{(\alpha + \beta) \bar{Y} - (\alpha B + \beta A) - \alpha G} \cdot \frac{G}{A - B - G}$$

We can also measure the deviations between the market position with the central bank intervening and the market position in the base case without the central bank intervening.

$$(50) i_g^* - i^* = -\frac{1}{\alpha + \beta} G$$

¹¹ For the elasticity to be positive, the following two restrictions are required: (1) $(\alpha + \beta) \bar{Y} - (\beta A + \alpha B) - \alpha G > 0$, (2) $(\bar{Y} - A) > 0$.

$$(51) I_g^* - I^* = \frac{\alpha}{\alpha + \beta} G$$

$$(52) C_g^* - C^* = -\frac{\alpha}{\alpha + \beta} G$$

$$(53) \tau_g^* - \tau^* = \frac{(\alpha + \beta)(\bar{Y} - A)G}{(A - B)(A - B - G)}$$

We can now calculate the values for the market without the central bank intervening. In this case, the market reacts to i_g^* but yields an implicit i_p^* that represents the slope for late stages of production. This implicit rate is the one that prevails at the demand for loanable funds given the private supply of funds at i_g^* .

$$(54) I_p^* = \frac{(\beta A + \alpha B) - \beta G}{\alpha + \beta}$$

$$(55) i_p^* = \frac{(A - B)\alpha + \beta G}{\alpha(\alpha + \beta)}$$

$$(56) C_p^* = \frac{(\alpha + \beta)\bar{Y} - (\beta A + \alpha B) + \beta G}{\alpha + \beta}$$

$$(57) \tau_p^* = \frac{\alpha((\alpha + \beta)\bar{Y} - (\beta A + \alpha B) + \beta G)}{(A - B)\alpha + \beta G}$$

$$(58) APP_p = \frac{1}{2} \left[\alpha \frac{(\alpha + \beta)\bar{Y} - (\beta A + \alpha B) + \beta G}{\alpha(A - B) + \beta G} \right]$$

Similarly, we can measure the deviations of the market from the base scenario when the central bank intervenes in the market for loanable funds.

$$(59) I_p^* - I^* = -\frac{\beta}{\alpha + \beta} G$$

$$(60) i_p^* - i^* = \frac{\beta G}{\alpha(\alpha + \beta)}$$

$$(61) C_p^* - C^* = \frac{\beta}{\alpha + \beta} G$$

$$(62) \tau_p^* - \tau^* = \frac{(A-B) - (\alpha + \beta) \bar{Y} + (\beta A + \alpha B)}{(A-B)^2 \alpha + (A-B) \beta G}$$

The credit expansion by the central bank pushes the economy beyond the PPF by the amount G , which is distributed between the deviation in investment and consumption.

$$(63) Y_g = \bar{Y} + G$$

$$(64) (I_g^* - I^*) + (C_p^* - C^*) = G$$

The next step is to calculate the difference between the economic variables affected by G and the market reaction to the central bank's monetary policy.

$$(65) i_g^* - i_p^* = -\frac{1}{\alpha} G$$

$$(66) I_g^* - I_p^* = G$$

$$(67) C_g^* - C_p^* = -G$$

$$(68) \tau_g^* - \tau_p^* = \frac{(\alpha + \beta)[(\alpha + \beta)Y - \alpha(A - B - G)] + (\beta A + \alpha B) - 2 \cdot \alpha \beta G}{(A - B - G)[\alpha(A - B) + \beta G]} \cdot G$$

With these results we can also calculate the value of τ where the Hayekian triangle "breaks." Because we have two interest rates (i_g^* and i_p^*) we have two Hayekian triangles. The rate i_g^* defines the slope of the hypotenuse for early stages of production. The rate i_p^* defines the slope for late stages of production. We call the value of τ where both hypotenuses meet τ_B . We can estimate this value from the fact that both levels of consumption are the same (C_B) where the two hypotenuses intersect.

$$(69) C_B = (\tau_g - \tau_B) \cdot i_g$$

$$(70) C_B = (\tau_p - \tau_B) \cdot i_p$$

$$(71) \tau_B = \frac{\tau_p \cdot i_p - \tau_g \cdot i_g}{i_p - i_g} = \alpha$$

$$(72) C_B = \frac{(\alpha + \beta)(\bar{Y} - A) - (\beta A + \alpha B)}{\alpha + \beta} < C_g^* < C_p^*$$

4.1 A Numerical Example

As a final application, we offer a numerical example. For brevity, we show only a case for equilibrium and the ABCT case.

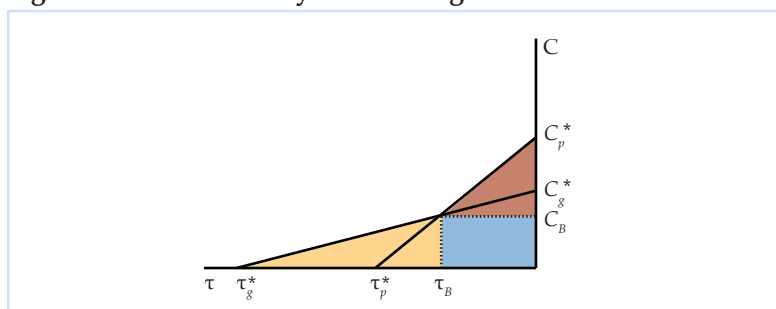
Let us calculate first the equilibrium in Garrison's model. Assume that $A=10, B=0, \alpha=0.5, \beta=0.5, \bar{Y}=100$. Then, using equations 2 to 6, the equilibrium values are $i^*=10, I^*=5, C^*=95, \tau^*=9.5, APP^*=4.75, H=451.25$.

Assuming now that government increases credit supply by amount $G=2$, using the model in section 4 we can calculate the government and private equilibria and the deviation from Garrison's base scenario equilibrium.

$i_g^* = 8$	$i_g^* - i^* = -2$	$i_p^* = 12$	$i_p^* - i^* = 2$
$I_g^* = 6$	$I_g^* - I^* = 1$	$I_p^* = 4$	$I_p^* - I^* = -1$
$C_g^* = 94$	$C_g^* - C^* = -1$	$C_p^* = 96$	$C_p^* - C^* = 1$
$\tau_g^* = 11.75$	$\tau_g^* - \tau^* = 2.25$	$\tau_p^* = 8$	$\tau_p^* - \tau^* = -1.50$
$APP^* = 5.88$	$APP_g^* - APP^* = 1.13$	$APP_p^* = 4$	$APP_p^* - APP^* = -0.75$

With these values we can calculate the change of τ with respect to the increase in credit supply (G): $\frac{\Delta \tau}{\Delta G} = \frac{2.25}{2} = 1.33$. Finally, we can also estimate the point where the Hayekian triangle breaks and the area below the broken triangle:

$$H_{ABCT} = \frac{(\tau_g^* - \tau_B) \cdot C_B}{2} + \frac{\tau_B \cdot (C_p^* - C_B)}{2} + \tau_B \cdot C_B$$

Figure 5: Area of the Hayekian Triangle in the ABCT Case

Not surprisingly, this calculation yields a higher value for the area below the hypotenuse than the base case in Garrison's model because private consumption plus investment is outside the PPF by 2, the assumed value of credit expansion; $H_{ABCT}=552.75$.¹² This is another result that invites to the *overinvestment* interpretation of the ABCT.

5. CONCLUDING REMARKS

Concurring with Garrison (2001, p. xii), this paper argues that ABCT's graphical model is limited in its ability to develop theoretical extensions to the ABCT and to be subject to empirical falsification. This paper develops a basic mathematical model of the ABCT as an alternative to Garrison's graphical model to avoid some its limitations. In this paper, we also attempt to show how this basic mathematical model is applied and vary when we consider the various applications and extensions that Garrison's (2001) graphical representations cover.

As Garrison's model, the simplicity of our mathematical representation of the ABCT is limited itself in its ability to be empirically tested. There are several possible extensions to the model that can be done to make it more applicable to explain economic crises.

First, two extensions come from applications of the ABCT to the subprime crisis. Cachanosky (2014c) and Young (2012a) apply the

¹² Because the slopes for demand and supply of loanable funds are the same (in absolute values), consumption and investment both increase each by 1.

ABCT to open economies and add a risk variable. The former does not use Garrison's model, and the latter acknowledges the difficulties of adding financial risk to the graphical version of Garrison's model. A mathematical model would allow adding more variables to the model in order to extend its applicability and help avoid graphical ambiguities. Foreign exchange rates (nominal and real), imports, exports, and risk variables are just a few variables that the ABCT needs to add to be able to fit contemporary business cycles.

Second, there are other possible extensions to the model that could be made to help the model better measure some specific aspects of the ABCT. For example, the model could add a Phillips curve to the model to capture the effects on unemployment during a boom-bust cycle and offer a direct comparison with alternative theories like the Keynesian framework similar to Ravier (2013). The model can measure labor movement across industries by adding a labor market to different stages of production (Garrison, 2001, Chapter 10; Young, 2005). Adding the government sector would allow to analyze the different effects that different ways of financing government spending would have (Ravier and Cachanosky, 2015). Does the government finance the deficit with credit expansion, increase in taxes, domestic debt, or foreign debt?

Instead of looking at the ABCT from a stage-of-production viewpoint, the model could instead incorporate different industries. In Garrison's model, the stages of production are assumed to be well defined and ordered. This assumption fulfills the role of capturing the fact that production takes time and that there is a structure of production that is efficient and avoids shortages or surpluses. But the real world is not divided in similar fashion. Each industry can be thought of as its own triangle and all of them are interconnected providing goods and services to each other (looping). A mathematical version of Garrison's model can add n industries with different *APP* and capture the relative effect on each one of them.

Finally, the model could also incorporate entrepreneurship into its analysis. For example, it could add two entrepreneurs, a *savvy* and a *naïve* one, to show that the ABCT is not built upon representative agents but that relies on heterogeneous entrepreneurs (Cachanosky, 2015a; Callahan and Horwitz, 2010; Evans and Baxendale, 2008). A mathematical framework like the one we present in this

paper opens the opportunity to explore more complex versions of Garrison's model.

REFERENCES

- Barnett II, William, and Walter E. Block. 2006. "On Hayekian Triangles," *Procesos de Mercado* 3, no. 2: 39–143.
- Bernanke, Benjamin S., and Alan S. Blinder. 1992. "The Federal Funds Rate and the Channels of Monetary Transmission," *American Economic Review* 82, no. 4: 901–921.
- Cachanosky, Nicolas. 2014a. "The Effects of U.S. Monetary Policy on Colombia and Panama (2002–2007)," *Quarterly Review of Economics and Finance* 54: 428–436. Available at <http://doi.org/10.1016/j.qref.2014.03.003>.
- . 2014b. "The Mises-Hayek Business Cycle Theory, Fiat Currencies and Open Economies," *Review of Austrian Economics* 27, no. 3: 281–299. Available at <http://doi.org/10.1007/s11138-012-0188-2>.
- . 2015a. "Expectation in Austrian Business Cycle Theory: Market Share Matters," *Review of Austrian Economics* 28, no. 2: 151–165. Available at <http://doi.org/10.1007/s11138-014-0267-7>.
- . 2015b. "U.S. Monetary Policy's Impact on Latin America's Structure of Production (1960–2010)," *Latin American Journal of Economics* 51, no. 2: 95–116. Available at <http://doi.org/10.7764/LAJE.52.1.95>.
- Cachanosky, Nicolas, and Peter Lewin. 2014. "Roundaboutness is Not a Mysterious Concept: A Financial Application to Capital Theory" *Review of Political Economy* 26, no. 4: 648–665. Available at <http://doi.org/10.1080/09538259.2014.957475>.
- . 2016. "Financial Foundations of Austrian Business Cycle Theory," *Advances in Austrian Economics* 20: 15–44. Available at <http://doi.org/10.1108/S1529-213420160000020002>.
- Callahan, Gene, and Steven G. Horwitz. 2010. "The Role of Ideal Types in Austrian Business Cycle Theory," *Advances in Austrian Economics* 14: 205–224. Available at [http://doi.org/10.1108/S1529-2134\(2010\)0000014013](http://doi.org/10.1108/S1529-2134(2010)0000014013).
- Evans, Anthony J., and Tony Baxendale. 2008. "Austrian Business Cycle Theory in Light of Rational Expectations: The Role of Heterogeneity, the Monetary Footprint, and Adverse Selection in Monetary

- Expansion," *Quarterly Journal of Austrian Economics* 11, no. 2: 81–93. Available at <http://doi.org/10.1007/s12113-008-9034-6>.
- Fillieule, Renaud. 2005. "The 'Values-Riches' Model: An Alternative to Garrison's Model in Austrian Macroeconomics of Growth and Cycle," *Quarterly Journal of Austrian Economics* 8, no. 2: 3–19.
- Garrison, Roger W. 2001. *Time and Money. The Macroeconomics of Capital Structure*. Mario J. Rizzo & Lawrence H. White, eds. 2nd ed. London and New York: Routledge.
- Hülsmann, Jörg Guido. 2001. "Garrisonian Macroeconomics," *Quarterly Journal of Austrian Economics* 4, no. 3: 33–41.
- Lester, Robert B., and Jonathan S. Wolff. 2013. "The Empirical Relevance of the Mises-Hayek Theory of the Trade Cycle," *Review of Austrian Economics* 26, no. 4: 433–461. Available at <http://doi.org/10.1007/s11138-013-0225-9>.
- Lewin, Peter, and Nicolas Cachanosky. 2014. "The Average Period of Production: The History of an Idea," *SSRN Electronic Journal*.
- . 2016. "A Financial Framework for Understanding Macroeconomic Cycles," *Journal of Financial Economic Policy* 8, no. 2: 268–280. Available at <http://doi.org/10.1108/JFEP-07-2015-0041>.
- Luther, William J., and Mark Cohen. 2014. "An Empirical Analysis of the Austrian Business Cycle Theory," *Atlantic Economic Journal* 42, no. 2: 153–169. Available at <http://doi.org/10.1007/s11293-014-9415-5>.
- Mulligan, Robert F. 2002. "A Hayekian Analysis of the Structure of Production," *Quarterly Journal of Austrian Economics* 5, no. 2: 17–33.
- . 2013. "New Evidence on the Structure of Production: Real and Austrian Business Cycle Theory and the Financial Instability Hypothesis," *Journal of Economic Behavior and Organization* 86: 67–77. Available at <http://doi.org/10.1016/j.jebo.2012.12.027>.
- Powell, Benjamin. 2002. "Explaining Japan's Recession," *Quarterly Journal of Austrian Economics* 5, no. 2: 35–50.
- Ravier, Adrian O. 2011. "Rethinking Capital Based Macroeconomics," *Quarterly Journal of Austrian Economics* 14, no. 3: 347–375.
- . 2013. "Dynamic Monetary Theory and the Phillips Curve with a Positive Slope," *Quarterly Journal of Austrian Economics* 16, no. 2: 165–186.

