

ARTICLES

Reasons for the Demise of Interest: Savings Glut and Secular Stagnation or Central Bank Policy?	3
<i>Thomas Mayer and Gunther Schnabl</i>	
The Illusions of Inflation Targeting, with an Application to Ukraine	41
<i>Nikolay Gertchev</i>	
Mr. Hayek and the Classics; A Suggested Interpretation of the Business-Cycle Theory in <i>Prices and Production</i>	79
<i>Nils Herger</i>	
Measuring the Quality of Money	110
<i>Vytautas Žukauskas</i>	
The Unlikely Story of American Regulatory Socialism	147
<i>James Broughel</i>	
Book Review: The End of the Abe Administration—The End of Abenomics? Books on Past and Present in the Japanese Political Economy	166
<i>Jason Morgan</i>	
Book Review: Tax Tyranny By Pascal Salin	188
<i>Jörg Guido Hülsmann</i>	
Book Review: Austrian Economics in Contemporary Business Applications Edited by Hunter Hastings	194
<i>Fernando A. Monteiro C. D'Andrea</i>	
Book Review: Re-Reading Economics in Literature: A Capitalist Critical Perspective By Matt Spivey	201
<i>David Gordon</i>	
Book Review: Radical Uncertainty: Decision-Making Beyond the Numbers By John Kay and Mervyn King	206
<i>David Gordon</i>	
Book Review: The Essential Austrian Economics By Christopher J. Coyne and Peter J. Boettke	211
<i>David Gordon</i>	

FOUNDING EDITOR (Formerly *The Review of Austrian Economics*), Murray N. Rothbard (1926–1995)
EDITOR, Joseph T. Salerno, *Mises Institute* and *Emeritus, Pace University*
BOOK REVIEW EDITOR, Mark Thornton, *Mises Institute*
SENIOR ASSOCIATE EDITOR, Timothy D. Terrell, *Wofford College*
ASSISTANT EDITOR, Daniella Bassi
COPY EDITOR, J. Mark Stanley
PUBLICATIONS DIRECTOR, Judy Thommesen, *Mises Institute*

ASSOCIATE EDITORS

Per Bylund, *Oklahoma State University*

Jeffrey M. Herbener, *Grove City College*

David Howden, *St. Louis University–Madrid*

Matthew McCaffrey,
University of Manchester

CONTRIBUTING EDITORS

Philipp Bagus, *Universidad Rey Juan Carlos*
Carmen Elena Dorobât, *Leeds Trinity University*
Lucas M. Engelhardt, *Kent State University–Stark*
Nicolai Juul Foss, *University of Copenhagen*
David Gordon, *Mises Institute*
Randall G. Holcombe, *Florida State University*
Jörg Guido Hülsmann, *University of Angers*
Peter G. Klein, *Baylor University*

Mateusz Machaj, *University of Wrocław*
G.P. Manish, *Troy University*
Xavier Mera, *University Rennes*
Robert P. Murphy, *Mises Institute*
Malavika Nair, *Troy University*
Alexandre Padilla, *Metropolitan State University of Denver*
Shawn R. Ritenour, *Grove City College*

EDITORIAL ADVISORY BOARD

D. T. Armentano, *Emeritus, University of Hartford*
James Barth, *Auburn University*
Robert Batemarco, *Pace University*
Walter Block, *Loyola University*
Donald Bellante, *University of South Florida*
James Bennett, *George Mason University*
Bruce Benson, *Florida State University*
Samuel Bostaph, *University of Dallas*
Mark Brandly, *Ferris State University*
Peter T. Calcagno, *College of Charleston*
Anthony M. Carilli, *Hampden-Sydney College*
Dan Cristian Comanescu, *University of Bucharest*
Raimondo Cubeddu, *University of Pisa*
Thomas J. DiLorenzo, *Loyola College in Maryland*
Richard M. Ebeling, *The Citadel*
John B. Egger, *Towson University*
Robert B. Ekelund, *Emeritus, Auburn University*
Lowell Gallaway, *Ohio University*
Roger W. Garrison, *Auburn University*
Fred Glahe, *University of Colorado*
Steve H. Hanke, *The Johns Hopkins University*
Hans-Hermann Hoppe, *Emeritus, University of Nevada–Las Vegas*

Jesus Huerta de Soto, *Universidad Rey Juan Carlos*
Frank Machovec, *Wofford College*
Yuri Maltsev, *Carthage College*
John C. Moorhouse, *Wake Forest University*
Robert F. Mulligan, *Indiana University East*
Hiroyuki Okon, *Kokugakuin University*
Ernest C. Pasour, Jr., *Emeritus, North Carolina State University*
William Poole, *University of Delaware*
Thorsten Polleit, *Degussa Bank AG*
W. Duncan Reekie, *University of Witwatersrand*
Morgan O. Reynolds, *Texas A&M University*
Pascal Salin, *University of Paris*
Frank Shostak, *Sydney, Australia*
Josef Sima, *CEVRO*
Gene Smiley, *Marquette University*
Barry Smith, *State University of New York–Buffalo*
Thomas C. Taylor, *Emeritus, Wake Forest University*
Richard K. Vedder, *Ohio University*

REASONS FOR THE DEMISE OF INTEREST: SAVINGS GLUT AND SECULAR STAGNATION OR CENTRAL BANK POLICY?

THOMAS MAYER AND GUNTHER SCHNABL*

JEL CLASSIFICATION: E12, E14, E32, E43

ABSTRACT: This article compares the Keynesian, neoclassical and Austrian explanations for low interest rates and sluggish growth. From a Keynesian and neoclassical perspective, low interest rates are attributed to aging societies, which save more for the future (global savings glut). Low growth is linked to slowing population growth and a declining marginal efficiency of investment as well as to declining fixed capital investment due to digitalization (secular stagnation). In contrast, from the perspective of Austrian business cycle theory, interest rates were decreased step by step by central banks to stimulate growth. This paralyzed investment and lowered growth in the long term. This study shows that the ability of banks to extend credit ex nihilo and the requirement of time to produce capital goods invalidates the permanent IS identity assumed in the Keynesian theory. Furthermore, it is found that there is no empirical evidence for the hypotheses of a global savings glut and secular stagnation. Instead, low growth can be explained by the emergence of quasi “soft budget constraints” as a result of low interest rates, which reduce the incentive for banks and enterprises to strive for efficiency.

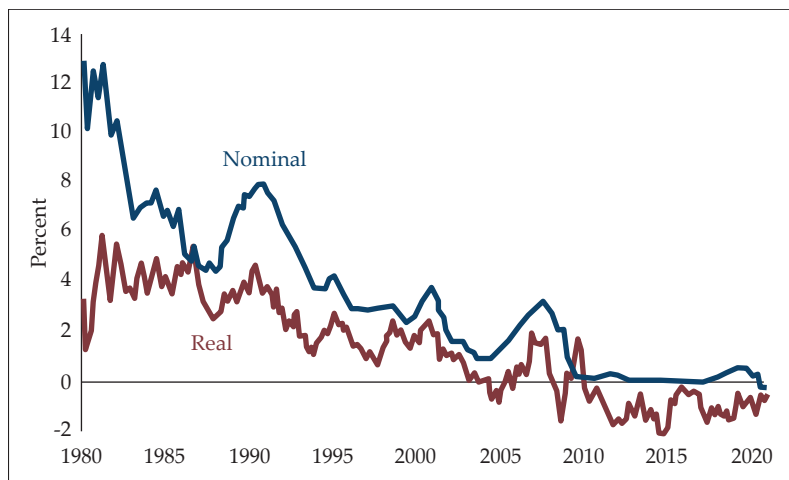
* Thomas Mayer (Thomas.mayer@fvsag.com) is the founding director of the Flossbach von Storch Research Institute, Cologne, Germany. Gunther Schnabl (schnabl@wifa.uni-leipzig.de) is a professor of international economics and economic policy in the department of economics at Leipzig University, Germany.



INTRODUCTION

Since the 1980s, slower economic growth in the industrial countries has been accompanied by lower interest rates, with real interest rates turning negative more recently (figure 1). The fight against the economic consequences of the severe corona crisis has triggered an even stronger monetary expansion, with even more government bond yields falling into negative territory. At the same time, investment, productivity growth, and economic growth have continued to slow. Although to some observers the pivotal role of central banks in ever-lower levels of interest is evident, representatives of central banks have stressed structural factors as the reasons for low interest rates (Lane 2019, Schnabel 2020).

Figure 1. Nominal and Real Short-Term Interest Rates in the US, Japan, and Germany



Source: IMF. Arithmetic mean. Real interest rates calculated based on official consumer price inflation statistics with hedonic price measurement.

Different schools of thought have provided different theoretical and empirical explanations. Based on Keynes (1936) and Hansen (1939), Bernanke (2005) and Summers (2014) have attributed secularly declining real interest rates to a global savings glut driven by aging societies, a declining demand for fixed capital investment, and a declining marginal efficiency of fixed capital investment (Gordon 2012). Łukasz and Summers (2019) argue that “the neutral

real rate for the industrial world has trended downward for the last generation and this is best understood in terms of changes in private sector saving and investment propensities.” According to their view, central banks are simply adjusting to the exogenous forces of secular stagnation when they set the interest rate at or below zero.

In contrast, from the point of view of Austrian economic theory in the tradition of Mises (1912) and Hayek (1931), human beings strive to achieve their goals earlier rather than later and thus have a “positive time preference.” This makes negative interest rates under free market conditions impossible (Mises [1949] 1998). This view is in line with the finding of Homer and Sylla (2005) that through most of economic history real interest rates were positive. In this spirit, based on the monetary overinvestment theories of Mises (1912) and Hayek (1931) and in line with Borio and White (2004) and White (2006), Schnabl (2019) has argued that the gradual decline of interest rates in the industrialized countries has been due to asymmetric monetary policies: strong interest rate cuts during crises were not followed by respective increases during the postcrisis recovery.

The question of whether the gradual decline of real and nominal interest rates in the industrialized countries (and the rest of the world) is due to structural change, as suggested *inter alia* by Summers (2014) or due to policy decisions made by central banks is crucial for the economic policy agenda. The Keynesian interpretation can be used to justify further interest rate cuts, even below zero,¹ as well as fiscal expansion. In contrast, from the Austrian point of view only renouncing policies that have led to low and even negative interest rates can reanimate economic activity. This article compares the two approaches and derives policy implications.