- Ravier, Adrian O., and Nicolas Cachanosky. 2015. "Fiscal Policy Capital Based Macroeconomics with Idle Resources," *Journal of Private Enterprise* 30, no. 4: 81–95.
- Young, Andrew T. 2005. "Reallocating Labor to Initiate Changes in Capital Structures: Hayek Revisited," *Economics Letters* 89, no. 3: 275–282. Available at <http://doi.org/10.1016/j.econlet.2005.05.033>.
- . 2009. "A Capital-Based Theory of Secular Growth," *Quarterly Journal of Austrian Economics* 12, no. 1: 36–51.
- . 2012. "The Time Structure of Production in the US, 2002–2009," *Review of Austrian Economics* 25, no. 2: 77–92. Available at <http://doi.org/10.1007/s11138-011-0158-0>.
- . 2015. "Austrian Business Cycle Theory: A Modern Appraisal." In Peter J. Boettke and Christopher J. Coyne, eds., *Oxford Handbook of Austrian Economics*. Oxford: Oxford University Press.

AN ANALYSIS ON THE RELATIONSHIP BETWEEN HOARDING, INVESTMENT AND ECONOMIC GROWTH

ALEXANDRU PĂTRUȚI

ABSTRACT: The relationship between investment, hoarding and economic growth is a rather complex one. Although both investment and monetary hoarding can be considered different instances of capital accumulation in the long run, their short term effects on economic growth can diverge. These transitory variations are based precisely on the fact that money has a driving force of its own, *i.e.* it is not neutral. I argue that hoarding necessarily implies a longer period of time between the moment when resources are saved and the moment when new consumer goods reach the market (economic growth), as opposed to the case in which the same amount of resources would be invested through the banking system.

KEYWORDS: capital theory, gross market rate of interest, structure of production, investment, economic growth, hoarding

JEL CLASSIFICATION: B13, E14, E22, E31, E41, E43, O40

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INTRODUCTION

Economic growth is the declared goal of virtually every policymaker in the world. From a pragmatic point of view, one can argue that the main purpose of political economy is to prescribe public policies which generate prosperity (Fetter, 1928). It is beyond the scope of the present article to systematically analyze all the determinants of economic growth. I will focus instead on the relationship between capital accumulation and economic growth, in the attempt to link any increase in a country's welfare to a previous increase in its stock of capital goods. However, in a monetary economy, capital can be accumulated in more ways than in a simple barter economy. The general medium of exchange grants people the possibility to accumulate resources simply by adding to their personal cash balances—an economic process which is usually referred to as *hoarding*.

It is thus the fact that money has a driving force of its own—*i.e.*, it is not neutral in the short run—that offers the foundation for the present study. I argue that increasing a society's cash balances will generate economic growth, but at a later date as compared to the situation in which the same amount of money would be directly invested. This can be proven in an *a priori* fashion by resorting to *capital theory* and using the method of *comparative statics*.

Output growth will lag behind its potential rate in the short run if people increase their cash balances because of the inability of factors' costs, especially the market rate of interest, to rapidly adjust to the variations in the demand for money. Using an organized market for saving (*e.g.* the financial market) could probably offer additional benefits in terms of speed. Thus, although *hoarding is a growth-promoting tool in the long run*, it is probably not the optimal one due to lagged adjustment in interest rates.

LITERATURE REVIEW ON HOARDING AND ECONOMIC GROWTH

As an economist, I hold that capital accumulation is the *fundamental* cause (or determinant) of economic growth.¹ This is by no

¹ It would probably be over-simplistic to say that total production is a function of capital and labor, as the familiar Cobb-Douglas function pictures it (Cobb and

means equal to saying that it is the *only* cause. One can coherently argue that there are at least three determinants of economic growth (Hülsmann, 2011): (1) *capital accumulation*; (2) *an increase in the division of labor*; and (3) *technological innovation*. The present article is a *ceteris paribus* analysis of economic growth, which assumes technological progress and the level of specialization (i.e. division of labor) to be constant. This idea of linking capital accumulation to economic growth is a rather common one. The history of economic thought teaches us that it goes as far back as Adam Smith's *Wealth of Nations* (2007 [1776], p. 213), in which the author writes that: "...the accumulation of stock is previously necessary for carrying on this great improvement in the productive powers of labour, so that accumulation naturally leads to this improvement." However, it was not until the writings of Eugen von Böhm-Bawerk (1890, 1930) that capital theory became a self-standing branch of political economy, having a distinct and systematic set of economic principles. Later, capital theory came to be associated with the so called Austrian school of economics, flourishing in the works of Hayek (1936, 2008 [1931], 2009 [1941]), Mises (1998 [1949]), Strigl (1934) and Rothbard (2009 [1962]).²

The phenomenon of hoarding, on the other hand, was less noticeable in the history of economic thought. It took the forefront of economic disputes for a short while in the famous debate between Keynes and Hayek in the 1930s. Briefly put, in 1932 J. M. Keynes, A. C. Pigou and four other economists drafted and

Douglas, 1927). Although we cannot determine a numerical relationship between the two variables, it seems clear there is a direct link between capital accumulation and economic growth.

² Two extremely interesting exceptions here would be J. A. Schumpeter and Carl Menger. Schumpeter (1934) differentiated himself from the "main body" of the Austrian school by focusing on technological innovation (and not capital accumulation!) as the main determinant of economic growth. Although he does mention that there is a strong link between credit and growth, "savings" as such do not play a significant role in promoting innovation, which is the Schumpeterian driving force of economic development (Croitoru, 2012, pp. 142–143). Carl Menger is the other notable member of the Austrian school who does not endorse Böhm-Bawerkian capital theory (Hayek, 2009 [1941], p. 46). In a comment made to Schumpeter by Menger, the latter points out that "...time will come when people will realise that Böhm-Bawerk's theory [of capital and interest] is one of the greatest errors ever committed" (Endres, 1987, p. 291). This was the case mainly because Böhm-Bawerk's approach towards the capitalist production process was much more objectivist/materialistic than that of his master (Endres, 1987).

cosigned a letter in which they discouraged savings and advocated public spending in order to fill the gap caused by the “reluctant” private sector. The letter was published by *The Times* and became what was later known as “the paradox of thrift.”³ A response letter written by F. A. Hayek, Lionel Robbins, T. A. Gregory and Arnold Plant was published only two days later in the same newspaper (Leeson, 2014, pp. 90–91). The famous LSE economists argued that although the deflationary perils of hoarding are well known since the writings of the classics, it would be a disaster for the economy if the public would stop saving through deposits in banks or securities (*ibidem*). After Keynesian economics became the mainstream theory, hoarding generally became classified as an antisocial and detrimental economic habit. The desire to hold cash at hand, which is in Keynesian terms determined by people’s *liquidity preference* (Keynes, 1936), was considered to be a process which drags the economy backwards. Nearly all policymakers today embrace the Keynesian paradigm of trying to boost aggregate demand through increased consumption in order to generate growth.

Interestingly enough, scattered theoretical insights related to this particular subject can be found in the discussions around the *doctrine of forced savings*. This should not come as a surprise, since the two topics are connected. The forced savings doctrine largely analyzes a classical case in which the producers benefit in the short run from an increase in the quantity of money to the detriment of fixed income earners (Ahiakpor, 2009). Thus, it represents an analysis on how a general increase in prices gives producers a surplus purchasing power in the short run, because of the lagged adjustment of producers’ costs (wages, rent and interest). Entrepreneurs can use their increased real earnings to lengthen the structure of production and boost economic growth. The present article, on the other hand, studies a reverse situation. The goal is to demonstrate that hoarding (i.e. an increase in monetary capital accumulation) is a rather suboptimal *growth promoting tool*, because of the short run lagged adjustment of the market rate of interest.

I argue that Hayek (2008 [1931], pp. 131–187), in particular, and the Austrian school (De Soto, 2006; Rothbard, 2009 [1962]), in

³ For a detailed analysis of the “paradox of thrift” see Hayek (2008 [1931], pp. 131–189).

general, have given abundant arguments as to why consumption cannot increase prosperity by itself. However, there seems to be a lack of economic literature which comparatively analyzes whether in a monetary economy hoarding is in any way different from investment with regards to economic growth. There are of course some notable exceptions, two of which, in my opinion, give us a glimpse of the possible attitudes one can adopt towards hoarding.⁴

The first type of attitude towards this issue is revealed to us by Eugen von Böhm-Bawerk (1930, pp. 115–116) in “The Positive Theory of Capital”:

“[...] an economically advanced people does not hoard, but puts out what it saves—in the purchase of valuable paper, in deposits in a bank or savings-bank, in loan securities, etc. In these ways the amount saved becomes part of productive credit; it increases the purchasing power of producers for productive purposes; it is thus the cause of an extra demand for means of production or intermediate products; and this, in the last resort, induces those who have the regulation of undertakings to invest the productive powers at their disposal in these intermediate products.”

It becomes clear from this quotation that according to Böhm-Bawerk, economic progress stems from the ability of a people to invest their saved resources. By doing so, economizing individuals transfer their excess purchasing power to producers, who can now start longer and more industrious production processes.

Rothbard, on the other hand, takes a somewhat different stand on the issue. He (Rothbard, 2009 [1962], p. 776) states that:

“[Hoarding] is simply an increase in the demand for money, and the result of this change in valuations is that people get what they desire, i.e., an increase in the real value of their cash balances and of the monetary unit.[...] No other significant economic relation—real income, capital structure, etc.—need be changed at all.”

From this last sentence, the message we seem to get from Rothbard is that hoarding does not have any generalized effect on

⁴ It is worth mentioning that the two conflicting views are present within the same school of thought. In spite of the fact that numerous researchers accuse “Austrians” of being too dogmatic, one can easily show that there is wide disagreement between its main proponents, even on critical discussion points.

the structure of production, and implicitly, on economic growth. This would mean that the dynamic of the capital structure is not affected by an increase in people's desire to hold cash and that no direct relation can exist between hoarding and economic growth.

I aim to prove in the following passages that one *can* present economic arguments in defense of the first view and against the second. Comparative statics can be used to show that hoarding essentially implies a lengthening of the structure of production in the long run. However, increasing monetary cash balances does not represent the optimal growth promoting tool, because of its short run transitional effects on the configuration of prices.

A SHORT GLOSSARY

Although such a list of terms is usually found at the back of a book, given the high level of dissent among economists concerning the particular notions we are going to use, I find it useful to define them *before* starting the exposition.

The first terms that we should dwell on are *consumption*, *savings* and *hoarding*, and the particular relations between them. At this point in the discussion it has hopefully become clear that I define savings as *non-consumption*. Therefore, savings and consumption are two mutually exclusive notions—*i.e.* a person can either consume a certain quantity of resources or not, in which case he is saving resources.

In a monetary economy savings can take two⁵ main forms, which are *additions to private cash balances* (*i.e.* hoarding) or *investments* (time deposits, buying stocks or bonds, or directly procuring capital goods and starting new production processes on the market).⁶ It is

⁵ It is true that the individual also has a third possible option, namely non-monetary hoarding. This would be the somewhat pathological stashing away of physical goods without a clear goal in mind. However, we consider that this is only a marginal phenomenon and therefore has a negligible impact on an aggregated level.

⁶ The terminology employed here is essentially a Keynesian one. Hayek (2008 [1931], pp. 442, 443) employs the same terms in his *Reflections on the Pure Theory of Money* of Mr. J. M. Keynes:

Clearly recipients of income must make a choice: they may spend on consumption goods or they may refrain from doing so. In Mr. Keynes's

clear that both hoarding and investing are instances when acting man foregoes present consumption, having in mind greater future satisfactions. They have fundamentally the same nature in the sense that they are dependent on people's time preferences, i.e. their willingness to sacrifice present consumption for the prospect of increasing future consumption (Mises, 1998 [1949], pp. 483–490). When people hoard, they normally⁷ withdraw a certain sum of money from their present income, a sum which they would have previously used for consumption purposes, and hold on to it for future use.

Now that we hopefully cleared out all possible confusions around the conceptual relationships between savings, consumption, monetary hoarding and investment, we can move on to the even more complicated, if not impossible, issue of defining *economic growth*. In this article I will follow Hülsmann (2011, pp. 36–37) in defining economic growth as a *systematic increase in the physical output of consumer goods*. I am fully aware of the shortcomings

terminology the latter operation constitutes saving. Insofar as they do save in this sense, they have the further choice between what one would ordinarily call hoarding and investing or, as Mr. Keynes (because he has employed these more familiar terms for other concepts) chooses to call it, between "bank-deposits" and "securities."

However, the careful reader will immediately observe that the analysis is not a Keynesian one. For Keynes a decrease/increase in saving is assumed to be the only independent factor which impinges on a relatively rigid structure of production (Hayek, 2008 [1931], p. 429). The aim of the present article is *precisely* to analyze how the structure of production *adapts* to different monetary stimuli. We agree in this respect with Milton Friedman who points out in an interview that one of the benefits of Keynes' influence on economic theory was the fact that he developed a terminology which proved useful even for those economists who do not agree with his theory (Blaug, 1990, p. 89).

⁷ I say *normally* because, at least theoretically, there is a possibility that hoarding can come from *disinvestment*. But this is, to my mind, a rather improbable outcome. Why would an investor rationally choose to withdraw his investments and keep the cash stocked away for a significant amount of time? This would mean that he would willingly choose to forgo the amount he used to receive as return on his past investment, for no income whatsoever. The only probable reason I can think of for such an action would be the fact that our would-be investor would need to make an imminent payment (i.e. he needs liquidity to buy something else), either for a consumption good, or another investment. In this case, the hoarding he generates is an extremely transitory phenomenon and can be neglected from our analysis.

of the chosen definition. However, we consider that it is almost impossible to define economic growth in monetary terms, because there is no possibility of subtracting the overlapping effects triggered by variations in the purchasing power of the monetary unit over a certain period of time from the underlining effects caused by real forces. Thus, the increase in monetary value of final goods produced in, let us say, a year, is irrelevant since the purchasing power of the monetary unit could have varied in any way because of cash induced variations (i.e. changes in the *supply of or demand for money*).⁸ To my mind, if we are not willing to drop the term of “economic growth” altogether, we must be willing to refer to it in physical terms. It is true on the other hand that we are now facing another serious problem, namely that in a society which is producing nonhomogeneous goods, there can be situations in which the production of some goods has increased, while the production of others has decreased. The economist finds himself in this case in the impossibility of deciding *ex post* whether society has experienced growth or not. Hence, the solution I propose is to refer to economic growth as a *systematic upward trend in the production of nearly all final goods*. If this general tendency exists, we can say that a society has experienced growth.⁹

THE CAUSAL RELATIONSHIPS BETWEEN HOARDING, INVESTMENT AND ECONOMIC GROWTH

Given the fact that we have already defined the economic notions that will be employed in the present analysis, and that we put the discussion into historical context, one can now proceed to the main topic of the article, which is *the study of the causal relationships between hoarding, investment and economic growth*. The way in which I aim to conduct this study is by using comparative static analysis

⁸ For a detailed analysis regarding cash induced and goods induced changes in purchasing power see Ludwig von Mises's *Human Action* (1998 [1949], pp. 419–424).