THE KEYNESIAN AND NEOCLASSICAL INTERPRETATION OF LOW INTEREST RATES AND GROWTH

The close relationship between declining nominal and real interest rates and declining (productivity) growth is in the Keynesian and

¹ Agarwal and Kimball (2019) of the International Monetary Fund (IMF) have compiled a guide for central banks on how to enable deep negative interest rates in order to fight recessions.

neoclassical view due to exogenous factors. Structural change leads to changes in supply and demand conditions in the capital markets, with the result that the real interest rate declines. In the spirit of Hansen (1939), Bernanke (2005) attributes a savings glut to the aging of societies. As people approach retirement age they are seen to save more for old age. When the cohort of aging people is large, in the Keynesian and neoclassical approach the aggregate supply of loanable funds and equity capital rises. At the same time, profitable investment opportunities are seen to decline, reducing the demand for loanable funds and equity capital (Summers 2014).

Savings Glut, Secular Stagnation, and the Keynesian Natural Interest Rate

Following the sharp interest rate cuts of the US Federal Reserve in response to the burst of the dot-com bubble at the beginning of the new millennium, Bernanke (2005) attributed an increase in the US current account deficit (i.e., growing net capital inflows to the US) and the decline of world interest rates to factors outside the US: “A global saving glut ... helps to explain both the increase in the US current account deficit and the relatively low level of long-term real interest rates in the world today.” Bernanke (2005) argued that aging populations in a number of industrial countries and several emerging market economies, notably China, had transformed these countries from net borrowing to being net lenders on international capital markets, with the result of increased net capital flows to the US.

According to Bernanke (2005), East Asian countries prevented their exchange rates from appreciating and accumulated foreign reserves to boost the competitiveness of their exports and create war chests against balance of payments crises.² Bernanke (2005) also observed higher US dollar earnings for oil- and raw materials-exporting countries due to rising oil prices, which were to a large extent recycled into US dollar investments. Before the subprime crisis, capital flows to the US were attracted by fast productivity growth, strong property rights, and a robust regulatory environment.

² In 1997–98, the Asian crisis, which had been caused by large net capital inflows, overinvestment, and current account deficits, put an abrupt end to the economic miracle in a number of Southeast Asian countries (Corsetti et al. 1999).

After the outbreak of the subprime crisis, which culminated in the global financial crisis of 2007–08 and prompted the Federal Reserve (and other large central banks) to cut interest rates toward zero, Summers (2014) developed a comprehensive explanation for the global decline of nominal and real interest rates from a capital market perspective. On the supply side of the capital market, Summers (2014) linked low birth rates in industrialized countries to growing savings in the tradition of Hansen (1939)³ and Bernanke (2005), who had argued that people in aging societies would save more for retirement.⁴ Summers associated growing income inequality with a declining marginal propensity to consume (an increasing propensity to save) in a large part of the population.⁵ Following Bernanke (2005), he identified accumulation of reserves in emerging market economies as a reason for the increased demand for safe assets available in the US.⁶

On the demand side of global capital markets, Summers (2014) linked a lower demand for fixed capital investment to changes in technology. He assumed that companies in the information and communication technology sector would have a lower demand for fixed capital. Like Bernanke (2005) and Gordon (2012), Summers (2014) argued that the potential of innovations to increase productivity had

³ In the 1930s, Hansen (1939) had argued that low growth was caused by slowing population growth and limited scope for technological innovation. He had dubbed this phenomenon “secular stagnation.”

⁴ Keynes (1936) distinguishes eight savings motives from an individual perspective: preference for private profit (i.e., interest), intertemporal substitution motive, life-cycle motive due to decreasing income after retirement, precautionary motive, independence motive, enterprise motive, bequest motive, and avarice motive. The theory of a savings glut in an aging society randomly picks out the life-cycle motive and applies it to the entire society. Weizsäcker (2014) transferred Summers’s (2014) concept to Germany and demanded an expansionary fiscal policy to lift interest rates. Meanwhile, the pressure on German fiscal policy to become more expansionary to increase the inflation rate (and thereby to allow the European Central Bank [ECB] to lift the interest rate) is growing.

⁵ Keynes (1936) argued that the growth of income over time had increased the savings rate of the society, leading to a structural rise of savings over investment.

⁶ As the Fed strongly cut interest rates in response to the burst of the dot-com bubble after the year 2000, capital flows to East Asia accelerated. With the East Asian countries stabilizing their exchange rates against the dollar, the accumulation of dollar reserves and thereby the purchases of US government bonds strongly increased (see McKinnon and Schnabl 2012).

structurally declined. The resulting drop in the demand for capital goods was supposed to have been accompanied by lower prices for capital goods, leading to a further decline in investment spending in nominal terms. In Summers's (2014) view, rising household savings drag down expected aggregate demand, including corporate investment. Thus, corporate savings rise as well.⁷ When savings and investments are assumed to behave in line with these "stylized facts," the savings curve in the neoclassical capital market model shifts to the right and the investment curve to the left. The equilibrium (or natural/neutral) interest rate falls, possibly even below zero.

In the neoclassical theory it is assumed that the real interest rate is determined by the marginal productivity of capital on the demand side of the capital market and by the time preference of savers on the supply side. Thus, the market equilibrium interest rate is determined by the marginal return on capital (which drives the demand for capital) and the marginal utility of exchanging present goods against future goods (which determines the supply of capital). The equilibrium rate matching savings to investment has been called the neutral or natural rate.

The natural or neutral rate of interest is a theoretical concept and cannot be observed directly.⁸ A model is needed. Economists of a neoclassical persuasion have tried to derive it from the marginal product of capital of empirically estimated production functions. Those with a Keynesian preference have used Wicksell's (1898) notion of a given interest rate prevailing in economic equilibrium to define the natural rate as the interest rate which keeps price inflation stable and output growth at its potential (see Woodford 2003).⁹ Thus, Laubach and Williams (2015) as well as Rachel and

⁷ Which can also take the form of hoarding cash.

⁸ Mises (1944) argued that it is difficult to know the natural interest rate. In free markets, given sound money, long-term rates reflect on average the natural rate, which is determined by time preference (see below).

⁹ Wicksell's (1898) natural rate ensures price stability (zero inflation). In contrast, the notion of the natural rate by Laubach and Williams (2015) as well as Rachel and Summers (2015) ensures a stable rate of price inflation (for example, 2 percent). The definition of Wicksell (1898) would imply in the modern world that the target for the inflation rate in the steady state is 0 percent. Also note that whereas Woodford (2003) assumes that the natural interest rate closes the output gap, this requirement is not found in Wicksell (1898).

Summers (2019) define the natural or neutral interest rate as the real short-term interest rate consistent with the economy operating at its full potential, without upward or downward pressure on consumer price inflation. Gourinchas and Rey (2019) see a structural decline of the ratio of consumption to wealth as an indication of a decline of the natural interest rate. Following this line of thought would lead to the conclusion that rising asset prices drive down the natural interest rate.

Laubach and Williams (2015) as well as Rachel and Summers (2019) estimate the output gap via the Keynesian IS curve¹⁰ and inflation with the Phillips curve, which links price changes to the level of unemployment. As they find a negative output gap and declining (measured)¹¹ consumer price inflation, the natural or neutral interest rate estimated with their model declines from the 1980s. The decline has accelerated since the 2007–08 global financial crisis, with the natural interest rate turning negative recently. These findings are confirmed by the estimates of Jordá and Taylor (2019), who argue that half of the decline trend is due to structural factors, such as lower productivity growth and an aging population, and the rest to central bank policy.

To derive policy implications, Laubach and Williams (2015) apply the estimated natural interest rate to the Taylor (1993) rule. The original Taylor rule assumes a real interest rate of 2 percent, which was constant and close to the long-term US growth rate of 2.2 percent observed at the time. With an assumed inflation target of 2 percent,¹² this implied at the time a long-term equilibrium or

¹⁰ The IS curve represents all equilibrium combinations of the real interest rate, r , and the real income, Y , at which the goods market is *ceteris paribus* in equilibrium.

¹¹ Meanwhile, a discussion has emerged about whether officially measured inflation rates are understated or overstated. A core point in this discussion is how changes in quality of goods should be incorporated in inflation measurement (hedonic price measurement). Whereas one side argues that quality improvements are not sufficiently incorporated in hedonic price measurement (Feldstein 2017), others see declining quality being overlooked (Komlos 2018; Kitov 2012; Linz and Eckert 2002). Furthermore, the question arises, if asset price inflation (for instance for owner-occupied housing) should be included in inflation measurement, as monetary policy is increasingly transmitted to financial markets rather than goods markets (Schnabl 2015a).

¹² Note that different central banks use different measures of inflation for monetary policymaking.

Market participants claim that the Fed is targeting core PCE, as it aims to stabilize inflation “over the long run.” The European Central Bank aims to keep the percent

nominal natural interest rate of 4 percent, consistent with inflation and output at target levels.¹³ Inserting their estimates of a declining natural interest rate into the Taylor rule, Laubach and Williams (2015) arrive at the policy recommendation to gradually decrease the key policy interest rate toward or even below zero. If the natural interest rate falls, the policymaker has to cut the nominal interest rate to achieve the inflation target.

The Keynesian-Neoclassical Framework

In the seminal Keynesian macroeconomic framework, consumption is determined by real income (Y), with the propensity to consume declining over time (as in Keynes 1936). Bernanke (2005) and Summers (2014) argue that the propensity to consume (propensity to save) declines (increases) when the population is aging and the working-age population is shrinking:

$$\text{(equation 1)} \quad C = k(D)Y$$

where C denotes real consumption, k the marginal propensity to consume, D the aging (shrinking) of the (working-age) population, and Y the real gross domestic product (GDP), with $D > 0$ and $\frac{dk}{dD} < 0$.¹⁴

change rate of the Harmonized Consumer Prices Index at “close to but less than 2%” in the medium term. It is unclear whether the ECB is targeting headline or core inflation. An increasing number of commentators think that the ECB targets core inflation rather than headline inflation as in the past. The reason is that in cases when headline inflation was close to 2 percent while core inflation was substantially below 2 percent, ECB representatives claimed to have missed the target. More generally, the ECB (2016) claims that “many central banks, including the ECB, monitor a wide range of underlying inflation measures, which abstract from short-term volatility, to gauge inflationary trends. In addition to HICP inflation excluding energy and food, the ECB monitors various exclusion-based measures and model-based measures of inflation, as well as developments in long-term inflation expectations.” The Bank of Japan (2013) “sets the ‘price stability target’ at 2 percent in terms of the year-on-year rate of change in the consumer price index (CPI)—a main price index.”

¹³ The Taylor rule is $i = r^* + \pi^* + 0.5(\pi - \pi^*) + 0.5(y - y^*)$, with i being the nominal (central bank target) interest rate, r^* being the real interest rate (assumed to be constant in the long term), π being the inflation rate, and y being real output. π^* marks the inflation target and y^* the trend output.

¹⁴ The view that savings increase when a population ages is based on considerations of plausibility instead of empirical observations. It is argued that working age people save for retirement as they grow older. At the same time, however, retirees

Real investment, I , is a function of the real interest rate, i :

(equation 2) $I = I(i)$

Investment increases when the interest rate falls ($\frac{dI}{di} < 0$).

The price level, P , is a function of the economy-wide capacity utilization (output gap), measured by the ratio between actual real GDP (Y) and potential real GDP (Y^{pot}).

(equation 3) $P = P\left(\frac{Y}{Y^{pot}}\right)$

Prices rise when real output grows above potential $\frac{dP}{d(\frac{Y}{Y^{pot}})} > 0$.

Real GDP in a closed economy is the sum of consumption and investment:

(equation 4) $Y = C + I$

Inserting (1) and (2) in (4) and solving for Y yields:

(equation 5) $Y = \frac{I(i)}{(1-k(D))}$

Substituting (5) into (3) gives:

(equation 6) $P = P\left(\frac{\frac{I(i)}{(1-k(D))}}{Y^{pot}}\right)$

In this framework, if a society is aging, the propensity to consume, k , decreases, and the price level and output fall. To compensate for this effect, a central bank pursuing an inflation target needs to decrease the real interest rate to increase investment, output, and thereby the price level again, as explained by Laubach and Williams (2015) as well as by Rachel and Summers (2019). Interest rate cuts are necessary to maintain the inflation target and an equilibrium in the goods market.

The IS model abstracts from the supply side, as potential output is assumed to be given exogenously. It can be augmented, however, by adding a neoclassical element in the form of a production function where potential output is dependent on the capital stock, K :

(equation 8) $Y^{pot} = Y^{pot}(K)$

may dissave. Whether saving for retirement is greater or smaller than dissaving in retirement is an empirical issue which Bernanke (2005) and Summers (2014) regard as resolved by their observation that populations are aging and interest rates are declining.

with the change in the capital stock being equivalent to investment ($\Delta K=I$).¹⁵ Assuming profit maximization, the marginal product of capital equals its real return, r :

$$\text{(equation 9)} \quad r = \frac{\Delta Y^{pot}}{\Delta K} = \frac{\Delta Y^{pot}}{I}$$

An investment project would usually only be financed when the real return is expected to be larger than the real interest rate on credit (i) plus the risk premium (rp). Hence,

$$\text{(equation 10)} \quad i = \frac{\Delta Y^{pot}}{I} + rp$$

where rp is assumed to be constant for the sake of simplicity.

The upshot is that the propensity to consume (k) falls when the population ages, and savings increase (as $S = Y - C$). The resulting decline in demand and output prompts the central bank to reduce i . At the same time, as argued by Summers (2014) and Gordon (2012), investment and productivity growth decline, which lowers r .¹⁶

THE AUSTRIAN OVERINVESTMENT FRAMEWORK AND THE ROLE OF THE FINANCIAL SECTOR

The overinvestment theory of Mises (1912) and Hayek (1931) says that a credit interest rate manipulated by the central bank below the natural interest rate at first induces an economic upswing, which is fueled by credit creation of the banking sector.¹⁷ When interest rates are lifted again by the central bank to contain inflation, the upswing turns into a downswing. When interest rates then are strongly cut in response to the downswing, distorted economic structures created during the upswing are conserved, which leads to persistently low growth.

¹⁵ For parsimony we abstract from the depreciation of the capital stock.

¹⁶ Note, however, that lower interest rates as a result of a savings glut (Summers 2014) conflict with the explanation of low interest rates as a result of slowing productivity growth (Gordon 2012). Summers (2014) assumes that the decline of output is due to increasing savings and declining consumption. This implies a decline of output below potential output from the demand side and therefore deflationary pressure. Gordon (2012) assumes a decline of potential output below output. This implies growing inflationary pressure from the supply side.

¹⁷ For details see Schnabl (2019a).

The Austrian Overinvestment Framework

According to Böhm-Bawerk (1884) and Mises (1940), the interest rate is a measure for time preference, with finitely living people assigning greater value to goods and services today than goods and services available at a future point in time.¹⁸ The borrowing of funds to produce capital goods requires the payment of interest as a compensation for the present consumption foregone on the part of the lender (agio). According to Böhm-Bawerk's (1884) concept of roundaboutness, this positive interest rate payment is possible if the time-consuming move to a more capital-intensive production process allows higher production in the future. If a roundabout method would not result in a more productive production process, people will not engage in time-consuming roundabouts of producing the capital goods required for an increase of consumption in the future.¹⁹

Before consumer goods can be produced, capital goods have to be produced. Whereas a high interest rate is an impediment for many investment projects with a comparatively low expected return, a low interest rate stimulates investment, as the costs of roundabouts decline. A lower interest rate signals higher present savings and as a result higher consumption in the future. This provides an incentive to increase capacity for the production of consumption goods. When some enterprises start to invest in response to a lower interest rate, they need inputs from other enterprises, which extend their production capacities as well.

A cumulative upswing sets in which is financed by credit creation of banks.²⁰ This allows real investment (I) to temporarily exceed

¹⁸ Therefore, in the view of Austrian economists, the interest rate always has to be positive, because it requires time to achieve a certain objective and time is scarce for mortal men.

¹⁹ But they could hoard products for future consumption if needed.

²⁰ Ohlin (1937) argued in his loanable funds theory that nominal investment can be financed by nominal household savings (S) and credit creation of banks (ΔC): $I^n = S^n + \Delta C$. To grant a credit to an enterprise or a household, the bank does not necessarily need to collect deposits from savers. By providing a loan, the bank enlarges its claims on the private sector on the asset side of the balance sheet. When the credit is transferred to the debtor's bank account, the deposits of the bank increase on the liability side of the balance sheet. This implies that private banks can

real savings (S). Banks create additional credit to keep interest rates aligned with the central bank interest rate. In the first phase of the upswing, when less than the full labor force is in use, wages do not increase. The profits of banks and enterprises grow, which is reflected in rising stock prices.²¹ When unemployment has declined to a very low level, the negotiating power of labor unions strengthens and wages rise. Enterprises have to lift prices to cover their costs, which pushes up inflation. When rising inflation forces the central bank to raise interest rates, the benchmark for the profitability of past and future investment projects is raised.

Owing to higher financing costs, incomplete investment projects need to be abandoned, and new investment projects become unprofitable. A cumulative downswing evolves. During the downswing—according to the overinvestment theory—the central bank keeps the credit rate, via the central bank interest rate, above the natural interest rate, which falls as investment declines. As interest rate is kept above the natural interest rate, the downturn is aggravated. As unemployment grows, wages and prices fall. The dismantling of investment projects with low profitability and falling wages and prices are seen as prerequisites for the economic recovery. The downswing entails a *cleansing effect* (Schumpeter 1912), as resources can be shifted to higher return investment projects.

Transmission via the Financial Sector

In the Keynesian model the central bank steers the money market interest rate via the LM-curve by expanding the money supply.²² There are neither banks nor capital markets involved. In contrast,

increase the money supply (ΔM) by providing credit (ΔC). With the interest rate being determined by credit supply and demand, an exogenous extension of credit reduces the equilibrium interest rate.

²¹ Hayek (1931) also acknowledges that during an upswing stock and real estate prices can become delinked from fundamentals as speculation sets in.

²² The LM-curve represents all combinations of the real interest rate (i) and real output (Y) at which the money market is in equilibrium. An equilibrium in the money market implies that money supply (M) equals money demand (L), which is equivalent to liquidity preference. According to Keynes's (1936) concept of liquidity preference, the interest is a monetary phenomenon, determined by supply and demand for money.

in the Austrian model the banking sector transmits the interest rate policy of the central bank to credit rates through credit extension of banks. Investment can increase the fixed capital stock (nonfinancial investment, e.g., machinery for producing consumer or investment goods) or financial assets.

To model the role of banks in financing investment, the relationship between nominal savings and nominal investment can be represented as

$$(\text{equation 11}) \quad P^{nf} I^{nf} + P^f I^f = S^n + \Delta C$$

The variable P^{nf} denotes the price of real nonfinancial investment goods (I^{nf} , fixed capital investment) and P^f the price for real financial investments (I^f) such as equities. S^n is equivalent to (nominal) savings out of existing money, ΔC is the credit (and money) creation of banks.²³ We assume that I^{nf} , I^f , and ΔC are all negative functions of the interest rate (i). If the interest rate falls, nonfinancial and financial investments grow and additional credit is created domestically. Savings are assumed to increase (fall), when the credit interest i increases (falls).

The prices of nonfinancial investments and financial investments are assumed to depend positively on investment activity. If more is invested, the prices of the real and financial investment goods rise:

$$(\text{equation 12}) \quad P^{nf} = P^{nf}(I^{nf}) \text{ with } dP^{nf}/dI^{nf}$$

$$(\text{equation 13}) \quad P^f = P^f(I^f) \text{ with } dP^f/dI^f > 0$$

If the credit interest rate (i) declines, savings decrease. Non-financial investment and financial investment increase, with the additional demand for funding covered by domestic bank credit creation ($\Delta C > 0$). The presence of banks allows the funding of nonfinancial and financial investment not only from existing savings but also from credit (i.e., new money) created by the banks. Nominal investment can temporarily be higher than saving:

$$(\text{equation 14}) \quad P^{nf} I^{nf} + P^f I^f > S^n$$

During the upswing nonfinancial investment grows, as low interest rates set by central banks signal higher present savings

²³ Money is created by banks through credit expansion. See also the loanable funds theory of Ohlin (1937). In a financially open economy, financial and nonfinancial investment can also be financed by net foreign lending.

and thereby higher future consumption (Mises 1912; Hayek 1931). Resources are redirected from the production of consumer goods to the production of capital goods.²⁴ Alternatively, financial investment increases. As deposit rates are low, consumers have an incentive to withdraw deposits from banks and buy stocks of enterprises and banks, whose profits increase during the upswing. If equity prices are expected to rise further, speculation may set in, with the valuation of equities becoming delinked from their fundamentals. A credit boom evolves, with prices of nonfinancial and financial investment rising. The speculative boom may also attract additional funds from abroad, as observed during the 2003–07 US subprime boom and the boom in the southern European countries during the same time period.

When rising wages force enterprises to lift prices, a central bank targeting goods price inflation is forced to increase the interest rate. At higher interest rates nonfinancial and financial investments with comparatively low expected returns become unprofitable and need to be abandoned. As the central bank keeps the interest rate high during the downswing, the commercial banks tighten credit ($\Delta C < 0$). Nonfinancial and financial investments have to be abandoned, and their prices fall. In the resulting recession, unemployment rises.