⁹ I fully concede that it is probably more rigorous from a theoretical point of view to define economic growth as an increase in the overall value in a society. But monetary calculation is the only way value can be gauged in a complex economy, and as I previously explained, variations in the purchasing power of the monetary unit can render this concept almost useless in practice.

applied on two hypothetical scenarios. After showing that both monetary hoarding and investments are growth promoting tools, I will briefly give additional arguments to suggest that hoarding brings about certain short term vagaries which can postpone future economic growth.

The Thesis

I aim to demonstrate that both hoarding and investments lead to a lengthening of the structure of production and consequently to future economic growth *in the long run*. However, I argue that savings through investment does generate additional benefits in terms of speed (*i.e.*, economic growth will be somewhat faster) and that these advantages stem from the impossibility of the price structure to adjust instantaneously to variations in the total demand for money.¹⁰ This is the same thing as saying that both hoarding and investments are growth-promoting tools in the long run, but the latter appears to be the optimal one because of its additional short run positive effects.

It is useful to point out that when I refer to “the long run,” I am merely indicating that there is a *tendency law* involved, in the classical sense of the word. Thus, there is a systematic trend in the economy to push the market towards a certain equilibrium point, even though that point will never be reached in real life.¹¹

Now in order to prove the above mentioned thesis, respectively that both hoarding and investment have the same effects in the long run, but that investment offers increased benefits in terms of speed, a few additional theoretical premises are necessary. Thus, one requires the Hayekian theory of the structure of production,

¹⁰ One would be tempted to use the term “*time lag*” to describe this adjustment process of the price structure from the old equilibrium point to the new equilibrium point. However, this would probably not be the best strategical option because this notion gives an econometric connotation to the phenomenon, which by its specific nature is unquantifiable.

¹¹ For a systematic analysis of tendency laws from the perspective of economic thought, see Blaug (1997, pp. 59–62). For a detailed inquiry of the role of imaginary constructions (including the final equilibrium model) see Mises (1998 [1949], pp. 236–251).

as presented in *Prices and Production* (Hayek, 2008 [1931])¹² and Ludwig von Mises's analysis on the interest rate from *Human Action* (1998 [1949], pp. 538–550).¹³ Aside from these two pieces of theoretical knowledge, all that is needed is to employ the method of comparative static analysis on a hypothetical example which includes two scenarios.

The Two Scenarios

Let us assume a closed economy where, for the purpose of simplification, people have only three options: to consume, to hoard cash or to open time deposits in banks (i.e. consumption, hoarding and investment). Again, for the same purpose let us assume that we are dealing with a 100 percent reserve banking system, where the only available saving products offered by the bank are time deposits, i.e. deposits that carry interest, and once you opened them you cannot withdraw the money until the specific date is due.¹⁴

In this hypothetical economy we can build two scenarios: one in which all the saved resources are invested and one in which part of the saved resources are kept in individual cash balances. The purpose of the exercise is to use capital theory to demonstrate that both scenarios lead to the same result in the long run,¹⁵ but also to gather sufficient arguments to suggest that investment would promote faster growth.

¹² I was tempted to include here also a third reference, namely Böhm-Bawerk's (1930, p. 20) famous thesis that longer production processes are necessarily more productive from a physical point of view. However, this was already included in Hayek's work (2008 [1931], p. 156): "The proposition that savings can only bring about an increase in the volume of production by permitting a greater and more productive 'roundaboutness' in the methods of production has been demonstrated so fully by the classical analysis of Böhm-Bawerk that it does not require further examination."

¹³ According to some sources (Hayek, 2008 [1931], p. 454; Ahiakpor, 2009, p. 167), this type of analysis in which the market rate of interest diverges from the equilibrium rate of interest is originally associated with the Swedish economist Knut Wicksell.

¹⁴ I willingly avoid fractional reserve banking because it allows the possibility of credit expansion, in which case the market rate of interest can virtually deviate permanently from its equilibrium level.

¹⁵ I will argue further in the article that an underlining tendency to push the market to the same equilibrium point is present in both scenarios, but the two "paths" towards this point are rather different.

Scenario One

The first scenario consists in the assumption that equilibrium is reached in our hypothetical society and that people invest—*i.e.* make time deposits of—20 percent of their annual income and use the rest for consumption purposes. Now let us again suppose that (for whatever reasons) the social rate of time preference changes and that people now save 40 percent of their annual income. Society will now move from the previous equilibrium point to a new one, in which the structure of production will be lengthened. Certain additional economic assertions can be made in this case.

First of all, the decrease in the social time preference has caused an increase in savings from 20 to 40 percent of the total income of the society (which in this particular case is equal to investment because we assumed that all the money was deposited in the banks). This means that the *market rate of interest* must decrease, because there are more resources that entrepreneurs can advance. Businessmen are now free to invest in longer production processes since credit is cheaper.¹⁶ By doing this, they increase future economic growth, since longer production processes are necessarily more productive from a physical point of view, as we know from the above cited Böhm-Bawerkian principle. In the theoretical framework we designed, this practically means that there will be an increase in the future production of consumption goods, as a consequence of the present increase in capital stock.

This should all sound rather simple and clear cut to anyone familiar with Austrian capital theory. The only thing I would like to highlight is the role played by banks as financial intermediaries in the whole process. After receiving the new funds, the banks can use them to give productive credit. The only way they can accommodate these credits on the market is, *ceteris paribus*, at a lower rate

¹⁶ They are stimulated to follow this course of action by the variations in the *net present value* of different investment projects. A decrease in the *market rate of interest*, which in this scenario coincides with the *pure rate of interest*, makes longer production process more attractive to investors. They now have the necessary purchasing power to drag resources away from production processes which are closer to final consumers, towards superior stages of productions. For a detailed analysis on the role of the net present value in Austrian economics see Fuller (2013).

of interest. Thus, the interest rate will almost *immediately* drop on the loan market because of the monetary influx.

However, the situation gets more complicated when we introduce a new “disturbing” factor into the picture—monetary hoarding.¹⁷ This will be done in the following scenario.

Scenario Two

The second scenario consists basically in the same economic tendency, *i.e.*, a society which increases its savings from an aggregated level of 20 percent to an aggregated level of 40 percent of total annual income. However, we will now introduce a further assumption, in the sense that the newly saved monetary resources (representing 20 percent of total annual income) will not be invested via the banking system, but hoarded away in people’s homes. The question which arises is whether there is any difference between this situation and the first one.

...and yes, there is. The key is to keep in mind that money has a driving force of its own and that any variation in the supply or demand for money will affect the purchasing power of the monetary unit. But the problems concentrated around the *rate of interest* are even more interesting and they should attract our attention in order to answer the research question.

When referring to interest, one usually has in mind the premium obtained over a principal sum of money which is being lent. This natural occurring phenomenon is nothing else than the *market rate of interest*, *i.e.*, interest on short to medium term loans on the money market (Mises, 1998 [1949]). This is the relevant real life indicator for gauging people’s time preference and thus the one that entrepreneurs use to adjust the structure of production (Strigl, 1934; Mises, 1998 [1949]). We know that a decrease in the rate of interest causes a lengthening of the structure of production and that this will in turn increase future economic growth (Hayek, 2008 [1931]). This is one of the main theses of Austrian capital theory

¹⁷ Again, I am using the term *disturbing factor* not because hoarding is detrimental to the economy, but because it is a temporary variation which superimposes itself over the long term trend.

and one on which the whole argument of the present paper is built. However, in order for this increase in the structure of production to take place in real life, there must be a prior decrease in the *market rate of interest*. But it is exactly this particular reason that differentiates the second scenario from the first. In the short run, the market rate of interest does not drop when people hoard a part of the saved resources. This happens because the newly saved money does not reach the capital market and is thus not transformed into productive credit. Still, this does not mean that hoarding is neutral on the structure of production, as some economists appear to suggest (Rothbard, 2009 [1962], p. 776), for the reasons that I have previously suggested.

Let us go one step further with the analysis. In order to tackle the theoretical problems surrounding the concept of interest, economists (Mises, 1998 [1949], pp. 538–545) break down the market rate of interest in three main components: *the natural rate of interest*, *an entrepreneurial component* and *a purchasing power component*. In our particular case, we are not interested in the second component, the entrepreneurial one, so we will hold it under the *ceteris paribus* clause and further discuss the remaining two elements. The natural rate of interest represents the interest rate that is achieved when a society reaches equilibrium¹⁸ and it depends entirely on the social time preference.

However, there are situations when an underlining equilibrium tendency can be in the short run affected by disturbing causes, to use Blaug's (1997, pp. 51–66) terminology. Some of the most important factors which can cause a divergence of the market rate of interest (MRI) from the pure rate of interest (PRI) in a monetary economy are variations in the relationship between the supply and demand for money. This is the reason why the market rate of interest contains a third element, a purchasing power component which adjusts the short and medium term interest rate to variations in the purchasing power of money. This third component is either

¹⁸ Economists have used a myriad of names to refer to *the equilibrium rate of interest*, including but not limited to: *originary interest* (Mises, 1998 [1949]), *natural rate of interest* (Wicksell, 1989) or *pure rate of interest* (Rothbard, 2009 [1962]). Regardless of the denomination, all terms refer to the same underlining phenomenon, *i.e.* the rate of interest which is formed after all the current tendencies have completely run their course and no further changes in market data occur.

a positive or a negative price premium: if all prices rise, it has a positive value, if all prices fall, its value will become negative. We will see further that this short theoretical discussion will help us answer our research question.

Scenario two is intended to present us with an example of a society in which there will be a short run discrepancy between *the market rate of interest* and *the pure rate of interest*. The former will remain basically the same in the short run, because the extra funds will not pour in directly on the credit market, while the latter will decrease because of the corresponding drop in the social time preference. However, as economists we know that such a situation cannot persist, given that the market has a natural tendency to eliminate such discrepancies. Ludwig von Mises (1998 [1949], pp. 538–539) is extremely eloquent on this particular subject in his economic treatise “*Human action*”:

Changes in the money relation may under certain circumstances first affect the loan market rate of interest on loans, which we may call the gross money (or market) rate of interest. Can such changes in the gross money rate cause the net rate of interest included in it to deviate lastingly from the height which corresponds to the rate of originary interest, i.e., the difference between the valuation of present and future goods? Can events on the loan market partially or totally eliminate originary interest? No economist will hesitate to answer these questions in the negative.

This is the main reason I claimed that hoarding and investment necessarily have the same effect in the long run. The market mechanism has a driving force which assures that resources are allocated in an optimal fashion. No idle resources can exist in the long run. Every time someone decides to spend less money on consumption purposes, there is a corresponding change in the productive forces of society. For every penny saved, there will be, in the long run, an entrepreneur who will marginally alter the structure of production, in the sense of making it more *roundabout*, and thus, more productive.

But we still have not answered our question. As I mentioned before, scenario one and scenario two describe two slightly different paths towards the same equilibrium point. The social time preference is the same in both of them, i.e. they both represent societies in which people increase their savings from 20 percent to

40 percent of the total income. Then how do the saved resources in the form of hoarded cash manifest themselves on the market rate of interest? This is the point where the purchasing power component becomes an extremely useful tool in our analysis.

In scenario one, where all the people keep their saved money in banks, the market rate of interest falls almost immediately in accordance with the change in social time preference. However, in the second scenario, there will be a short run deviation between the MRI and the PRI. This deviation *will be* corrected through the purchasing power component. When people hoard money, the purchasing power of the monetary unit *steadily* increases and the price structure *gradually* changes. However, this is a complicated process through which every price in the economy must be altered, and the adjustment of the MRI through the purchasing power component *will always lag behind the price movements*. This process is described by Mises (1998 [1949], p. 545):

We have shown one reason why the price premium can at best practically deaden, but never eliminate entirely, the repercussions of cash-induced changes in the money relation upon the content of credit transactions. [...] The price premium always lags behind the changes in purchasing power because what generates it is not the change in the supply of money [...], but the—necessarily later occurring—effects of these changes upon the price structure.

Thus, although monetary hoarding is in the long run nothing more than a particular case of capital accumulation, it does generate in the short run something which can be called a “time-efficiency” problem. This is the case because the market rate of interest cannot instantaneously adapt itself to the new situation, and it is exactly this indicator that enters in the entrepreneur’s decision making process. If people increase their monetary holdings for a significant period of time, all prices must gradually adapt *before* the market interest rate can be adjusted through the purchasing power component.

On the other hand, if we recall scenario one, in which all people directly invested (in our particular example all savings were kept in time deposits), the situation was much simpler in the sense that the market rate of interest adapted almost instantaneously and entrepreneurs could reap directly the benefits of increased capital

accumulation. This is the reason for which I claim that although both hoarding and investment are growth promoting tools, the former does necessary bring about short term vagaries in the money relation which relatively delay economic growth.

THE BENEFITS OF AN ORGANIZED MARKET

I consider that the main thesis of the present paper is a rather intuitive one. The theoretical apparatus employed had the sole purpose of elaborating a formal argument in favor of showing that hoarding is a particular form of capital accumulation in the long run. However, monetary hoarding does appear to create a time lag in the short run as opposed to direct investment of the saved resources, lag which is caused by the necessary adjustments of the market rate of interest to the variation in the purchasing power of the monetary unit.

In the present section I will attempt to give *further* reasons why saving *via* banks¹⁹ can offer additional benefits by accelerating economic growth. The previous and rather straightforward argument which I provided was that when all the saved resources go into the banking system, the market rate of interest will adjust almost immediately. Entrepreneurs can benefit in this way from the smaller interest rate faster, which enables them to lengthen the structure of production and accordingly increase future economic growth. The adjustment process will be more intricate if people decide to hoard the same amount of money. In this case, only *after* all the price movements come to a halt (i.e. after all the prices become fully adjusted to the new purchasing power) can the market rate of interest drop, based on the negative purchasing power premium. If this line of argumentation has not yet fully convinced the reader, let us briefly try an additional approach.

Banks can do a better job in terms of speed of adjustment because the banking system is an example of an *organized market*. Organized

¹⁹ Of course, I am referring here to a non-inflationary banking system. If the banks use their fractional reserve privileges to create an artificial credit expansion, the above mentioned speed benefits will unequivocally be overcompensated by the negative consequences of the boom-bust cycle. For a detailed analysis of the negative effects of the business cycle, see the Mises-Hayek theory of economic crises (Mises, 1998 [1949]; Hayek, 2008 [1931]).

markets generally tend to perform better than non-organized ones because they can decrease transaction costs.

This happens since banks are a specialized kind of intermediary. They are wholesalers, *i.e.*, they collect money from numerous scattered individuals and they generally lend to a small number of businessmen. It is a known fact that intermediaries play a beneficial role for society, in the sense that they quickly diminish price gaps, pushing the market towards equilibrium. In a world based on the international division of labor, specialized producers should be more efficient than non-specialized ones. Our analysis here is nothing more than a particular case of Adam Smith's (2007 [1776]) theory of specialization.

It is not the goal of the present paper to elaborate on the theory of the organized market, nor the theory of the wholesaler. However, I do consider that both of them are *prima facie* arguments that add to my previous demonstration, and that they are extremely interesting topics for further research.

CONCLUSIONS

We have shown in the present paper that hoarding is a particular form of capital accumulation, which permits entrepreneurs to lengthen the structure of production and increase future economic growth. However, I argue that hoarding necessarily implies a longer period of time between the moment when resources are saved and the moment when the new consumer goods are brought to the market (*i.e.* economic growth), as opposed to the case in which saved resources would be invested through the banking system (or any other type of direct investment).

The reason for which this happens lies within the specific features of the monetary economy. When people hoard cash, the only way in which entrepreneurs can employ the newly saved productive forces is through an increase in the purchasing power of the monetary unit. But this implies a gradual change in virtually all the prices in an economy, a process which is necessarily time consuming.

On the other hand, by using the banking system to save money, financial intermediaries can almost immediately adapt the market rate of interest and supply businessmen with the necessary

resources to lengthen the structure of production. In this way, the previously discussed time lag is reduced and economic growth will be somewhat faster because the market rate of interest can adjust before the whole price structure. The fact that banks are also producers of specialized services and that the financial market is an organized market are supplementary arguments that add to the present demonstration. They both represent eventual directions for further research.

REFERENCES

- Ahiakpor, James C. W. 2009. "The Phillips Curve Analysis: An Illustration of the Classical Forced-Saving Doctrine," *Journal of the History of Economic Thought* 31, no. 2: 143–160.
- Blaug, Mark. 1990. *John Maynard Keynes: Life, Ideas, Legacy*. New York: Palgrave Macmillan.
- . 1997. *The Methodology of Economics or How Economists Explain*. 2nd ed. Cambridge: Cambridge University Press.
- Böhm-Bawerk, Eugen von. 1890. *Capital and Interest: A Critical Analysis of Economic History*. London: Macmillan and Co.
- . 1930. *The Positive Theory of Capital*. New York: G. E. Stechert and Co.
- Cobb, Charles W., and Paul H. Douglas. 1927. "A Theory of Production," *American Economic Review* 18, Supp.: 139–165.
- Croitoru, Alin. 2012. "Book Review: Schumpeter, J.A., 1934 (2008), *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*," *Journal Of Comparative Research In Anthropology And Sociology* 3, no. 2: 137–148.
- De Soto, Jesus Huerta. 2006. *Money, Bank Credit and Economic Cycles*. Auburn, Ala.: Ludwig von Mises Institute.
- Endres, Anthony M. 1987. "The Origins of Böhm-Bawerk's 'Greatest Error': Theoretical Points of Separation from Menger," *Journal of Institutional and Theoretical Economics* 143, no. 2: 291–309.
- Fetter, Frank A. 1928. *Economic Principles*. New York: Century Company.

- Fuller, Edward W. 2013. "The Marginal Efficiency of Capital," *Quarterly Journal of Austrian Economics* 16, no. 4: 379–400.
- Hayek, Friedrich A. von. 1931. *Prices and Production and Other Works*. Auburn, Ala.: Ludwig von Mises Institute, 2008.
- . 1936. *The Mythology of Capital*. Auburn: Ala.: Ludwig von Mises Institute, 1936.
- . 1941. *The Pure Theory of Capital*. Auburn: Ala.: Ludwig von Mises Institute, 2009.
- Hülsmann, Jörg Guido. 2011. *The Structure of Production Reconsidered*. Angers: GRANEM.
- Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. London: Macmillan.
- Leeson, Robert. 2014. *Hayek: A Collaborative Biography: Part III, Fraud, Fascism and Free Market Religion*. New York: Palgrave Macmillan.
- Mises, Ludwig von. 1949. *Human Action: A Treatise on Economics*. Scholar's Edition. Auburn: Ala.: Ludwig von Mises Institute, 1998.
- Rothbard, Murray N. 1962. *Man, Economy and State with Power and Market*. 2nd ed. Auburn: Ala.: Ludwig von Mises Institute, 2009.
- Schumpeter, Joseph A. 1934. *Theory of Economic Development*. Cambridge: Harvard University Press.
- Smith, Adam. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. 4th ed.. Amsterdam: Metalibri, 2007.
- Strigl, Richard von. 1934. *Capital and Production*. Vienna: Julius Springer.
- Wicksell, Knut. 1989. *Interest and Prices*. New York: Sentry Press.

THE ECONOMICS AND ETHICS OF FREDERICK NYMEYER

TIMOTHY D. TERRELL

ABSTRACT: Frederick Nymeyer (1897–1981) was a Chicago businessman who supported Austrian scholarship through his publication and marketing of work by Mises and Böhm-Bawerk. Part of his legacy is Libertarian Press, which Nymeyer founded to promote Austrian economics at a time when it was virtually unknown in the United States. A Calvinist in a Dutch Reformed denomination, Nymeyer also self-published a large number of articles applying economic thought to ethical issues in an effort to combat the growing affinity for socialist ideas among Protestants. Nymeyer saw close connections between Misesian ideas and biblical law, which he elaborated upon in his 1964 book *Minimal Religion*. This paper summarizes and contextualizes some of Nymeyer's most prominent themes in his writing.

KEYWORDS: Frederick Nymeyer, entrepreneurship, Austrian School, libertarianism, religion

JEL CLASSIFICATION: B31, B53, Z12

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I. INTRODUCTION

Frederick Nymeyer (1897–1981) was an Illinois entrepreneur with an intense interest in economics, particularly the relationship between economics and morality. A self-described protégé of Mises and a thoughtful Calvinist, Nymeyer was deeply concerned with Protestantism's shift toward socialism in the twentieth century. As Nymeyer heard preachers and Christian college faculties denouncing free markets and profit-seeking businesses, he mounted a determined and effective resistance.¹

A Chicago businessman for many years, Nymeyer started as a newspaper reporter, then became news and ad man for a financial newspaper. At some point in the early 1920s, he received an education in economics, and then became Chicago manager of the Harvard University Committee on Economic Research. Later he was a budget and commercial research employee and officer for the meat packer Armour. Nymeyer then became General Partner in a management consulting firm, after which he organized his own management consulting firm. Nymeyer's wide-ranging business experience gave him the extensive personal contacts that he would later leverage on behalf of Austrian scholarship.

Jörg Guido Hülsmann (2007) has given due attention to Nymeyer's passionate advocacy for Mises and Austrian economics in general. This paper summarizes some of those contributions, which put Nymeyer in the foremost ranks of the struggling mid-20th century liberty movement in America. But Nymeyer was more than an organizer and promoter. Nymeyer left behind volumes of his own writing, mostly directed at combating socialistic ideas in his own Protestant denomination, the Christian Reformed Church (CRC). His contributions to that internal debate are widely applicable, and his trenchant criticisms of Christianity's movement toward socialism in the mid-twentieth century could be useful today.

Section II of this paper describes Nymeyer's connection with Mises and his support for Austrian publications. Section III describes Nymeyer's ethical objections to socialism within

¹ See Terrell (2004).

Protestantism, and Section IV summarizes Nymeyer's writing on other topics, including the "just price," money and banking, and education. Section V concludes.

II. NYMEYER'S RELATIONSHIP WITH THE AUSTRIAN SCHOOL

In 1946, Nymeyer read Mises's *Theory of Money and Credit*, and, fascinated, began a correspondence with Mises that led to a personal friendship and material support of Mises's work. He read *Omnipotent Government* and other works by Mises, and then turned to other Austrian economic writing, particularly Böhm-Bawerk's *Capital and Interest*.² Nymeyer was inspired to help organize support for Mises, and to write extensively on libertarian and economic themes himself. Like Henry Hazlitt, Lawrence Fertig, and Leonard Read, Nymeyer supported Austrian economics from outside academia. At a time when Austrian economics was virtually unknown, businessmen like Nymeyer—though treated with condescension by many academics—were critical to the survival of these ideas.

In 1949, Nymeyer began efforts to set up a "Liberal Institute" in the Chicago area, to be headed by Mises. The University of Chicago was a logical choice, given its prominence and Nymeyer's connections there. Though the plan was dropped when the university insisted on control over the staff, Nymeyer continued his campaign for Austrian economics. Hülsmann notes that "Nymeyer and his friends probably had some influence in bringing Hayek to Chicago, and in the early 1950s he played a significant role in raising funds for Mont Pèlerin Society meetings" (Hülsmann, 2007, p. 856).

In 1952, Nymeyer's Libertarian Press (formerly "Consumers-Producers Economic Service") published *Planning for Freedom*, in keeping with his intention of making Mises's work accessible to a wide audience. He was instrumental in the publication of *The Anti-Capitalistic Mentality* and Mises's essay "Middle-of-the-Road Policy Leads to Socialism," which he distributed to ministers in

² See Hülsmann, 2007, p. 855.

the CRC. Nymeyer also promoted Eugen von Böhm-Bawerk.³ He hired Hans Sennholz and George Huncke as translators in order to republish some of Böhm-Bawerk's work in English. In 1959, *Capital and Interest* appeared, with a preface by Hans Sennholz, and in 1962 a collection called *Shorter Classics of Böhm-Bawerk*. Later, Sennholz took over Libertarian Press.

Most of Nymeyer's own writings appeared in a journal he published from 1955 through 1960. This journal, which first went by the name *Progressive Calvinism* and in 1959 became *First Principles in Morality and Economics*, is almost entirely composed of essays by Nymeyer himself. The essays focused on the shortcomings of the CRC's social ethics, with copious references to Menger, Böhm-Bawerk, and Mises. There are also parallels in style and substance to Henry Grady Weaver's *The Mainspring of Human Progress* (1947 [1999]) a libertarian classic which undoubtedly influenced Nymeyer.

In 1964, Nymeyer published his book *Minimal Religion* through Libertarian Press. This book continued the themes from the journal, adding a lengthy section on theology. In the early 1970s, Libertarian Press also published a newsletter called *Social Action, Hundred Nineteen*,⁴ in which Nymeyer continued his declamations against churchmen who preached socialism.

Though Nymeyer was a Calvinist Protestant and Mises was an agnostic Jew, Nymeyer did not hesitate to make extensive applications of Mises's work to Christian social ethics. In 1968, Nymeyer wrote, "Mises influenced me more than any other man in my intellectual development. I was his protégé." He referred to Mises as "the greatest living champion of the innermost rampart of Christianity" (Hülsmann, 2007, p. 915). He saw in Misesian economics an opportunity to counter the anti-individualist, socialist trends in Protestant social thought of his time. In a 1959 letter to Howard Pew, Nymeyer wrote:

³ Nymeyer wrote enthusiastically to the philosopher Mortimer Adler, "Böhm-Bawerk has gone as far beyond Adam Smith as Calvin did beyond Luther." Letter dated February 14, 1948, Grove City Archives: Nymeyer files. In Hülsmann (2012, p. 35).

⁴ The name originated from Psalm 119, a psalm extolling the Ten Commandments, which Nymeyer said "is unqualifiedly and singularly adequate as a 'foundation' for all social organization." (Nymeyer, 1971, p. 8)

If there is to be a re-Reformation, it will have to be, in my opinion, on the basis of what the praxeological and the natural sciences have contributed to human knowledge since the days of the reformation. In regard to questions of ethics, I have come to the conclusion that the economics of Dr. von Mises constitutes by far the most satisfactory means to modernize the ethics of the Hebrew-Christian religion. When that kind of a synthesis is made, one turns out to be an extraordinarily conservative adherent of the Christian religion. But also some of the absurdities are removed. (Hülsmann, 2007, pp. 915, 916)

Nymeyer seemed to consider Austrian economics as a subset of neoclassical economics, introducing the 1960 volume of *First Principles in Morality and Economics* by writing,

[T]he economics taught herein are those of the *Neoclassical* school. This means that our economics are based on the work of Adam Smith and David Ricardo, but modified (as it urgently needed to be) according to the work of William Stanley Jevons, Carl Menger, Eugen von Böhm-Bawerk and Ludwig von Mises. It is especially the economics of the latter three, the outstanding exponents of the famous Austrian school of economics, which is followed in *First Principles in Morality and Economics*. (Nymeyer, 1960a, p. 2)

Later that year, Nymeyer wrote that "...the neoclassical school in economics... consists of William Stanley Jevons, an Englishman; Carl Menger, Friedrich von Wieser, Eugen von Böhm-Bawerk, Ludwig von Mises, Friedrich von Hayek—all Austrians; Carl Wicksell, a Swede; Frank A. Fetter of Princeton, an American; and, naturally, many others." He referred to the Austrians as "the Austrian neoclassical school." (Nymeyer, 1960b, p. 70) In a tract published twelve years later, he referred to Mises as "the fountainhead of many of the perspicuous and effective ideas of Neo-Classical economics," and wrote that "the 'framework' of Mises' ideas [was] part of revolutionary new Neo-Classical economics...." (Nymeyer, 1972, p. 86) Describing Rothbard's *Man, Economy, and State* as "based on, and organized according to, Neo-Classical economics (of the Austrian brand)," Nymeyer reacted with apparent alarm at Rothbard's anarcho-capitalism: "It should be apprehended that Rothbard is radically for freedom, and that he uses the term Libertarian for that stance. 'Freedom' can, however, mean so light an emphasis on 'law' that the experiment with less-law could result in anarchy." (Nymeyer, 1972, p. 86)

Apart from Nymeyer and his readers, other Calvinist groups also found more affinity for the Austrian School than for other schools of thought, and voiced qualified affirmations of libertarianism. One of these groups, the Christian Reconstructionists, generated a considerable body of literature on the connections between Christianity and economics, and Nymeyer was familiar with their work.⁵ Rousas J. Rushdoony, a leading Reconstructionist intellectual and founder of the Chalcedon Foundation, was a follower of the conservative Reformed theologian Cornelius Van Til (1895–1987), as was Nymeyer to a lesser extent.⁶ Nymeyer met Rushdoony in 1962, and the two men visited and corresponded periodically for years afterward. Years after Nymeyer's death, Rushdoony wrote of Nymeyer, "Fred was a remarkable man. While I did not always agree with him, I always found his thinking brilliant, stimulating, and systematically Biblical."⁷

III. NYMEYER'S MINIMAL RELIGION VS. THE SOCIAL GOSPEL

A recurring topic in Nymeyer's writing is the distinction between two ethical systems adopted by Christians: 1) a system based on Mosaic law and New Testament exposition of that law, and 2) a system based on a broad interpretation of "loving one's neighbor." Nymeyer argued for the first, which he called "minimal religion." This Mosaic system required that an individual's actions toward other people conform to biblical laws summarized in the Ten Commandments. Nymeyer contended that these biblical commands amounted to refraining from coercing, stealing from, or

⁵ Gary North, a prominent Reconstructionist and proponent of Austrian economics, dedicated his 1973 *Introduction to Christian Economics* to Nymeyer. For an examination of the relationship between Reconstructionists and the Austrian School, see Terrell and Moots (2006).