If central banks change interest rates in an asymmetric way—i.e., interest rates are cut more during the recession than they are lifted during the recovery from the crisis to prevent unemployment²⁵—interest rates will gradually decline toward zero, as shown in figure 1. The average productivity of investment will also be affected: while during the upswing financial and nonfinancial

²⁴ As this tightens the supply of consumer goods, prices of consumer goods will drift upward.

²⁵ From a historical perspective it has been argued—in line with the overinvestment theory—that the Federal Reserve kept monetary policy too tight during the Great Depression (Bernanke 1983). Under Federal Reserve chairman Alan Greenspan an asymmetric policy emerged with an eye to stock prices. Monetary policy tended to respond to falling stock prices while refraining from intervening against rising stock prices on the grounds that bubbles could not be identified (Hoffmann 2009). In the so-called Jackson Hole consensus, US central bankers agreed that central banks do not have sufficient information to spot and prick bubbles but should intervene in times of financial turmoil (Blinder and Reis 2005).

investments with comparatively low marginal productivity are realized, these investment projects are not scrapped in the downswing. The average productivity of investments declines, and growth weakens.

EMPIRICAL EVIDENCE

In both the Keynesian/neoclassical and the Austrian models, the natural or neutral interest rate is a theoretical concept which cannot be observed directly in reality. Empirical estimates of the natural interest rate, as discussed earlier, are only as reliable as the underlying model is an appropriate representation of reality. Any specification errors would be captured by the interest rate derived from the model. The Keynesian model does not model the banking sector and ignores credit (or money) creation by banks. Furthermore, the Phillips curve, relating the output gap to inflation, on which the Keynesian model relies, has flattened and become unstable in most industrialized countries.²⁶

Global Savings Glut, Aging Societies, and Increasing Inequality

A core argument of the secular stagnation hypothesis is that interest rates have been driven down by aging societies, in which people save more for retirement (section 2). This would imply that low birth rates in the industrial countries and China would go along with growing household savings rates.

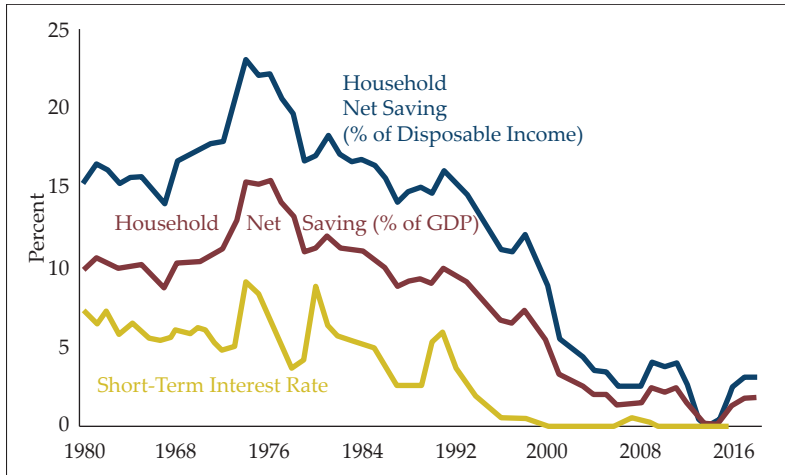
To provide empirical evidence for the savings glut hypothesis, Demary and Voigtländer (2018) create an econometric model estimating real interest rate developments in twenty-four Organisation for Economic Co-operation and Development (OECD) countries with proxies for the savings glut (life expectancy, old-age dependency, young-age dependency) and secular stagnation hypotheses (total factor productivity growth, labor force growth). In contrast to the secular stagnation hypotheses, total factor productivity growth has no statistically significant effect on real interest rates in their estimates. In contrast to the savings glut hypothesis,

²⁶ See Hooper, Mishkin, and Sufi (2012); and Israel (2017).

both the old- and young-age dependency ratios have a statistically significant negative influence on real interest rates.²⁷

Empirically the link between aging populations and household savings rates is weak. The most prominent example is Japan, where since the 1980s the fast aging of the society has come along with declining household savings rates. Figure 2 shows that together with the short-term interest rate, which has been pushed down by the Bank of Japan to zero, household net savings as a percentage of GDP and as percentage of disposable income has declined as well. Latsos (2019) shows empirically that the main determinant of Japanese household savings rates has been the declining interest rate set by the Bank of Japan, with interest rate cuts constituting an incentive to save less. This is in stark contrast to the aging population hypothesis of Bernanke (2005), Summers (2014), and Weizsäcker (2014).

Figure 2. Household Saving Rate and Short-Term Interest Rate in Japan



Source: OECD, IMF, Bank of Japan.

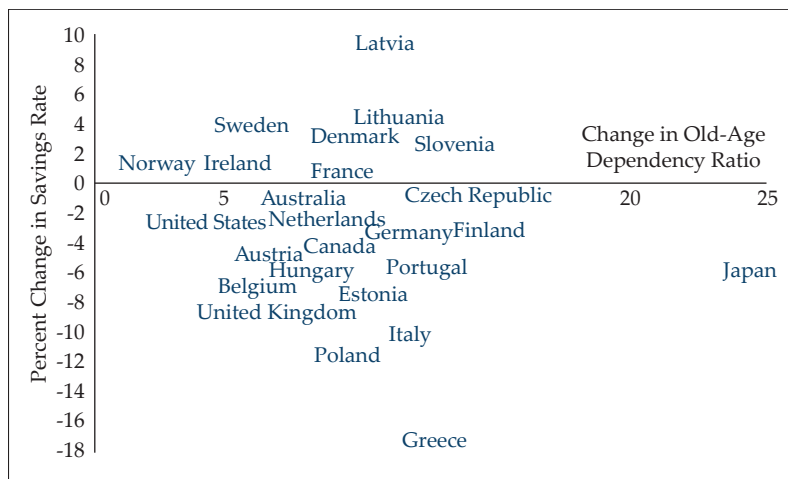
²⁷ These results are inconsistent with both the savings glut and the secular stagnation hypotheses. Furthermore, the specification ignores credit creation for investment by the banking sector and interest rate setting by central banks as determinants of the real interest rate, therefore suffering from omitted variable bias.

A broader sample of OECD countries also shows no robust evidence of a correlation between aging populations and growing household savings rates. Figure 3 shows the change in the old-age dependency ratios of several OECD countries²⁸ since 1995 on the x axis, calculated by subtracting the old-age dependency ratio in 1995 from the old-age dependency ratio in 2018. A positive value indicates an aging population. The populations of all the OECD countries in the sample have aged according to this measure. Japan stands out as a particularly fast-aging country. The y axis shows the difference in the household savings rate between 2018 and 1995 in percentage points. A negative (positive) value indicates a declining (increasing) household savings rate since 1995. Based on this measure, the majority of the countries experienced a decline in the household savings rate. The aging-society-savings-glut hypothesis would imply a close positive relationship between the two indicators in form of an upward-trending line moving from left to right. But there is no correlation at all.

Instead of household savings rates, enterprise savings rates have increased in some industrialized countries such as Germany and Japan (figure 4). This has been due to three reasons. First, interest rate cuts have reduced the financing costs of enterprises, which traditionally have been borrowers in capital markets. Lower interest expenses have raised retained earnings. Second, for the enterprises of export-oriented economies, such as Japan and Germany, depreciation of the domestic currencies caused by strong monetary expansions has generated windfall profits. Third, fixed capital investment as percent of GDP has tended to decline. This could be explained, in the tradition of Hansen (1939), by slowing population growth (Summers 2014) and slowing technological innovation (Gordon 2012). More likely, however, enterprises expected lower demand owing to downward pressure on real wages because of relaxed interest rate constraints (see below).

²⁸ Countries where data were unavailable are excluded.

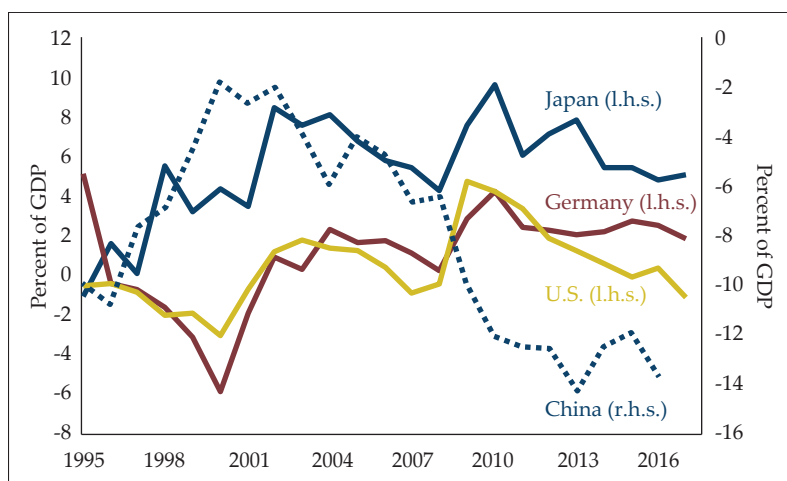
Figure 3. Old-Age Dependency and Household Savings Rates in OECD Countries, 1995–2018



Source: OECD. Changes in household savings rates as a percent of GDP.

Finally, Summers (2014) argues that increased income inequality reduces (increases) the propensity to consume (save). However, growing income and wealth inequality may not be driven by “the laws of capitalism” (as, for instance, suggested by Piketty 2014), but by expansionary monetary policies (see Duarte and Schnabl 2018). The redistributive effects of persistently loose monetary policies have several dimensions.

One important transmission channel for growing wealth inequality is asset prices, which ultraloose monetary policies drive up, since assets are disproportionately held by wealthier people. In contrast, the interest rates on bank deposits, which are the preferred saving vehicle of the middle- and lower-income classes, are depressed in real terms into negative territory. Growing income inequality can also arise from the negative impact of persistently loose monetary policy on real wages, as will be explained below.

Figure 4. Net Corporate Lending in the US, Japan, Germany, and China

Source: OECD. Corporate net lending is equivalent to enterprises' net savings minus net investment, plus net capital transfers, minus acquisitions less disposals of nonfinancial nonproduced assets.