⁶ Van Til, born in the Netherlands, attended the CRC's Calvin College in Grand Rapids, Michigan, and went on to a divinity degree and Ph.D. in philosophy at Princeton. Van Til later joined J. Gresham Machen's exodus from Princeton to found the more conservative Westminster Theological Seminary in Philadelphia. Van Til attracted Nymeyer's attention through his opposition to Karl Barth and other neo-orthodox theologians.

⁷ Letter from Rushdoony to Ed Van Drunen dated February 10, 1987. Courtesy Ed Van Drunen.

defrauding others. As developed by Nymeyer, the Mosaic system has much in common with libertarianism.

The second ethical system, which Nymeyer called “sanctimony,” “altruism,” or the “agape ethics,” required an extension of an individual’s agape (“brotherly,” or “neighborly”) love to the rest of mankind. The agape system, Nymeyer wrote, was impossible to carry out successfully, and would lead to interventionism and socialism. The manifestation of that socialism in the church was the “social gospel” movement. This movement was, by the time Nymeyer addressed it, about fifty years old. Shortly before the founding of the Federal Council of Churches (a forerunner to the current U.S. National Council of Churches, a branch of the World Council of Churches), a seminary professor named Walter Rauschenbusch produced a book called *Christianity and the Social Crisis* (1907). This book forthrightly advocated communism:

It would seem, therefore, that one of the greatest services that Christianity could render to humanity in the throes of the present transition would be to aid those social forces which are working for the increase of communism. The church should help public opinion to understand clearly the difference between the moral qualities of the competitive and communistic principle, and enlist religious enthusiasm on behalf of that which is essentially Christian. (Rauschenbusch, 1907; quoted in Nymeyer, 1959a, p. 152)

Opposition to this social gospel movement occupied much of Nymeyer’s effort, particularly as his own denomination was succumbing to its teachings. Many within the mid-20th century CRC had adopted some of the more interventionist ideas of Abraham Kuyper (or Kuijper) (1837–1920), a Neo-Calvinist Dutch theologian and prime minister of the Netherlands from 1901 to 1905. Kuyper, founder of the socially conservative Anti-Revolutionary Party (ARP), opposed socialism but objected also to laissez-faire capitalism and favored some trade restrictions and government labor legislation.⁸ The ARP, while pluralist in principle, had close ties with the Reformed Church in the Netherlands, a sister church of Nymeyer’s CRC. At the time Nymeyer was writing in *Progressive Calvinism*, the ARP was transitioning toward the adoption of social

⁸ See Bratt (2002).

justice goals, and favored a more extensive welfare state.⁹ Some faculty at American institutions in the same Dutch Reformed tradition were moving in the same direction, including Calvin College, Dordt College, and Hope College. No doubt this was influenced by the more general tendency toward progressivism within 20th century society. Many groups hoping to appeal to a younger generation will often find that adopting the ideological positions of youth holds a pragmatic appeal, and ecclesiastical groups are no exception.

In the first volume of *Progressive Calvinism*, Nymeyer contended that Kuyperian interventionism was simply a milder form of the same pernicious coercion that characterized socialism:

The method to accomplish that Middle-of-the-Road course was to be in-between. That *inbetweenness* consisted, in turn, in two phases—(1) keeping the appearance of capitalism and (2) introducing the basic principle if not the reality of socialism. The customary word for such a system is Interventionism—the government, having a pipe line of power from God justifying such intervention, leaves life, liberty, and the pursuit of happiness *nominally* in your name but *regulates* it, little or much as the government in its sovereign right decides, by having laws that interfere and bureaucrats who manage. Hitler was a *full-fledged* interventionist. The German term for full-fledged interventionism is *Zwangswirtschaft* (a coercive society). (A Dutchman would translate that as *Dwang maatschappij*.) Abraham Kuyper believed in just the right (?) degree of *dwang maatschappij* (coercive society). He was a *moderate* Hitlerite.

In some denominational schools of Calvinist churches in America they teach an identical doctrine. Not capitalism; oh no; it is sinful or neutral. Not socialism; oh no; it is sinful or neutral. Instead, they teach interventionism—a God-given *dwang maatschappij* (coercive society) with the right to coercion—contrary to the Decalogue—piped right out of the bottom of the throne of God. But, naturally, only beneficent and welfare-producing coercion! (1955b, p. 344)

This may seem a bit unfair to Kuyper, whose “sphere sovereignty” idea provided an appealing framework for excluding the

⁹ Describing the appeal to a “young” Kuyper made by those intent on shifting the ARP leftward, Kennedy (2002) notes, “What these anti-revolutionaries and many younger members of the ARP appeared to discover was that the anti-revolutionary tradition had been, or ought to have been, a progressive party, deeply suspicious of capitalism, hostile to economic privilege, and willing to sacrifice the notion of antithesis for human solidarity and social justice.” (p. 51)

State from certain social institutions—a framework with a lasting impact in North America and South Africa. Kuyper was even said to have an “apocalyptic fear of the State.”¹⁰ It is true that Nymeyer’s criticism may have been intensified by his opposition to the CRC’s efforts (mirroring some Dutch Reformed groups and the ARP) to reframe Kuyper to match leftist goals. However, Nymeyer had substantive objections to sphere sovereignty.

The spheres were simply groupings of people which, in Kuyper’s view, had sovereignty directly from God. These included the State as a prominent and powerful sphere, but also countless others, such as the family, the church, labor unions, schools, and business organizations. In Nymeyer’s view, Kuyper’s error in arguing for a strong State, with divinely granted authority, necessitated Kuyper’s collectivistic spheres as barriers to State intrusion into the rest of society. “Having created too big a government—too sovereign and too irresponsible a government—he was compelled to develop some counterweights.” (Nymeyer, 1955a, p. 267) Nymeyer contended that the Kuyperian view ignored the individual:

According to Kuyper, the sovereignty of the state and the sovereignty of the spheres are directly from God, as per Romans 13. In both cases, the idea is eliminated that the sovereignty of the state or the sovereignty of a group is derived from ordinary men wishing to obey the Decalogue; in both cases the *individual* is outside of consideration. The individual is insignificant. Kuyper sets up his system without there being much importance to obtaining the “just consent of the governed”—about which the founding fathers of America talked in the Declaration of Independence. To Kuyper, sovereignty is *from God* directly by a pipe line. All pipelines of power are, for Kuyper, from God to the gigantic *group*, the state, or to smaller groups, any sphere. ...The *individual* is the forgotten man in this scheme of things. (Nymeyer, 1955a, pp. 268, 269)

The Two Kinds of Love and “Minimal Religion”

Nymeyer’s objections to the socialist and interventionist Calvinists went far beyond their applications of Kuyper’s work. His criticisms of “agape ethics” were pervasive in his writing. The difference between the Mosaic and the agape systems, he wrote, was

¹⁰ Attributed to A.A. van Ruler. See Kennedy (2002, p. 46).

a difference in the definition of love. The Mosaic system allowed a person to pursue self-interest, as long as one does not injure his neighbor “by violence, adultery, theft, falsehood, or covetousness.” (Nymeyer, 1957b, p. 150) The sixth commandment, “You shall not murder,” was then a summary of a broader command, which might be stated “You shall not coerce.” To Nymeyer, it made no difference if the coercion was condoned or carried out by the state.

[C]oercion may be legalized by the acts of a legislature or a judge, but the mere fact that it is *public* coercion does not exonerate such acts from the prohibition of employing compulsion against another.

If then the Sixth Commandment forbids *all* coercion (except to employ coercion to protect oneself from coercion), what is this negative prohibition restraining each of us, except to allow *freedom* to others to pursue their inclinations (whatever they may be, except when they violate the reciprocal freedom and rights of others). If I may coerce no one, and if no one may coerce me, what is this other than legislating, *All men shall be left free?*

When the ancient law of Moses with stark simplicity legislates against murder, violence and coercion it not only has the merit of prohibiting those evils, but it has the magnificent positive virtue of legislating freedom. (Nymeyer, 1959b, pp. 193–194)

Agape love, to Nymeyer, required obedience to these laws. In these laws, Christians were required to refrain from doing harm, to show “forbearance and forgiveness,” to exercise charity, and to proclaim the gospel. (Nymeyer, 1957a, p. 6; 1959g, p. 345) Any definition of agape love broader than this one would be sanctimony, “basically borrowed from Karl Marx.” (Nymeyer, 1955c, p. 357)

The “minimal religion” of which Nymeyer wrote so extensively is really Christianity complete with the idea of Christian liberty—a doctrine which essentially states that if an action is not forbidden by a biblical command, it is permitted.¹¹ Nymeyer emphasized the negative nature of biblical law (e.g., one may do everything *except* this or that), as opposed to the positive commands of interventionists:

¹¹ This doctrine is elaborated upon at some length in Calvin’s *Institutes of the Christian Religion*, ch. 19 (1559 [1960], p. 838–839), and may also be found in the statements of the 1646 Westminster Assembly (Williamson, 1964 [2004], p. 194). The 19th century Presbyterian theologian Charles Hodge’s more recent explication (1872 [1997], p. 265) is also useful.

Liberty... is a basic teaching of Scripture; all that Moses ever forbade, in regard to this life, was "the liberty to do wrong"; he merely specified as far as human relations were concerned that violence, adultery, theft, fraud and covetousness are taboo; *everything else was left free*. Moses did not say you can do only this and this and this, as all interventionist and socialist governments say; no, he said, you may do *everything* except that you may not exploit your neighbor. No man ever used a better method of legislating for liberty than Moses; all he did was to specify a few things you may not do. Paul taught an identical doctrine in the New Testament (Romans 13:10a) when he wrote "Love worketh no ill to the neighbor." Interventionism and socialism specify what you may do; the rest is forbidden. Why? The government has that "peculiar, inherent power" piped from the throne of God to tell you in *detail* what you may or may not do! (Van Mouwerik and Nymeyer, 1955, p. 365)

Charity vs. Market Cooperation

Nymeyer argued that no society could be founded on the principle of charity. The primary reason for this is the insufficient knowledge we have of our neighbor's needs. The influence of Mises and Hayek on Nymeyer here is obvious. Nymeyer wrote,

[I]f all [a man's] decisions were based on "charity," that is, based on what he imagined the needs of others to be in contrast to his sure knowledge of his own needs, then he would...be making decisions where his information was far inferior and in many instances worthless. (Nymeyer, 1957a, p. 7)

Social cooperation based on markets is far more practical than charity as a foundation for an economy, Nymeyer argued. In fact, market-based cooperation is more consistent with the Christian principle of humility, as it acknowledges our vast ignorance of the goals of others and alternative means to accomplish those goals.

Furthermore, Nymeyer noted that when the state forcibly transfers wealth from one person to another in the name of charity, it is violating several of the Ten Commandments. Compulsory charity is a moral perversion, Nymeyer declared.

Nymeyer was not arguing for the abolition of charity. "No right-minded person, Christian or non-Christian, can be indifferent or hostile to charity," he wrote. "A society without charity—without the lifts to help others meet genuinely adverse circumstances—cannot

really be a good society.” (1957, p. 171) However, like Adam Smith, he contended that “beneficence...is the ornament which embellishes, not the foundation which supports the building. ...Justice, on the contrary, is the main pillar that upholds the whole edifice.” (Smith, 1759 [1853], p. 125)

Individualism and Self-Interest in Nymeyer

The social gospel movement created a distinction between morality for the individual and morality for the state. Nymeyer pointed out this failing in Reinhold Niebuhr’s *Moral Man and Immoral Society* (1932 [2001]). Niebuhr wrote,

The thesis to be elaborated in these pages is that a sharp distinction must be drawn between the moral and social behavior of individuals and social groups, national, racial, and economic; and that this distinction justifies and necessitates political policies which a purely individualistic ethic must always find embarrassing. (Niebuhr, quoted in Nymeyer, 1957, p. 41)

Nymeyer pointed out the problem: if law for individuals is based on the Ten Commandments but the law for society is not, is not the behavior for “social groups” morally indefensible?

Nymeyer devoted considerable space in his journals to the defense of self-interest. Those concerned with ethics and economics have sometimes dodged this question by arguing that this sinful self-interest does at least produce satisfactory results in a market system. If we are selfish by nature, we might as well make the most of it. Nymeyer took a more direct approach. Acting in self-interest, Nymeyer stated, is not only morally benign, but is essential to the functioning of society. Acting exclusively in the interest of others would require us to act in utter ignorance. Avoiding self-interest entirely wastes scarce resources and makes society worse off.¹² As with many of his arguments, Nymeyer took great pains to state his case carefully. In one article on the subject, he asked that the reader consider an entrepreneur’s decision to keep an unprofitable worker on the payroll. Is the decision to fire

¹² See, e.g., Nymeyer (1959h [1960]).

this worker an example of sinful selfishness? Nymeyer's response is worth quoting at length:

Business, in a competitive economy (which means that the customers are *free* to patronize one business or another) must be *efficient*. If not, then the business goes "out of business"; it fails; it fails just because customers no longer buy from that business.

...It can in fact be sensibly declared that it is *sin* to tolerate inefficiency. There is a universal welfare shortage—the means to supply all the needs of people do not equal all the needs themselves. There is a *scarcity* of the means of production. That scarcity consists in labor and materials. It can be affirmed that no man has a moral right to stay in business who does not muster labor and materials *efficiently*—that is, at as low cost as anybody else can muster labor and material. (1957; pp. 172, 173)

Nymeyer went on to note that selfishness is sometimes intended to mean "bad manners, or lack of thoughtfulness," but that the anti-market social gospel group means something more severe than thoughtlessness. Their definition of selfishness must mean a failure to bend to the desires and judgments of others. Yet some sort of self-love must be appropriate, for, as Nymeyer points out, the Mosaic Law commands us to "love thy neighbor as thyself." Thus, "it is nonsensical to say that a man should love his neighbor as himself, if he is sinful when he loves himself."