Constant Marginal Efficiency of Investment in Industrialized Countries

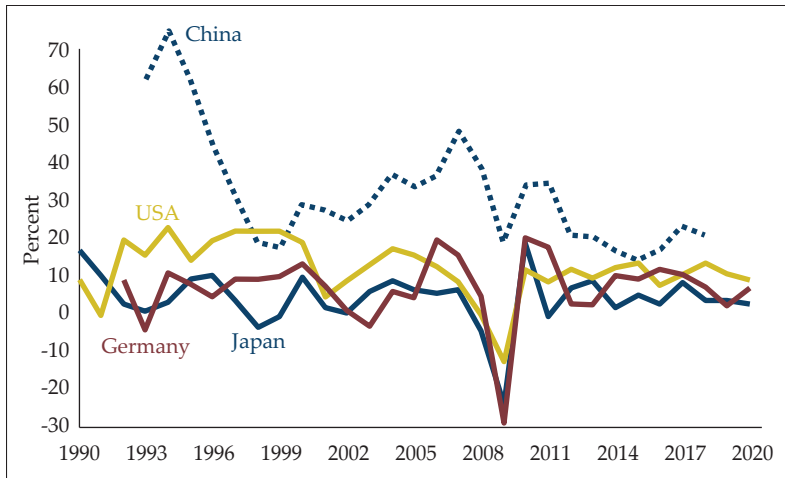
The neoclassical extension of the IS model by Gordon (2012) assumes that the marginal productivity of capital has declined, possibly into negative territory. Figure 5 shows that this hypothesis cannot be supported empirically for industrialized countries such as the US, Japan, and Germany. The marginal productivity of capital, defined according to equation (9) as the ratio of absolute change in real GDP to real investment, is largely constant in the US, Japan, and Germany.²⁹

Apart from the cyclical downturn during the global financial crisis in 2008–09, the marginal productivity has remained positive and fairly stable around 10 percent. This implies that gradual interest rate cuts and increasing money creation by the large central banks in the industrialized countries have not boosted real nonfinancial

²⁹ The data look similar for the euro area.

investment to an extent that would lower the marginal productivity of real capital. This is consistent with the fact, that—together with slowing output growth—fixed capital investment as a percent of GDP has tended to decline, in particular in industrial countries such as Japan and Germany (see figure 6).

Figure 5. Marginal Productivity of Capital of the US, Japan, China, and Germany



Source: AMECO. Marginal productivity of capital is defined as the absolute change in real output compared to the previous year divided by real investment of the current year.

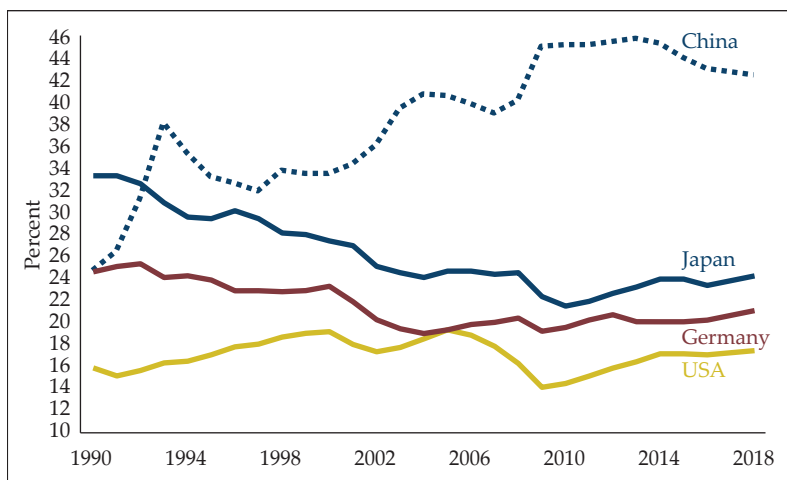
Since the turn of the millennium—driven by capital inflows from the industrialized countries—the capital stock has expanded very fast in China (Figure 6) and other East Asian countries (Schnabl 2019b). Chinese investment (as a percent of GDP) increased far beyond that in the industrialized countries.³⁰ At the same time, as shown in figure 5, the marginal productivity of capital in China has declined substantially since the early 1990s.

Moreover, the gradual decline of interest rates seems to have boosted real financial investment in the industrialized countries,

³⁰ Other overinvestment booms have taken place in the oil sector (shale oil), aircraft sector, and digitalization.

with financial markets expanding. New asset classes, such as asset-backed securities, were created, and new countries, such as a number of emerging market economies, joined the international capital markets. Also, asset prices strongly increased, as shown in figure 7. Since the late 1980s, the arithmetic mean of equity and real estate prices in the US, Japan, and Germany has—with fluctuations—increased strongly relative to consumer prices. With asset prices being inflated, the marginal productivity of financial investment seems to have declined, indicated, for instance, by increasing price-to-rent ratios in many real estate markets.

Figure 6. Fixed Capital Investment as a Percentage of GDP



Source: IMF.

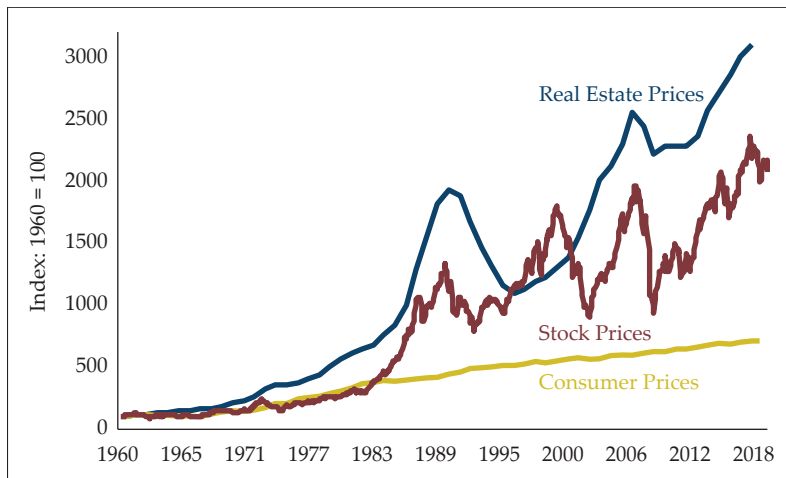
The inverse relationship between low interest rates (associated with a high degree of new money creation by central banks) and asset prices can be illustrated with the Gordon (1959) growth model of equity valuation, which relates the price-earnings ratio of enterprises to the interest rate. A simple version of this model can be written as

$$(15) \frac{SP}{E} = \frac{1}{k-g}$$

where SP denotes the equity price per share, E earnings per share, g expected nominal earnings growth, and k the discount rate,

representing the financing costs of the enterprise. The secular stagnation hypothesis suggests that the price-earnings ratio of equities should have been largely unaffected by the decline in interest rates, as expected earnings growth should have declined in parallel to fading growth dynamics. Thus, the relationship between stock prices and earnings should have remained stable. On the other hand, if the interest rate decreases exogenously and expected earnings growth remains widely unchanged, the price-earnings ratio rises.

Figure 7. Consumer, Stock, and Real Estate Prices in the US, Germany, and Japan



Source: IMF. Arithmetic mean.

The rise of the price-earnings ratios since the start of the global asymmetric monetary policies in the second half of the 1980s is consistent with a decline in interest rates relative to the growth of expected earnings. The US S&P 500 Shiller cyclically adjusted price-earnings ratio has increased sharply on trend since the late 1980s (figure 8). It reached a peak in the year 2000 and has remained far above the level of the 1980s. A similarly strong expansion occurred in the second half of the 1920s before the black Friday in September 1929, which triggered the Great Depression. It seems that central

banks pursuing point inflation targets³¹ during a period when, inter alia, global factors have depressed inflation have not only pushed real interest rates in credit and capital markets to ever-lower levels, but have also boosted asset prices to record highs.³²

Figure 8. US S&P 500 Shiller Cyclically Adjusted Price-Earnings Ratio



Source: Macrobond.

³¹ As consumer price inflation rates remained very low (but above zero) following the global financial crisis, maximum inflation targets as pursued, for instance, by the ECB until 2003 would not have justified unconventional monetary policy measures. Only the shift to inflation point targets as it occurred in the case of the ECB in 2003 allowed very extensive asset purchases, which kept, for instance, the debt burden of highly indebted euro area member states sustainable (See also footnote 12). More generally, the operational rule for sound money cannot be expressed in terms of unknown natural rates.

Note that since the turn of the millennium, low interest rates in the US have boosted capital flows to China, where the capital stock has been strongly extended by borrowing abroad. Thus, large overcapacities have been created, which have led to sales at prices subsidized with cheap credit on the world markets (Schnabl 2019b). This has depressed inflation in the industrialized countries and set—given inflation point targets—the stage for further monetary expansion.

³² If real wage growth slows down in an environment of slowing productivity gains, the ability of enterprises to increase prices is undermined. If, furthermore, the persistently loose monetary policies redistribute income from lower- and middle-income to high-income classes, consumer prices tend to remain low while asset prices increase.

Increasing Debt, Declining Labor Productivity, Wage and Financial Repression

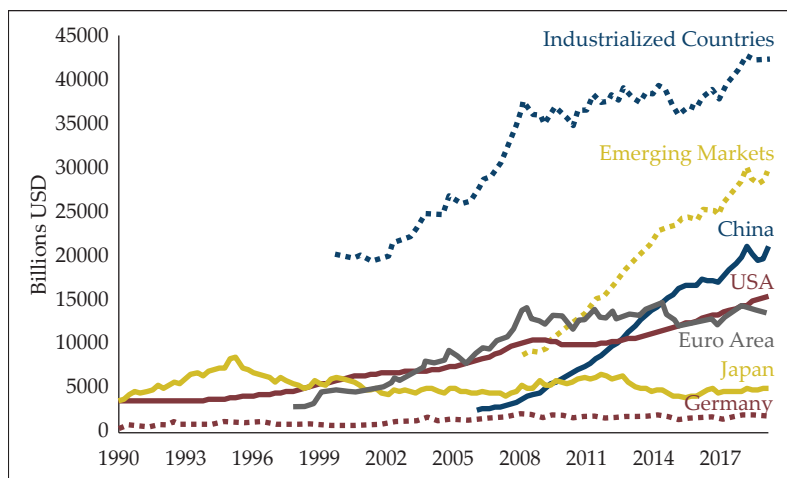
When interest rates are pushed ever lower, possibly below the growth of real income, increasing levels of debt become sustainable. It becomes more attractive for enterprises to raise their return on equity through financial leverage than through nonfinancial investment aimed at increasing productivity.³³ This can be illustrated by decomposing the return to equity into profits (R), equity (E), turnover (T), and total capital (K).³⁴

$$(16) \frac{R}{E} = \frac{R}{T} * \frac{T}{K} * \frac{K}{E}$$

The rate of return to equity ($\frac{R}{E}$) can be raised by increasing the profit margin ($\frac{R}{T}$), capital productivity ($\frac{T}{K}$), and/or financial leverage ($\frac{K}{E}$) (through an increase of the ratio of debt to equity capital). In a competitive environment the increase in profit margins ($\frac{R}{T}$) is limited. The productivity of capital ($\frac{T}{K}$) has remained broadly stable over a longer time horizon, as shown in figure 11. Therefore, an increase in the return on equity ($\frac{R}{E}$) as shown in figure 6 can be achieved only if the ratio of total capital to earnings ($\frac{K}{E}$), i.e., the financial leverage, is increased.