By Nymeyer's reasoning, self-love means the pursuit of one's own set of values, which may be quite admirable. They may include discovering the cure for a disease, or proclaiming the Christian gospel, or inventing some machine to save labor. "Self-love, then, is not for *self* only, but for *personal or subjective values*, that is, the individual values which each man has and which he wishes to pursue at liberty and *which may be as much for others as for himself*." (1957, p. 178)

Socialists are distinct from market advocates, Nymeyer writes, in that they "wish to set subjective 'values' for *everybody*." It is anti-individualistic. Nymeyer concludes:

There is only one social philosophy which can possibly conform to the teaching of Scripture, namely, the social philosophy known as Individualism. It is a humble philosophy. It lets each man have his own subjective values, but he may not pursue them at the expense of his neighbors. Individualism sets the same demands on men that Christian ethics apply. (1957, p. 179)

IV. NYMEYER ON OTHER TOPICS

Price Determination

One of Nymeyer's favorite economists was Eugen von Böhm-Bawerk, and it was from Böhm-Bawerk's famous horse market example that Nymeyer drew when writing on price determination. Nymeyer nominally modified Böhm-Bawerk's example to use a bicycle market, but in all other respects his analysis was clearly taken from the earlier Austrian economist. Along the way, Nymeyer argued that the just price is an incoherent concept: "...no government *can* set a just price; a just price has no meaning except it be determined by free competition on both the buying and selling side." (1964, pp. 149, 150) Subjective evaluations determine prices, and not historical costs. (1964, p. 155)

In *Minimal Religion*, Nymeyer devoted some effort to the ethics of bargaining and price discovery. Good ethics, Nymeyer concluded, do not require a potential buyer to reveal his maximum (reservation) price, or a potential seller to reveal his minimum price. The buyer is entitled to attempt to discover the maximum price he can obtain for the item, and starting with a high asking price is the only way to do this. The same holds true for the seller. As long as there is no coercion, the parties are on firm ground ethically. (1964, pp. 143, 144)

Comparative Advantage

Nymeyer repeated throughout several of his works Ricardo's observations on comparative advantage, calling it Ricardo's Law of Cooperation or Law of Association. Nymeyer noted the benefits of "unequal inequality" and provides a lengthy, sometimes tedious, explanation of the gains from trade. Nymeyer then explained that hindering mutually beneficial trade is a major sin: "It is the frustration of Ricardo's Law which constitutes a major part—the largest—of what the Hebrew-Christian ethic calls...sin." (1964; p. 100)

Unions

Nymeyer was unalterably opposed to unions, calling them coercive and therefore a violation of the 6th Commandment. This

may have contributed to his aforementioned animosity toward Abraham Kuyper, who was an advocate of labor unions as a sovereign “sphere.” Nymeyer wrote,

Two of the bigger evils in the United States today are: (1) unions, as they operate; and (2) banks, as they operate; or better said, two of the bigger evils in the United States are the laws giving unions and banks special privileges.

Bad laws permit union members to do what an ordinary private individual would be sued for doing or for which he could be thrown into jail. This is aggravated by a lax enforcement of laws in those cases where the law still protects partially against unionism. The consequence is that unionism is rife with gangsterism, of a mild or virulent type. Unionism itself does not make men bad; it is the bad laws giving special privileges to unions which make bad men of union leaders and members. (1959d, p. 259)

Money, Banking, and the Business Cycle

More than in any other area, Nymeyer was a thoroughgoing follower of the Austrian school when it came to money, banking, and the business cycle. Drawing from Menger, Nymeyer explained that money originates in the market, not government. Nymeyer wrote out detailed explanations of fractional reserve banking systems, and explained—following Mises—how inflation causes recessions. What Nymeyer added to the standard Austrian business cycle theory was his application of moral principles from the Bible. Fractional reserve banking, he argued, was like embezzlement (1959e, p. 268) or counterfeiting (1959c, p. 255, 1959g, p. 313; 1964, p. 248), and inflation was equivalent to theft (1959c, p. 254). Nymeyer suggested that Mises’s term “circulation credit” was lacking in that it “fails to indicate the moral turpitude of circulation credit.” (1959c, p. 255) Nymeyer suggested the term “counterfeit credit” as a substitute.

Usury

Nymeyer addressed the medieval prohibition on usury by noting that it is an unwarranted addition to the actual biblical law on interest. Interest and usury, he writes, are not identical in the Bible.

The actual biblical prohibition was much narrower than that of the modern opponents of interest. It applied only to charitable loans between fellow believers, and did not apply to business loans or loans outside the faith. Nymeyer's extensive discussion of interest in one of his issues of *Progressive Calvinism* included a helpful summary of John Calvin's liberal views on interest, (1957, pp. 55ff) and a favorable review of Böhm-Bawerk on the subject from *Capital and Interest*. Not much is new here in the theory or application, but Nymeyer did relate the problems with interest prohibition to the contemporary advocates of such policies within the CRC.

Freedom of Association

Nymeyer steadfastly opposed the tendency of his time to deny the freedom of association. This basic freedom, a core concept in libertarianism, was for Nymeyer a logical application of his minimalist ethics. Refusing to associate, or discontinuing a prior association, is not necessarily a violation of any biblical principle. The motivations of the individual deciding not to associate are privy only to the individual, and no third party has the capacity to judge those motivations, much less compel an association:

The legal apparatus of society can hardly ever be employed safely to coerce a buyer, an employer, or a neighbor, even though there may be suspicion that the motivations are to injure others rather than protect the self. The Christian religion can go a little further and condemn morally "in principle" what is done to injure others... but it too lacks sure knowledge of subjective motivations and, consequently, it cannot make it a part of its "discipline" to compel a man to continue to buy, or to continue to employ, or to associate. (1964, p. 165)

Of course a controversy of the period in which Nymeyer wrote concerned school desegregation, and Nymeyer applied his freedom of association principle here. While he did not consider the possibility of entirely separating school and state, Nymeyer did prefer private education.

Any good law regulating schools will legislate for maximum freedom of the establishment and administration of schools. Education is primarily the function of parents, and only secondarily of State and Church. The parents should, preferably, found and own schools. Then they can control

faculty, facilities and attendance themselves—that is, have maximum freedom to elevate their children by a good education. (1964, p. 188)

Nymeyer favored a sort of voucher system for education, in 1960:

If the state undertakes to collect taxes for educational purposes, it ought to be prepared to pay out those taxes to groups of parents who wish to have a school for their children. Let us assume that the state collects \$400 a year for educational purposes per child. Let us assume that there are parents who have 50 children of school age. Let us also assume that they are peculiar folk who wish to have their children educated in a peculiar way. They ought to be entitled to a subsidy for their school in the amount of 50 pupils times \$400, or \$20,000. (1960, pp. 29, 30)

Nymeyer never addressed a more fundamental objection to government schools that would now be *de rigueur* for libertarians. Why should the population be taxed to subsidize the education of a subgroup in the population? Perhaps Nymeyer should be granted clemency on this point, however. At the time he wrote these words, private schooling was still uncommon outside the Catholic schools, and home schooling was virtually unknown and in most places practically illegal.

In government schools, Nymeyer wanted the parents to have some limited choices in schooling for their children. Nymeyer wanted the government to offer three kinds of schools—all white, all black, and integrated. He appeared to overlook the possibility that parents might have other preferences on education apart from the racial composition of schools. A consistent application of Nymeyer's proposal would lead to the absurd multiplication of schools, or programs within schools, to satisfy every preference—on sports programs, language offerings, teacher qualifications, creation/evolution teaching, official school prayer, and countless other matters. Nymeyer's essentially libertarian views failed to lead him to a completely free market in education, and left him to struggle with the inevitable limitations of state-controlled schools.

V. CONCLUSION

Today, the most popular and most effective anti-market arguments are not those that question the capacity of the free

market to provide a vast amount of the goods and services people want. That part of the anti-capitalists' case has been largely lost. Socialism is still on the defensive in that theater, with public goods arguments an obstinately persistent redoubt. Among the remaining threats to the success of free market ideas are the arguments of moralists and ethicists against capitalism. It is all very well that capitalism produces these wonderful goods and services, they say, but if it does so in an immoral way, then we must object. Nymeyer's heroism in addressing some of these moral arguments against capitalism deserves notice.

Nymeyer's foundation was apparently human reason, but had a very high view of the Ten Commandments and the rest of the Bible.¹³ He argued for revelation, along with reason, as a basis for

¹³ Nymeyer was willing to criticize the Bible on certain points, based on his reasoning. While he regarded the Decalogue and statements of Jesus Christ as absolutely true, he set Moses' elaboration on the 10 Commandments against Christ's Sermon on the Mount.

Moses apparently did not fully understand the Decalogue, which is possibly circumstantial evidence that the Decalogue was *inspired*. If Moses had concocted the Decalogue entirely himself and *fully* understood it, he would probably not have ambiguously legislated elsewhere "an eye for an eye and a tooth for a tooth."

When Moses put in his parochial Israelitish law "an eye for an eye and a tooth for a tooth," he opened his legislation to the interpretation (essentially erroneous) that there is such a thing as *vengeance*, or "primitive justice," which is permissible.

...[S]uch response to injury in effect *annuls* the sixth commandment. (1964, p. 122)

Yet Nymeyer claimed to hold to the doctrine of biblical inerrancy. In a letter to R.J. Rushdoony dated April 10, 1970, Nymeyer wrote, "I reiterate what I have probably told you before that I consider the word of God inerrant, but I do not hold all the past and present interpretations of Scripture to be inerrant. Those 'interpretations' are something different from Scripture itself." (Letter dated April 10, 1970, courtesy Ed Van Drunen.)

Nymeyer advocated natural law in other parts of his work, and stated in one place that the historical (empirical) success of the 10 Commandments should lead to their approval and acceptance without question. Yet in another place he seemed to consider the 10 Commandments as authoritative because they are revelation:

Consider the Second Table of the Ten Commandments. Those Commandments may be considered to be ultimate *because* God gave them. But they may be

making decisions, but was not severe on Mises's utilitarianism (as in *Theory and History*). (1957, p. 349) When it came to applying basic biblical principles to the economy, Nymeyer found the ideas of the Austrian school most consistent with Christianity. "[The Austrian] theory is the only rigorously rational one, and the only one reconcilable with Hebrew-Christian ethics." (1964, p. 265)

In Nymeyer's work, we would struggle to find a contribution to economic theory *per se*. However, it should be remembered that Nymeyer's primary intent was to combat the progress of the social gospel within the church of his day. Many churchmen who never would have read Böhm-Bawerk or Mises would have found Nymeyer's publications accessible. It is Nymeyer's persistent and painstaking communication of sound economic principles to a new audience, and application to ethical problems, that merits attention.

REFERENCES

- Bratt, James D. 2002. "Passionate About the Poor: The Social Attitudes of Abraham Kuyper," *Journal of Markets and Morality* 5, no. 1: 35–44.
- Calvin, John. 1559. *Institutes of the Christian Religion*, vol. 1. Ed. John T. McNeill. Philadelphia: Westminster, 1960.
- Hodge, Charles. 1872. *Systematic Theology*, vol. 3. Oak Harbor, Wash.: Logos Research Systems, Inc., 1997.
- Hülsmann, Jörg Guido. 2007. *Mises: The Last Knight of Liberalism*. Auburn, Ala.: Ludwig von Mises Institute.
- . 2012. "Ludwig von Mises and Libertarian Organisations: Strategic Lessons," *New Perspectives on Political Economy* 8, no. 1: 19–40.

esteemed ultimate *because* perspicuous reasoning and judgment will also show that they are ultimate whether God formulated them in words or not. In that sense *revelation* and *reason* can agree. For Mises reason only counts. He is basically skeptical of anything which is alleged on the ground of some *authority*. We ourselves are not distressed by Mises's emphasis on *reason*. We believe that it would be impossible for genuine reason and genuine revelation to disagree. We see no conflict. (1957, pp. 349, 350)

The question then remains: how does one discern genuine reason? Is revelation the test of reason? Or is reason the test of revelation? Nymeyer seemed to more consistently follow the latter principle.

- Kennedy, James. 2002. "Kuyper's Legacy: The Crisis of the Anti-Revolutionary Party in Post-War Holland," *Journal of Markets and Morality* 5, no. 1: 45–56.
- Niebuhr, Reinhold. 1932. *Moral Man and Immoral Society*. Louisville, Ky.: Westminster John Knox Press, 2001.
- Nymeyer, Frederick. 1955a. "We Must Obey God Rather than Men," *Progressive Calvinism* 1, no. 9: 251–272.
- . 1955b. "Praxeology," *Progressive Calvinism* 1, no. 12: 341–347.
- . 1955c. "A New Lucubration," *Progressive Calvinism* 1, no. 12: 356–358.
- . 1957a. "Is the Economic Order Properly Based on Neighborly Love?," *Progressive Calvinism* 3, no. 1: 5–12.
- . 1957b. "Two Different and Irreconcilable Religions," *Progressive Calvinism* 3, no. 5: 149–154.
- . 1959a. "Protestantism's Social Gospel as a Substitute Religious Term for Socialism," *First Principles in Morality and Economics* 5, no. 5: 152–156.
- . 1959b. "The Relationship Between Freedom, Utilitarianism, and the Mosaic Law," *First Principles in Morality and Economics* 5, no. 7: 193–195.
- . 1959c. "Four Things Morally the Same—Circulation Credit, Fictitious Bills, Counterfeit Money, and Theft," *First Principles in Morality and Economics* 5, no. 8: 254–256.
- . 1959d. "Two Public Evils in the United States—Bad Laws Governing Unions and Banks," *First Principles in Morality and Economics* 5, no. 9: 259–260.
- . 1959e. "'Efficiency' In the Use of Money—By a Banker, and by His Defalcating Teller," *First Principles in Morality and Economics* 5, no. 9: 268–270.
- . 1959f. "The Motivation to Conserve," Reprinted 1960 from "Morality Depends Substantially on the Existence of Private Property," *First Principles in Religion and Economics* 5, no. 10, p. 290. Available at <https://fee.org/articles/the-motivation-to-serve/>.

- . 1959g. "Circulation Credit vs. Commodity Credit Again," *First Principles in Religion and Economics* 5, no. 10: 313–314.
- . 1959h. "'Love' in Christian Economics Should Not Be Used to Designate a Sentiment," *First Principles in Religion and Economics* 5, no. 11: 343–346.
- . 1960a. "On Beginning Our Sixth Year," *First Principles in Religion and Economics* 6, no. 1: 1–2.
- . 1960b. "Recapitulation of the Contents of the February Issue and Introduction to This Issue," *First Principles in Religion and Economics* 6, no. 3: 67–71.
- . 1964. *Minimal Religion*. South Holland, Ill.: Libertarian Press.
- . 1971. *The Social Gospel Malady*. South Holland, Ill.: Libertarian Press.
- . 1972. *Individualism and Altruism*. South Holland, Ill.: Libertarian Press.
- Rauschenbusch, Walter. 1907. *Christianity and the Social Crisis*. New York: Macmillan.
- Smith, Adam. 1759. *The Theory of Moral Sentiments*. London: Henry G. Bohn, 1853.
- Terrell, Timothy D. 2004. "Frederick Nymeyer: A Pioneer of Christian Libertarianism," *Chalcedon Report* No. 464 (June/July). Available at <http://chalcedon.edu/faith-for-all-of-life/law-and-liberty/frederick-nymeyer-a-pioneer-of-christian-libertarianism/>.
- Terrell, Timothy D., and Glenn Moots. 2006. "One Protestant Tradition's Interface with Austrian Economics: Christian Reconstruction as Critic and Ally," *Markets and Morality* 9, no. 1: 91–114.
- Van Mouwerik, John, and Frederick Nymeyer. 1955. "Did 'Luck' Make Holland Prosperous in Its Golden Age?" *Progressive Calvinism* 1, no. 12: 364–366.
- Weaver, Henry Grady. 1947. *The Mainspring of Human Progress*. Irvington-on-Hudson, N.Y.: Foundation for Economic Education, 1999.
- Williamson, G. I. 1964. *The Westminster Confession of Faith for Study Classes*, 2nd ed. Phillipsburg, N.J.: Presbyterian and Reformed, 2004.

BOOK REVIEW

LIVING ECONOMICS: YESTERDAY, TODAY, AND TOMORROW

PETER BOETTKE

OAKLAND, CALIF.: INDEPENDENT INSTITUTE, 2012, 456 PP.

NICOLAI J. FOSS

This is a book about the general applicability of economics and how it “affects all walks of life” (from the back-cover blurb). No less than 23 endorsing statements are printed at the front end of the book, including praise from luminaries such as James Buchanan, Vernon Smith, Gordon Tullock and Israel Kirzner. Nassim Taleb also chips in. Given the way the book is described, one may perhaps expect a Becker or Landsburg kind of book which applies economics to unusual settings, generating new insight. However, the book is very different from this. Instead, Boettke delivers a set of highly personal statements in the form of 22 informal essays, most of which have been previously published, and

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which describe his “love affair with economics” (p. xv). Perhaps because of the way in which the book has been conceived and put together, there is a good deal of repetition; indeed, the book could have been compressed to something shorter and more succinct (my preference would have been for a deeper examination of the differences between “mainline” and “mainstream” economics; more about which later). However, Boettke writes in an engaging and often journalistic way, so the book is an easy read. He is also good at coming up with fancy and helpful 2x2 matrices to organize the material; in fact, while reading through the book, the thought struck me more than once that Boettke could have been an excellent management writer.

However, while Boettke’s book is highly personal, it actually, but perhaps less intentionally, gives a portrait of a specific way of thinking about Austrian economics as well as practicing it. We may call this the “Masonian way,” not just because George Mason University is where our author is institutionally located, but also because of his institution-building efforts in that place. To be sure, parts of the book are dedicated to traditional Austrian projects, such as criticizing Keynesian economics, and I doubt any Austrian will found much to disagree with in these parts. However, Boettke has long more or less explicitly argued that there is a specific way of doing Austrian economics which (at least to this outside observer) seems to be an amalgam of, on the substantive side, traditional Austrian economics (perhaps more with a leaning towards Hayek and Kirzner than Mises and Rothbard), the economics of governance as represented by Oliver Williamson and Elinor Ostrom; public choice economics *à la* Buchanan and Tullock; on the philosophical side “Continental” influences, notably ideas from hermeneutics and phenomenology; and on the methods side, fundamentally anthropological empiricism.¹

Because of Boettke’s institution-building efforts and general influence in parts of the Austrian community, it appears that a number of other Austrians, mainly (but not exclusively) associated with George Mason University, buy into the Boettkian worldview.

¹ Note that Boettke’s approach to Austrian economics is one among other approaches. For example, see Salerno (2002) for a very different approach to modern Austrian economics.

It is therefore of interest to look more closely into this view. The present book serves as a handy guide.

INTELLECTUAL HERITAGE AND THE BOETTKE MELANGE

The Boettke worldview involves holding certain key economists in very high esteem, to the point of idolizing them. For example one chapter is titled “The Genius of Mises and the Brilliance of Kirzner.”² Boettke seems to hold James Buchanan and Kenneth Boulding in particularly high esteem. Indeed, in the Boettkian Pantheon Buchanan seems to be Zeus, placed on a higher level than Mises and Rothbard; while Kirzner and Hayek are gods that are close to Buchanan. Small-god status is assumed by, for example, Ostrom.

A particular place is reserved for the late Don Lavoie, who before his passing in 2001 served as a sort of local guru to the emerging Masonian Austrian community. The particular importance of Lavoie, we are told (chapter 12), was that he made it clear that the philosophical roots of Austrian economics lies in Continental Europe, meaning phenomenological and hermeneutical traditions rather than analytical philosophy. Boettke does not go into great detail here, but there is mention of Husserl and Gadamer. The problem, of course, is that “Continental Philosophy” is extremely varied and the label is not terribly informative. Additionally, there are those, particularly Robert Nozick and Uskali Mäki, who have actually addressed key Austrian ideas from the perspective of analytical philosophy.

There is nothing wrong with idolizing important economists. This is a good way of building group identity, based on the examples, lives and teaching and writing of those economists. Importantly, the particular economists that are idolized in Boettke’s books serve, of course, as the main inspirations for what we may call the “Boettke mélange,” a combination of Austrian economics, public choice theory, economics of governance, and “continental philosophy.” It is not a clear concoction we are talking about here, for it is not transparent, for example, what is the really the shared ground between Oliver Williamson and Ludwig von

² Of course, there are also intellectual villains or at least opponents, in Boettke’s account, particularly Abba Lerner and John Maynard Keynes.

Mises. Indeed, what does one do with a committed equilibrium economist like Harold Demsetz in this *mélange*?

What keeps the *mélange* together, Boettke says, is a commitment to “two fundamental observations of commercial society: (1) individual pursuit of their self-interest, and (2) complex social order that aligns interests with the general interest” (p. xvii). Unfortunately, this way of describing it desperately lacks discriminating power: Numerous other economists, including many that Boettke presumably would think of “mainstream,” “neoclassical,” “formalists,” etc. would subscribe to these two tenets without feeling any particular commitment to Austrian principles. In an attempt to further characterize the nature and content of the *mélange*, Boettke turns to a distinction between “mainline economics” and “mainstream economics.”

MAINLINE AND MAINSTREAM ECONOMICS

This distinction is a key theme in Boettke’s book. It is discussed, sometimes using different terminology, many times. It is clearly a distinction that Boettke invests in and believes is of crucial importance. I first learned of it sixteen years ago when Boettke and I were both on the Ph.D. committee of Frederic Sautet in Paris. We discussed it through the evening in the central-Paris apartment of Pascal Salin (Sautet’s advisor in France). I remember being skeptical of the distinction back then, and I still am. Let me explain.

“Mainline economics” is, according to Boettke, sound, basic economics; it is the Good Guys-stuff:

The mainline of economics, in my narrative is to be contrasted with the ‘mainstream’ of economic thought. Mainline is defined by a set of positive propositions about social order that were held in common from Adam Smith onward, but mainstream economics is a sociological concept related to what is currently fashionable among the scientific elite of the profession (p. xvii).

In terms of names, mainliners are the economists/philosophers of the Scottish Enlightenment, the Austrians, the public choicers, as well as new institutionalist economists, such as Coase, Demsetz, North, Williamson, et al.

There are several problems with the way Boettke presents and elaborates on the distinction. First, “mainline economics” is characterized in a way that is perhaps best, and hopefully not too unfairly, described as “bland.” It seldom goes much beyond things like “markets work,” “individuals make choices,” “the unintended consequences of those choices are usually beneficial (if the rules are “right”), or, “an exchange is an exchange is an exchange.” Additional potential content is suggested by the inclusion of verbal economists Demsetz, Coase, Ostrom, Stigler and Williamson, as well as the quite formalistic Jack Hirshleifer, in the mainline economics club. Thus, one suspects that mainline economics is also about property rights, governance structures, search behavior, and so on, but it is not really made clear (at least in this book) how such insights fit into the broader Boettkian program. One is then left with a fairly non-specific characterization of mainline economics. An obvious problem with this is that any mainstream (so-called) economist can simply retort that mainstream economics has done much to identify the exact conditions under which mainline economics—which he would see as essentially loose, verbal, normatively-laden basic/ commonsense economics—hold true. Boettke may reply that the key differential is the attention to process, but again, this only characterizes part of mainline economics, and a mainstream economist is not going to be impressed by the way “process” is handled in mainline economics anyway.³

Second, the characterization of mainstream economics is sometimes quite dated. The examples in the book are mainly general equilibrium theory. But, as Boettke points out in one place in the book (drawing on the work of Abu Rizvi), general equilibrium economics does not at all hold the sway over the profession that it did in the 1960s and 1970s. Thus, he recognizes that in fields such as industrial organization, partial equilibrium game theoretical models have taken over. Our economist will have no truck with such theorizing, however. This gives rise to a third problem.

³ Interestingly, in developing the process theme as a critique of mainstream economics, Boettke relies heavily on the work of a mainstream economist, namely Franklin Fisher (1983). Apparently, formalism is acceptable when it yields negative conclusions about the mainstream.

Third, the separation between mainline and mainstream economics involves a distinction between verbally stated, highly abstract, basic principles of economics and formal modeling of specific mechanisms in specific settings (e.g., specific manifestations of the “agency problem” and how it can be (partially) resolved by contractual means). “Models” do not appear to have a role in mainline economics, except as thought experiments *à la* the Coase theorem or the Misesian evenly rotating economy. The kind of partial, mathematical formalizations of a mechanism that could potentially be at work in the real world do not seem to be part of the Masonian understanding of economics. However, this kind of work is what takes up the bulk of the space in the economics journals.

Boettke contrasts mainline economics with recent formal economics, what he calls “formalistic historicism” (p. 325), a (mostly game-theoretical) way of doing economics where “any particular proposition can be proved using one language (formal) (p. 327). However, formal economists may reply, and I think rightly so, that although their work is specific, focused and formal, they certainly accept the basic principles of the logic of choice; they are not historicists. Additionally, they may counter that their theoretical work addresses the workings of mechanisms that will be at work in certain kind of contexts. If the context (incentives, institutions) is the “right” one, people will behave as predicted by the model. This is not “historicism,” it is simply the *ceteris paribus* clause at work. I do not think Boettke has presented a compelling argument why it is fundamentally un-Austrian or at variance with so-called mainline economics to engage in such work.

Moreover, consider Boettke’s own view of what successful empirical Austrian economics entails, namely “analytical narratives”: “The analytical narrative entails the application of Austrian economics as a tool of interpretation of ethnographic data. This approach emphasizes the open-endedness of choice as opposed to the close-endedness required by formalistic interpretations of rational choice.... The person as chooser returns with both human character and particular circumstances.” (p. 328). This sounds nice, but it is somewhat unclear what it actually means. I think it simply means applying basic logic of choice to historical explanation, and this is supported by Boettke explaining that the “analytical narrative makes the *aprioristically* deduced pure logic

of choice the handmaiden of institutionally focused ethnographic research" (p. 211).

If used retrospectively, as a tool of interpretation and organizing data, choice theory is indeed so flexible that it can "emphasize the open-endedness of choice." Any behavior can be explained as somehow rational *ex post*; a particular explanation is concocted that makes sense out of what we observed in terms of the incentives and other "particular circumstances" that confronted "the person as chooser." This is uncontroversial. But there are problems here. Remember that Boettke is very critical of mainstream formal economics modeling of particular mechanisms in particular settings, which he criticizes as being "formal historicism." But such formal economics modeling is still based on key principles that inform a class of models or indeed all of mainstream economics, such as maximizing some objective function. As Buchanan has explained, this is one way to make the pure logic of choice concrete. The difference then is that the Boettkian applies praxeology to concrete historical analysis, while mainstreamers apply what can be seen as a particular way of focusing the pure logic of choice to modeling particular mechanisms. Viewed thusly, the differences between applied mainline economics and mainstream economics do not seem that major. If anything, the latter seems more generalizable and predictive.

To illustrate, consider Masonian Peter Leeson's (2007) paper in the *Journal of Political Economy*, a leading mainstream outlet. This is a well-crafted piece that certainly throws light on the understanding of pirate organization and the economic forces that made buccaneering successful for some time. Is it specifically Austrian? No. Could it, in principle, have written by other economists with a good command of price theory, insight in the economics of governance and the like? Yes.

A SUCCESSFUL PROJECT?

Ultimately, Masonian economics as described by Boettke is not likely to be successful, if by "success" we mean sustained, high-level impact on the economics profession. First, because it does not play by the current rule book. Second, because it offers little *specific* that is not already somehow part of the mainstream. And third, because

it deliberately abstains from engaging in policy-related work on a concrete level. As Boettke says, the “role of the economist is not a savior to society; he or she is not a technical expert to be relied upon to fix ill through social engineering. No, the role of the economist is the far humbler one; that of a student of society and teacher of the basic principles of the discipline” (p. 56). Quite apart from the point that for some strange reason economists are not allowed to teach the non-basic principles of the discipline, this seems overly defeatist. Imagine that you find yourself in the shoes of Austrian economist, Stephen Littlechild, around 1980, having been tasked by the Thatcher government to engage in denationalizing the UK electricity industry, a project that one suspects many Austrians would be sympathetic to. To engage in this socially highly beneficial piece of “social engineering” you surely have to engage in a good deal of highly technical and involved economics (and econometrics) and rely on “technical experts.”

In sum, while there are many excellent points being made in this book—which in many ways is an enjoyable read—I remain skeptical of the fundamental aims of the Boettke project. This is rooted in my overall conviction that the Austrian tradition is not best preserved and furthered by being hostile to mainstream economics (see also Salerno, 2004). A *modus vivendi* is possible, in which Austrians regard formal, mainstream economics as less general and more contingent than the pure principles of fundamental Austrian economics, but nevertheless theory that is worth doing. (I realize that readers of this journal may disagree here). In fact, Austrian economics may in certain key respects be furthered by a formal approach.⁴ But that, to borrow a phrase, will be the subject of a future paper.

REFERENCES

- Fisher, Franklin M. 1983. *Disequilibrium Foundations of Equilibrium Economics*. Cambridge: Cambridge University Press.
- Hudik, Marek. 2015. “‘Mises and Hayek Mathematized’: Toward Mathematical Austrian Economics.” In *The Next Generation of Austrian*

⁴ For a thoughtful discussion, see Hudik (2015).

Economics: Essays in Honor of Joseph T. Salerno. Auburn, Ala.: Ludwig von Mises Institute.

Leeson, P. 2007. "An-arrgh-chy: The Law and Economics of Pirate Organization," *Journal of Political Economy* 115: 1049–1094.

Salerno, Joseph T. 2002. "The Rebirth of Austrian Economics—In Light of Austrian Economics," *Quarterly Journal of Austrian Economics* 5: 111–128.

Salerno, Joseph T. 2004. "Introduction to the Second Edition of *Man, Economy and State with Power and Market*." In *Man, Economy, and State with Power and Market*. Auburn, Ala.: Ludwig von Mises Institute.