³³ In addition, asymmetric monetary policies constitute an implicit insurance mechanism for speculation in financial markets, as interest rates are cut when asset prices collapse. The interest rate cuts either stabilize the market segments in a crisis or create alternative speculation opportunities, which allow valuation losses to be offset. In contrast, possible losses from investment in innovation and efficiency gains (i.e., fixed capital investment) have to be borne by the entrepreneurs. This policy pattern constitutes an incentive to shift resources from nonfinancial investment to financial investment. Financial investment can include takeovers of competitors and firms' buybacks of their own shares.

³⁴ The so-called Dupont analysis (see Gropelli and Ehsan 2000, 444–45).

Figure 9. Credit to Nonfinancial Corporations

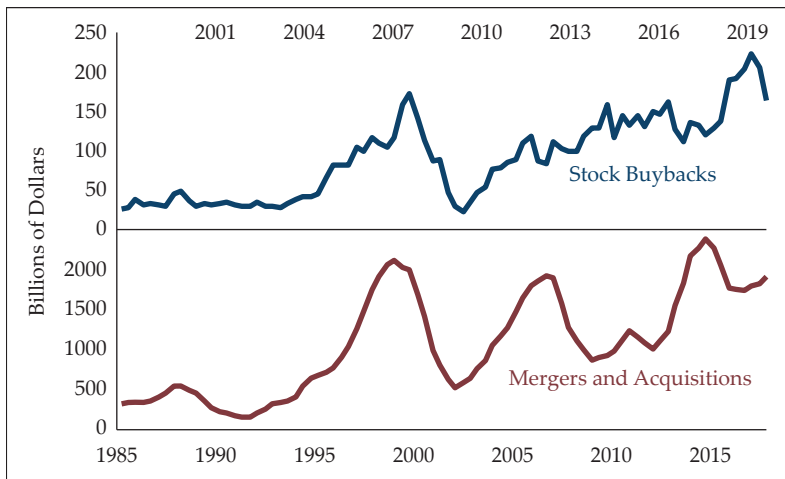
Source: BIS.

Indeed, enterprises have raised their indebtedness substantially (and much more than their output and prices), in particular in the United States and China (figure 9). In China, the additional credit has been used to build up a large real capital stock. Elsewhere it has driven financial investment more than real investment. In Germany, large enterprises in particular have strongly expanded the amount of outstanding bonds since 2008, encouraged by low interest rates and by the European Central Bank's corporate bond purchases. The additional funds have served different purposes, not the least of which have been takeovers and acquisitions. As shown in the lower panel of figure 10, the volume of mergers and acquisitions has strongly increased since the 1980s, reaching a peak in 2015. Mergers and acquisitions increased the market and pricing power, thereby creating monopolistic rents.

US enterprises have bought back large amounts of shares, which has boosted the return to equity by reducing the amount of outstanding stocks and increasing leverage. As shown in the upper panel of figure 10, stock buybacks have increased since the turn of the millennium, in particular between 2003 and 2007 as well as since 2009. The preference of large enterprises to use cheap credit for share buybacks and mergers and acquisitions instead

of investment in new real capital can be explained by skepticism concerning future economic development. If income growth is expected to slow, extending capacities will not be effective. Instead, the price-earnings ratio can be increased by increasing leverage and profit margins, with the latter achieved by expanding market power through mergers and acquisitions.³⁵

Figure 10. Stock Buybacks and Mergers and Acquisitions in the US



Source: Macrobond and IMMA Institute.

High equity valuations (SP/E) and low earnings yields (E/SP) should have lowered the assumed costs of equity in the evaluation of new investment projects. However, the decline in interest rates has not lowered the weighted average costs of capital, which listed companies in general use for the evaluation of new projects (Gehring and Mayer 2017).³⁶ Lehmann (2019) argues that listed

³⁵ Indeed, market concentration seems to have substantially increased, as found by Gutiérrez and Philippon (2017) as well as by De Loecker and Eeckhout (2017). Enterprises can charge a higher markup on prices or have stronger power versus trade unions in wage negotiations.

³⁶ The weighted cost of capital is the rate that a company is expected to pay to finance its assets. It is calculated as the weighted average of the costs of debt, i.e., the interest rate, and of internal financing, i.e., equity.

companies have raised their imputed costs of equity by increasing the risk premium on equity returns as they increase leverage.³⁷ Thus, enterprises have not followed the markets, which raised equity valuations, anticipating lower equity returns in the future.

If low interest rates induce enterprises to raise financial instead of fixed-capital investment and keep enterprises in business that would have been unprofitable otherwise, growth will decline, as overinvestment and malinvestment are conserved and capital is misallocated (Schnabl 2019a). McKinnon (1973) and Shaw (1973) showed for the developing countries and emerging market economies in the 1950s and 1960s that state-directed capital allocation at low interest rates depressed growth.³⁸ For Japan, Schnabl (2015) shows that an ultraloose monetary policy has continued to cause financial instability and sluggish growth.³⁹

Peek and Rosengreen (2005) argue that persistently low interest rates in Japan have constituted what they call a “perverse” incentive to keep low-return investments alive via a misallocation of credit to enterprises with low returns. Caballero, Hoshi, and Kashyap (2008) find a link between forbearing credit extensions by Japanese banks to otherwise insolvent enterprises and paralyzed market dynamics and higher costs for profitable enterprises. They also link postponed restructuring in depressed industries to lower productivity growth caused by what they call “zombie enterprises.” Similarly, Acharya et al. (2019) associate low interest rates and the unconventional monetary policies of the European Central Bank with lower productivity growth in the euro area.⁴⁰

³⁷ This is in line with the Modigliani-Miller theorem, which argues that abstracting from taxes, default risk, and agency costs and given perfect information, the form of financing does not affect the value of a firm (Modigliani and Miller 1958).

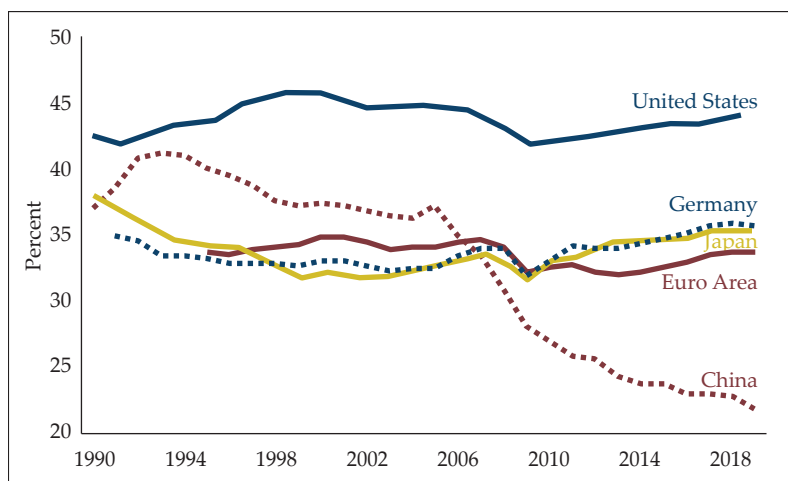
³⁸ McKinnon (1973) and Shaw (1973) dubbed this policy “financial repression.”

³⁹ Similarly, Rungcharoenkitkul, Borio, and Disyatat (2019) argue that interest rates that are too low can induce the emergence of a new unprofitable sector in the economy, which reduces the average marginal productivity of the economy. Monetary policy that leans insufficiently against the buildup of financial imbalances increases the economy’s vulnerability to financial busts over successive cycles. “As a result, low rates beget lower rates.”

⁴⁰ See Schnabl (2019b) on overinvestment in China as well as Shen and Chen (2016) on zombie firms in China.

The distorted allocation of funds comes along with distortions in the financial sector, as the ultraloose monetary policy reduces the incentive to cleanse bank balance sheets of bad loans. Furthermore, the margins of the traditional banking sector are squeezed (Gerstenberger and Schnabl 2017). With short-term interest rates being held at or below zero and long-term interest rates being pushed further down via unconventional monetary policy measures, banks' traditional sources of income—i.e., credit margins (credit rates minus deposit rates) and transformation margins (long-term interest rates minus short-term rates)—shrink. Brunnermeier and Kolby (2019) show that at some point interest rate cuts have a negative effect on credit growth, investment, and output because the positive effect of low interest rates on the valuation of bank assets is overwritten by their negative effect on bank profits. The overall value of assets falls, thereby forcing banks to restrict new lending.⁴¹

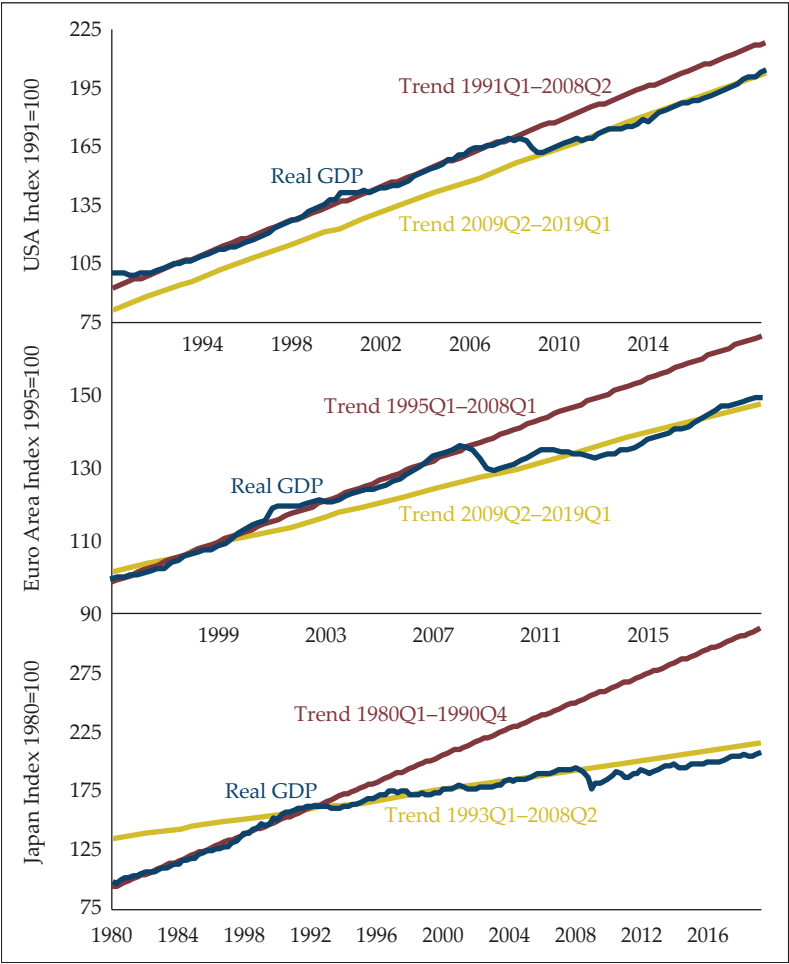
Figure 11. Average Capital Productivity in the US, Japan, Germany, the Euro Area, and China



Source: AMECO Database and Penn World Tables. Average capital productivity calculated as output divided by capital stock (both in 2010/2011 prices).

⁴¹ In addition, the growing regulatory burden after the financial crisis may restrict lending.

Figure 12. Real GDP and Long-Term Trend



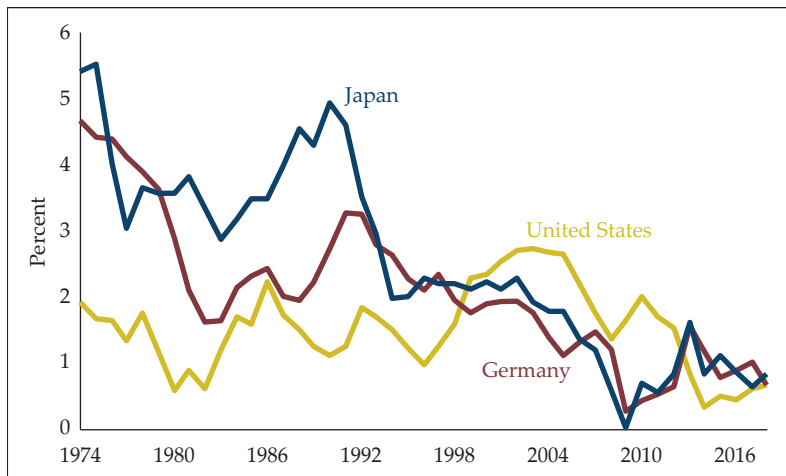
Source: Macrobond.

These findings are supported by the development of the average (in contrast to the marginal) productivity of capital over time. As shown in figure 11, average capital productivity in the US, euro area, and Japan has dropped in the wake of each financial crisis (1990–91 in Japan and 2007–08 in the US and the euro area), and it has not returned to its precrisis level in the subsequent upswing.

The consequence has been a persistent shortfall of output below its long-term trend, as observed in Japan since the 1990s. The bursting of the so-called bubble economy triggered interest rate cuts toward zero and—after the lower zero interest rate bound was reached in 1999—comprehensive unconventional monetary policy measures, which have inflated the Bank of Japan's balance sheet from 10 percent of GDP to more than 100 percent of GDP. In contrast to the desired recovery of the Japanese economy, output has been lagging behind the long-term trend (see the bottom graph of figure 12).

Similarly, since the outbreak of the global financial crisis, the US Federal Reserve and the European Central Bank have moved to extensive unconventional monetary policy measures. As in Japan, in both the US and the euro area output has also not returned to its long-term growth path since then (see upper and center panels of figure 12). A savings glut or secular stagnation should have affected growth more gradually and should not have started with the financial crises.

The upshot is that output growth has declined while increasingly loose monetary policies have prevented or even reduced unemployment by preserving distorted economic structures. Moreover, in many countries, such as Japan and Germany, the number of employed has increased as real incomes have declined and more people have entered the labor market (Israel and Latsos 2020). Therefore, the increasingly expansionary monetary policies of the large central banks have come along with declining labor productivity gains, as shown in figure 13.

Figure 13. Labor Productivity Gains in the US, Japan, and Germany

Source: OECD. Four-period backward-looking rolling averages.

In neoclassical theory, labor productivity gains are the prerequisite for real wage increases. If persistently loose monetary policies have reduced the incentives for banks and enterprises to innovate and to create productivity gains, real wage levels will be depressed. This effect is most pronounced in Japan, where real wages have been trending downward since 1998 (Latsos 2019). If enterprises expect a declining consumer purchasing power, they will hesitate to increase the capital stock, shifting their activities to financial investment. Thus, the policy of low interest rates induces the redistribution of income and wealth from wage earners to recipients of capital income and widens gender and educational pay gaps (Saiki and Frost 2014; Israel and Latsos 2020).

Kornai (1986) dubbed a similar process in the central and eastern European planned economies “soft budget constraints.” Because unemployment was politically inopportune, public banks were forced to provide unconditional credit to highly inefficient enterprises. The losses of state-owned banks were covered by the printing press of the national central banks. The outcome was low or even negative productivity growth, which came along with a low consumption level compared to the western industrialized countries. From this perspective, the persistently loose monetary

policies are quasi soft budget constraints, which have become a major impediment to productivity growth.

ECONOMIC POLICY IMPLICATIONS

The Keynesian and neoclassical schools of thought explain the secular decline of nominal and real interest rates since the 2007–08 global financial crisis as the result of a savings glut and secular stagnation. According to this view, monetary policy has only reacted to a given structural change in a new economic environment. This article has argued that both the Keynesian and neoclassical models omit the banking sector and therefore do not capture the capital market implications of asymmetric central bank interest rate cuts. The ability of banks to extend credit *ex nihilo* and the fact that capital goods need to be produced before they can increase the capital stock is ignored by the IS identity, which in the Keynesian theory is assumed to hold permanently. There is also no empirical evidence for the savings glut and secular stagnation hypotheses.

In contrast to the Keynesian and neoclassical models, the Austrian model incorporates the banking sector, which finances either real fixed capital or financial investment. Interest rates have become depressed by a proactive monetary policy while technological progress, closer trade ties, and overinvestment in China exerted downward pressure on prices. The global deflationary pressure originates in subsidized credit and overinvestment in China. Thus, on the back of the newly introduced point inflation targets expansionary monetary policies have boosted asset instead of goods prices and contributed to growing income inequality.

The Austrian view suggests that the depression of interest rates lowers productivity gains and trend GDP growth via quasi “soft budget constraints” for enterprises. It leads to an inefficient allocation of resources, as can be observed in Japan and increasingly in Europe. These effects have become even further magnified by the policy responses to the corona crisis. The policy implication is that only the end of the manipulation of interest rates would reanimate growth. The interest rate on credit is the most important single price in an economy. It connects a society’s time preference to its ability to create capital in an efficient way. When bureaucrats at central banks

determine the interest rate, it is a pretense of knowledge they do not have. They would truly serve society if they left the determination of interest rates to the markets.

REFERENCES

- Acharya, Viral, Tim Eisert, Christian Eufinger, and Christian Hirsch. 2019. "Whatever It Takes: The Real Effects of Unconventional Monetary Policy." *Review of Financial Studies* 32, no. 9: 3366–3411.
- Adalet McGowan, Müge, Dan Andrews, and Valentine Millot. 2017. "The Walking Dead? Zombie Firms and Productivity Performance in OECD Countries." OECD Economics Department Working Paper 1372, Paris, France, January 25.
- Agarwal, Ruchir, and Miles Kimball. 2019. "Enabling Deep Negative Rates to Fight Recession: A Guide." IMF Working Paper 19/84, Washington, D.C., April 29.
- Bank of Japan. 2013. "The 'Price Stability Target' under the Framework for the Conduct of Monetary Policy." News release, Jan. 22, 2013. https://www.boj.or.jp/en/announcements/release_2013/k130122b.pdf.
- Blinder, Alan, and Ricardo Reis. 2005. "Understanding the Greenspan Standard." Working paper no. 88, Center for Economic Policy Studies, Department of Economics, Princeton University, Princeton, N.J.
- Bernanke, Ben S. 1983. "Nonmonetary Effects of the Financial Crisis in Propagation of the Great Depression." *American Economic Review* 73, no. 3: 257–76.
- . 2005. "The Global Saving Glut and the U.S. Current Account Deficit." Sandridge Lecture, Virginia Association of Economists, Richmond, Va., March 10.
- . 2014. "The Federal Reserve: Looking Back, Looking Forward." Speech given at the Annual Meeting of the American Economic Association, Philadelphia, Pa., January 3.
- Böhm-Bawerk, Eugen von. 1884. *Kapital und Kapitalzins*. Innsbruck, Austria: Verlag der Wagner'schen Universitäts-Buchhandlung.

- Borio, Claudio, and William White. 2004. "Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes." BIS Working Papers 147, Basel, Switzerland, February.
- Brunnermeier, Markus K., and Yann Koby. 2019. "The Reversal Interest Rate." IMES Discussion Paper Series 19-E-06, Bank of Japan, Tokyo, Japan, June 21.
- Caballero, Ricardo, Takeo Hoshi, and Anil Kashyap. 2008. "Zombie Lending and Depressed Restructuring in Japan." *American Economic Review* 98, no. 5: 1943–77.
- Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. 1999. "Paper Tigers? A Model of the Asian Crisis." *European Economic Review* 43, no. 7: 1211–36.
- Demary, Markus, and Michael Voigtländer. 2018. *Reasons for the Declining Real Interest Rates*. Cologne, Germany: Institut der deutschen Wirtschaft.
- Duarte, Pablo, and Gunther Schnabl. 2018. "Monetary Policy, Income Inequality and Political Instability." *World Economy* 42, no. 2: 614–34.
- European Central Bank. 2019. "The Relationship Between IHICP Inflation and HICP Inflation Excluding Energy and Food." *ECB Economic Bulletin*, Mar. 21, 2019.
- Feldstein, Martin. 2017. "Underestimating the Real Growth of GDP, Personal Income, and Productivity." *Journal of Economic Perspectives* 31, no. 2: 145–64.
- Gehringer, Agnieszka, and Thomas Mayer. 2017. *It's the WACC, Stupid!* Cologne, Germany: Flossbach von Storch AG, Research Institute.
- Gerstenberger, Juliane, and Gunther Schnabl. 2017. "The Impact of Japanese Monetary Policy Crisis Management on the Japanese Banking Sector." CESifo Working Paper Series No. 6440, Munich, Germany, April 24.
- Gordon, Myron. 1959. "Dividends, Earnings, and Stock Prices." *Review of Economics and Statistics* 41, no. 2, pt. 1: 99–105.
- Gordon, Robert J. 2012. "Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds." NBER Working Paper 18315, Cambridge, Mass., August.
- Gropelli, Angelico, and Ehsan Nikbakht. 2000. *Finance*. 4th ed. Hauppauge, N.Y.: Barron's Educational Series.