BOOK REVIEW

PRIVATE GOVERNANCE: CREATING ORDER IN ECONOMIC AND SOCIAL LIFE

EDWARD P. STRINGHAM

OXFORD: OXFORD UNIVERSITY PRESS, 2015, 296 PP.

JASON MORGAN

Leave people alone, and they will figure things out. This simple thesis, the heart of Edward Stringham's *Private Governance*, is the touchstone for a myriad of examples from history and the present demonstrating that individuals, and not the state, are best suited for the complicated work of enterprise and ordered liberty.

In fourteen crisply-written chapters divided into three main parts, Stringham takes us on a brisk tour through the theoretical underpinnings of private governance, the ways in which private associations have developed extraordinarily sophisticated systems for regulating their own endeavors, and a more abstract consideration of how, philosophically and economically, private governance is

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superior to other state-heavy approaches to the complexity and interconnectedness of modernity.

Stringham's debt to Friedrich Hayek is apparent throughout the book, and it is a debt that Stringham readily acknowledges and willingly repays. From the dedication page—which is inscribed *To legal centralists of all parties*, in a clear riff on Hayek's dedication of *The Road to Serfdom*—all the way through to the concluding chapter, "The Unseen Beauty that Underpins Markets," Stringham follows Hayek's fundamental insight that the free market organizes information and individual desires in ways that state planners simply cannot. But Stringham also challenges and goes beyond the teachings of his master in many exciting ways. In Chapter Thirteen, for example, "Applying Hayek's Insights about Discovery and Spontaneous Order to Governance," Stringham pushes Hayek's views on spontaneous order and competition as a discovery process into a realm of pure common law that Hayek himself was reluctant to embrace. Whereas Hayek stopped short of advocating for competing legal systems within a given polity, teaching instead that "governance and [the] legal system [should be] monopolized by the state" (p. 214), Stringham follows Bruno Leoni in taking the law out of the hands of legislatures and supreme courts and placing it back at the local level, among juries, judges, and those immediately affected by legal decision-making.

Apart from these very well-argued rebuttals to some of the finer points of Hayek's revolutionary *oeuvre*, the core of Stringham's book is a ringing vindication of Hayekian spontaneous order. Focusing mainly on various stock markets, including the London Stock Exchange, and the Amsterdam Beurs trading shares of the Dutch East India Company and other joint-stock ventures in the early 1600s, Stringham shows with clear arguments buttressed by meticulous research that private associations, and not states, time and again seized on new opportunities and developed the rules for pursuing those opportunities both profitably and equitably. PayPal, Stringham shows us in Chapter Seven, followed essentially the same course of private governance in the absence of state oversight as did the earlier moneymakers in the seventeenth century. And, branching off from finance, Stringham details, in Chapter Eight, how private policing in California, from early Gold Rush anarchy through to the hyper-regulated San Francisco of today, has been a

consistent source of order and security, both in the absence of, and despite, meddling by state-provided police.

While Stringham kept the scope of his book within the western hemisphere—which, to be sure, provides him with all the examples he needs to show that Hayek was splendidly right about private governance—future works might take advantage of the rich possibilities for expanding the Hayekian foundation beyond Europe and the United States. For example, in Japan during the Tokugawa Period (1600–1868), private associations providing insurance and moral guidance to members operated in nearly complete autonomy from state oversight. These eleemosynary cooperatives, called *kō* (講), were so successful that they perdure to this day in the form of (now heavily regulated) life insurance companies.¹ The Japanese village-level governance of the commons (*iriai* 入会) has also been widely documented, and proves Stringham's and Hayek's points with elegant, serendipitous simplicity. Likewise, also in Japan, the impromptu office of the *hoshōnin* (保証人), or contract guarantor, functions analogously to the guarantors Stringham lauds as having helped advance contractual stability in the West. Similar examples of bottom-up, spontaneously ordered associations abound in nearly every society. Stringham has tapped into a rich vein of inquiry that seems to lead much farther afield than even he may have initially realized.

While this book is a triumph of argument, research, and expository writing, there are ways in which Stringham might have made his book even stronger. From a presentational standpoint, while I certainly appreciate and privately applaud his occasional one-liners directed against the academic and political Left, I nevertheless felt that gratuitous insults, as funny as they are, detract needlessly from the solid force of Stringham's argument. For example, Stringham ends a paragraph on private policing solutions in the 1850s in California having greatly reduced security expenses with this roundelay: "That's hope and change I can believe in." (p. 118) On the next page, Stringham shows that the private police in California adhered far more strictly to the rule of law than do the state authorities in the US today, and then takes another jab: "In

¹ See Najita (2009).

terms of numbers, these San Francisco vigilantes look like Gandhi compared to the president of the United States." (p. 119) These lines are cute, but I fail to see what they add to Stringham's main ideas, which are already very strong without them.

In a much larger sense, there are also ways in which Stringham fails to answer potential counterarguments from those—and in academia they will be legion—who do not agree with his clear-eyed historical deconstruction of the Left's statolatry. Take the title of his book, for instance. For nearly anyone who has come through a humanities graduate program at an American university, "governance" will probably fit immediately into one context: Foucault's "governmentality" and the entire literature that has accreted around it. While Stringham very capably shows that the state did not facilitate market interactions directly—to my mind, Stringham has put it beyond dispute that the market fends beautifully for itself—he leaves himself open to the Foucauldian rebuttal that the free-marketeers of the nineteenth and twentieth centuries and beyond have merely internalized the discursive norms generated by the panopticon state, thus making additional oversight superfluous. Stringham comes close to addressing Foucault on p. 136 when he touches on the "internal moral constraints" arguments of Adam Smith and Leo Tolstoy, but despite this near-miss I did not see Foucault mentioned even once in Stringham's book. Foucault is the modern academy's Harry Houdini costume, allowing them (they think) to wriggle out of even drum-tight arguments with ease. By heading the postmodernists off at the pass, Stringham might have shored up his book even more redoubtably than he already has.

These cavils aside, Stringham is to be commended for his bold and wonderfully-argued thesis, and for the research that he has done in supporting his claims. Kudos to him, in particular, for wading into 2008's troubled waters and showing how the market was trying to correct itself by means of credit default swaps and other innovative financial instruments, only to be stymied by the eternally ham-fisted intervention of governmental agencies like the Securities and Exchange Commission. (The SEC conducted no fewer than eight investigations of Bernie Madoff's pyramid scheme, for instance, but did nothing, while other investors caught on to what Madoff was up to and shut him out of the fair-play

club—just as Stringham and Hayek would have predicted they would. [pp. 182ff]) This book is a delight to read, is packed with accessible and fascinating information, is confident enough to tweak the noses of the Left (even if Stringham tweaks a bit much in some places), and is a recommended—required—read for anyone interested in the beauty of spontaneous order, far removed from the shadow of the state.

REFERENCES

- Najita, Tetsuo. 2009. *Ordinary Economies in Japan: A Historical Perspective, 1750–1950*. Berkeley: University of California Press.

BOOK REVIEW

ANDREW CARNEGIE: AN ECONOMIC BIOGRAPHY

SAMUEL BOSTAPH

LANHAM, MD: LEXINGTON BOOKS, 2015, 125 PP.

GREG KAZA

Entrepreneur Andrew Carnegie (1835–1919) emigrated to the United States from Scotland at age 12, working entry-level jobs (bobbin boy, messenger, telegraph operator) that taught him about the importance of initiative and self-taught education. At age 17, Carnegie became a railroad superintendent's personal secretary when his employer discovered he could read and write. He became privy to challenges faced by railroads, and was enterprising enough to grasp opportunities for improvement and self-enrichment. Trusted with greater authority, Carnegie learned about investments and cost-accounting, was promoted to railroad superintendent, and formed a company to manufacture iron for rails. Carnegie also invested in coal, express, horsecar and oil companies, and owned \$400,000 in assets (\$6.8 million today) by age 33 when he wrote a

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memo to himself vowing to set aside his business affairs and devote his time to philanthropy, formal studies and a public policy career. He achieved the philanthropic goal but not before playing a key role in creating the first billion-dollar U.S. corporation.

Non-economists (MacKay, 1997; Nasaw, 2006) have authored other Carnegie biographies. Univ. of Dallas Emeritus Professor of Economics Samuel Bostaph has written a biography that is engaging on several levels. First, Bostaph applies economic ideas about entrepreneurship, production and protectionism to Carnegie's commercial activities. He contrasts Carnegie's commercial acuity with his self-serving use of lobbying, tariffs and other forms of crony capitalism. Second, Bostaph explains, in some detail, technological advances within the iron and steel industries. Finally, he presents a side of Carnegie that should not be ignored: international peace advocate and opponent of imperialism who bought a replacement to avoid military conscription in the Civil War.

Bostaph begins by explaining three theories of entrepreneurship developed by Frank Knight, Israel Kirzner and Joseph Schumpeter. He uses the concept of Kirznerian entrepreneurial action for explanatory purposes to place Carnegie "firmly in the context of the market process." Bostaph identifies Carnegie as an entrepreneur in "a Schumpeterian sense: strong willed and eager to gain social power, yet innovative in his introduction of new products, processes and forms of business organization." These production processes are a recurring theme. Carnegie's father and ancestors were hand loom weavers paid piece rates for weaving damask. Weavers were vulnerable to downturns in the market for fine linen goods, centered in Dunfermline, Carnegie's hometown. Yet within two decades of Carnegie's birth the industry was virtually defunct due to technological advances. This experience and others made Carnegie alert to the future. He saw innovation as a key competitive means for increasing market share.

Following is Bostaph's description of the production process that led to construction, in the early 1870s, of one of the U.S.'s largest steel mills, 12 miles south of Pittsburgh:

With the availability of the low phosphorus iron ore of the Lake Superior region and the high quality coke made from the coal of the Connellsville area, he (Carnegie) decided it was now possible to use the Bessemer

process to produce steel in the quantities needed, and at a low enough cost, to replace iron rails with those of steel. (p. 42)

He further describes the process as follows:

Coke was a key ingredient of iron and steel making. The anthracite coal of eastern Pennsylvania contained very little impurities and was viewed as a natural coke. Coke also could be made by heating the softer bituminous coal and cooking the impurities out of it. The bituminous coal of the Connellsville region made a superior coke because the production process left it honeycombed with pockets that gave more surface area for burning. This made for faster burning than could be achieved with the denser anthracite, and thus faster pig iron production. (pp. 51–52)

The production of western Pennsylvania coke fed Carnegie's expansion of rail and structural steel, a vital step leading to the vertical integration of the U.S. steel industry.

Carnegie had two managerial obsessions. The first was cost minimization and product quality. He constantly worked to reduce his production costs below his competitors, and used the latest processes to create a superior product. The second was restricting partners' salaries and dividends to use profits for capital investment. Carnegie, in contrast to competitors, used the closely-held partnership form of business organization. They were not required to disclose their internal business plans and performance metrics. Public firms published this information so Carnegie purchased shares to learn about his competitors. Carnegie was a shrewd judge of men, and business practices and trends. Many of his top managers had started as unskilled or semi-skilled labor, and rose through the ranks. One of his managers had five operating principles: employ young and ambitious men; mix nationalities in the workforce; use up-to-date machinery; encourage competition between plants; and reduce the workday from 12 to 8 hours to increase productivity.

His commercial enterprises also took advantage of protectionism and tariffs. One obvious rationale for protectionism-and the one mentioned favorably by Andrew Carnegie, Bostaph explains, was the "infant industry" argument. This was tantamount, with iron and steel production, to an "infancy" dating to 1789, a period of more than 100 years. "Basically," he writes, "what happened

in both the iron and railroad industries during this period was that government was used as a means for socializing costs while privatizing profits." (p. 41) Tariffs on the supply side advantaged domestic iron and steel producers. One factor inspiring Carnegie's decision to build a large mill was the Tariff Act of 1870. Bostaph explains, "Protected by that duty and producing rails on a large scale in a state of the art plant, they expected to take the domestic market away from the British, as well as from their American competitors." (p. 44) Carnegie termed himself a "moderate" protectionist opposed to high tariffs and free trade. (p. 55) He was also a defense contractor, selling armor plate to the Navy (p. 83).

Carnegie's commercial career reached its zenith in 1901 when he sold his steel firm for \$304 million to the newly-created U.S. Steel, the first billion dollar U.S. corporation.

But he was not an interventionist. In 1898, Carnegie argued against annexation of the Philippines, stating it would be costly. He offered to pay the U.S. government \$20 million for the islands, the amount a treaty required that Spain be paid. Carnegie sought to buy the Filipinos their political independence but his offer was refused. He later established the Palace of Peace at the Hague (1903) and the Carnegie Endowment for International Peace (1910) "to hasten the abolition of international war." Carnegie grew up a "violent young republican" (Carnegie, 1920, pp. 10-12) in a household whose members were "highly critical of the existing political and economic system." (p. 12) After U.S. Steel's creation, Carnegie spent nearly two decades at the end of his life giving his fortune away as well as acting as a vociferous advocate for world peace.

One issue worthy of further research is Carnegie's understanding of the business cycle. This means examining his operations in the nine cycles that occurred between the Civil War's end in 1865 and U.S. Steel's founding in 1901, according to the NBER's business cycle chronology. Carnegie appears to have flourished in them by refusing to overcapitalize his operations in the preceding expansions, while purchasing discounted assets in contractions. Bostaph touches on this issue by noting the Panic of 1873 was a financial disaster for some firms but not for Carnegie's steel operation. "The partners had the cash for their subscriptions and building during a recession meant that materials, labor, and transportation costs were less than earlier years." (p. 44) He notes that

Carnegie's drive to cut costs "made it possible not only to increase his profit margins in good times, but also to preserve the power to reduce prices when it was necessary to keep the orders coming in. To be able to do so was particularly important during recession years when Carnegie would cut prices to keep production up at low profit rates rather than lose sales, cut production, and lay off workers (p. 46, Nasaw, pp. 174–176). It's worth noting that work on Carnegie's first big steel mill began during an 18-month contraction (June 1869 to December 1870), and a decline in rail demand in 1883 led to the forced sale of the Homestead steel works to Carnegie at the value of the original investment during a 38-month contraction (March 1882 to May 1885). Carnegie's competition fought to stay afloat in recessions while he expanded operations.

Carnegie's entrepreneurial talents in developing new markets and technological innovation cannot be ignored, Bostaph writes, despite his support for protective tariffs and unscrupulous dealings with politicians. Readers interested in an economic examination of Andrew Carnegie's commercial career will benefit from Bostaph's work.

REFERENCES

- Carnegie, Andrew. 1920. *Autobiography of Andrew Carnegie*. London: Constable and Co.
- MacKay, J.A. 1997. *Little Boss: A Life of Andrew Carnegie*. Edinburgh: Mainstream.
- Nasaw, David. 2006. *Andrew Carnegie*. New York: Penguin Press.