- Gourinchas, Pierre-Olivier, and Hélène Rey. 2019. "Global Real Rates: A Secular Approach." BIS Working Papers 793, Basel, Switzerland, July 4.
- Gutiérrez, Germán, and Thomas Philippon. 2017. "Declining Competition and Investment in the U.S." NBER Working Paper 23583, Cambridge, Mass., July.
- Hansen, Alvin. 1939. "Economic Stagnation and Population Growth." *American Economic Review* 29, no. 1: 1–15.
- Hayek, Friedrich August von. 1931. *Prices and Production*. New York: August M. Kelly Publishers.
- Hoffmann, Andreas. 2009. "Asymmetric Monetary Policy with Respect to Asset Markets." *Oxonomics* 4: 26–31.
- Homer, Sidney, and Richard Eugene Sylla. 2005. *A History of Interest Rates*. 4th ed. Hoboken, N.J.: John Wiley and Sons.
- Hooper, Peter, Frederic S. Mishkin, and Amir Sufi. 2019. "Prospects for Inflation in a High Pressure Economy. Is the Phillips Curve Dead or Is It Just Hibernating?" NBER Working Paper 25792, Cambridge, Mass., May.
- Israel, Karl-Friedrich. 2017. "In the Long Run We Are All Unemployed?" *Quarterly Review of Economics and Finance* 64: 67–81.
- Israel, Karl-Friedrich, and Sophia Latsos. 2020. "The Impact of (Un)Conventional Expansionary Monetary Policy on Income Inequality—Lessons from Japan." *Applied Economics* 52, no. 40, 4403–20.
- Jordà, Òscar, and Alan M. Taylor. 2019. "Riders on the Storm." NBER Working Paper 26262, Cambridge, Mass., September.
- Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. London: Palgrave Macmillan.
- Kitov, Ivan. 2012. "Why Price Inflation in Developed Countries Is Systematically Underestimated." MPRA Paper 39059, Munich, Germany, May 27.
- Komlos, John. 2018. "On the Accuracy of Estimating the Inflation Rate: Marty Feldstein as Dr. Pangloss." *Economists' Voice* 15, no. 1: 1–3.
- Kornai, János. 1986. "The Soft Budget Constraint." *Kyklos* 39, no. 1: 3–30.

- Lane, Philipp R. 2019. "Determinants of the Real Interest Rate." Speech given at the National Treasury Management Agency, Dublin, Ireland, November 28.
- Latsos, Sophia. 2019. "The Low Interest Policy and the Household Saving Behavior in Japan." Working paper no. 159, Faculty of Economics and Management Science, University of Leipzig, Leipzig, Germany.
- Laubach, Thomas, and John Williams. 2015. "Measuring the Natural Rate of Interest Redux." Federal Reserve Bank of San Francisco Working Paper 2015–16, San Francisco, Calif., October.
- Lehmann, Kai. 2019. *Wirkungslose EZB-Medizin—Kapitalkosten immun gegen Nullzins*. Cologne, Germany: Flossbach von Storch AG, Research Institute.
- Linz, Stefan, and Gudrun Eckert. 2002. "Zur Einführung Hedonischer Methoden in Die Preisstatistik." *Wirtschaft und Statistik* 10: 857–63.
- McKinnon, Ronald. 1973. *Money and Capital in Economic Development*. Washington, D.C.: Brookings Institution Press.
- McKinnon, Ronald, and Gunther Schnabl. 2012. "China and Its Dollar Exchange Rate: A Worldwide Stabilizing Influence?" *World Economy* 35, no. 6: 667–93.
- Mises, Ludwig von. 1912. *Theorie des Geldes und der Umlaufmittel*. Munich, Germany: Verlag von Duncker und Humblot.
- . (1949) 1998. *Human Action: A Treatise on Economics*. Scholar's ed. Auburn, Ala.: Ludwig von Mises Institute.
- Modigliani, Franco, and Merton Miller. 1958. "The Cost of Capital, Corporation Finance and the Theory of Investment." *American Economic Review* 48, no. 3, 261–97.
- Ohlin, Bertil. 1937. "Some Notes on the Stockholm Theory of Savings and Investment," Pt. 1. *Economic Journal* 47: 53–69.
- Peek, Joe, and Eric Rosengren. 2005. "Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan." *American Economic Review* 95, no. 4, 1144–66.
- Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Cambridge, Mass.: Belknap Press of Harvard University Press.

- Rachel, Łukasz, and Lawrence H. Summers. 2019. "On Falling Neutral Real Rates, Fiscal Policy, and the Risk of Secular Stagnation." Working paper, BPEA Conference Drafts, Brookings Institution, Washington, D.C., March 4.
- Rungcharoenkitkul, Phurichai, Claudio Borio, and Piti Disyatat. 2019. "Monetary Policy Hysteresis and the Financial Cycle." BIS Working Papers 817, Basel, Switzerland, October 3.
- Saiki, Ayako, and Jon Frost. 2014. Does Unconventional Monetary Policy Affect Inequality? *Applied Economics* 46, no. 36: 4445–54.
- Schnabl, Gunther. 2015a. "Die gefährliche Missachtung der Vermögenspreisinflation. Zur Wirkungslosigkeit von Inflationszielen als geldpolitische Regelmechanismen." *Leviathan* 43, no. 2: 246–69.
- Schnabl, Gunther. 2015b. "Monetary Policy and Structural Decline: Lessons from Japan for the European Crisis." *Asian Economic Papers* 14, no. 1: 124–50.
- Schnabl, Gunther. 2019a. "Central Banking and Crisis Management from the Perspective of Austrian Business Cycle Theory." In *The Oxford Handbook of the Economics of Central Banking*, edited by David G. Mayes, Pierre L. Siklos, and Jan-Egbert Sturm, 551–84. New York: Oxford University Press.
- Schnabl, Gunther. 2019b. "China's Overinvestment and International Trade Conflict." CESifo Working Paper Series 7642, Munich, Germany, May.
- Schnabel, Isabel. 2020. "Narratives about the ECB's Monetary Policy—Reality or Fiction?" Speech given at the Juristische Studiengesellschaft, Karlsruhe, Germany, February 11.
- Schumpeter, Joseph. (1912) 1934. *The Theory of Economic Development: An Inquiry into Profits, Capital, Interest, and the Business Cycle*. Translated by Redvers Opie. Cambridge, Mass.: Harvard University Press.
- Sekine, Toshitaka, Keiichiro Kobayashi, and Yumi Saita. 2003. "Forbearance Lending: The Case of Japanese Firms." *Monetary and Economic Studies* 21, no. 2: 69–92.
- Shaw, Edward S. 1973. *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Shen, Guangjun, and Binkai Chen. 2016. "Zombie Firms and Over-capacity in Chinese Manufacturing." *China Economic Review* 44: 327–42.

- Summers, Lawrence H. 2014. "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound." *Business Economics* 49, no. 2: 65–73.
- Taylor, John B. 1993. "Discretion versus Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy* 39: 195–214.
- Weizsäcker, Carl Christian von. 2014. "Public Debt and Price Stability." *German Economic Review* 15, no. 1: 42–61.
- White, William R. 2006. "Is Price Stability Enough?" BIS Working Papers 205, Basel, Switzerland, April 18.
- Wicksell, Knut. (1898) 2005. *Geldzins und Güterpreise*. Reprint, Munich, Germany: FinanzBuch Verlag.
- Woodford, Michael. 2003. *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton, N.J.: Princeton University Press.

THE ILLUSIONS OF INFLATION TARGETING, WITH AN APPLICATION TO UKRAINE

NIKOLAY GERTCHEV*

JEL CLASSIFICATION: E02, E14, E31, E42, E58, N10, Y10

ABSTRACT: This article reviews the analytical justification, the theoretical content, and the practical experience of inflation targeting, which has become the standard framework for monetary policy. It shows that due to the inflation-targeting literature's neglect for the money demand as part of the monetary relation that drives price determination, it provides a distorted theoretical account of the most basic relations in a monetary economy and an illusory vision of what a modern central bank could achieve. The last section of the article uses the recent monetary history of Ukraine to illustrate the pitfalls and illusions of inflation targeting.

INTRODUCTION

Three renowned economists have declared recently that “inflation-forecast targeting can be considered the state of the art for monetary policy” (Adrian, Laxton, and Obstfeld 2018, 14). Others have seen in inflation targeting (IT) a consistent and durable

*Nikolay Gertchev (ngertchev@gmail.com) holds a PhD in economics from the University of Paris II Panthéon-Assas and is currently based in Brussels, Belgium, where he works for an international organization. The author is grateful to an anonymous referee for his very useful comments.



standalone international monetary system in which the key players, i.e., the central banks, “are now more independent, accountable and transparent than under Bretton Woods” (Rose 2007, 671). One of its chief theoretical advocates has concluded that IT is just the best manner which humanity has discovered so far to conduct monetary policy: “I believe it fair to say that never before in monetary history has an incentive system been set up with such strong incentives for optimal monetary policy decisions” (Svensson 1999, 633).

After the central bank of New Zealand adopted IT in early 1990, six other central banks in developed countries switched to this policy framework in the next four years. In the aftermath of a first academic conference that reviewed the experience with IT in 1994 and thanks to increased interest and research in IT by the International Monetary Fund (IMF) since 1997, thirteen central banks had moved to IT by the year 2000. Without including the euro area, which can be seen as a *de facto* case of IT, the IMF counted forty-one independent countries with an inflation-targeting framework in 2018 (IMF 2019, 7). Although twenty years ago it was indeed “too early to offer a final judgment on whether inflation targeting will prove to be a fad or a trend,” the evidence nowadays undoubtedly shows that IT has gained overwhelming dominance (Bernanke and Mishkin 1997, 114). The success of this type of monetary policy, in terms of persistent and growing attractiveness for modern central banks, calls for an explanation. What are the specific goals and means of IT that account for its distinctiveness? Is its success due to a fundamental and innovative breakthrough in monetary theory? This article purports to provide answers to such questions.

The first section presents the standard definition, justification, and performance assessment of inflation targeting. The review of the various strands of literature distills the theoretical underpinnings of IT. The second section assesses the analytical foundation of IT from the angle of the Misesian theory of money, with special emphasis on the demand for money and the modern-day multiplicity of currencies. It concludes that the advocacy for IT is fundamentally flawed because of its neglect for the theoretical relevance of the pivotal concept of money demand. Because of this serious theoretical failure, IT can hardly be considered as an outgrowth of monetary theory at all. At best, it should be perceived as alleged guidance, clothed in the pretense of scientific knowledge,

for the bureaucratic management of a central bank. The third and final section reviews, from that standpoint, the recent experience with IT in Ukraine.

THE PRACTICE AND THEORY OF INFLATION TARGETING

Inflation targeting is canonically defined as a framework or strategy for the conduct of monetary policy that comprises five elements (Mishkin 2004, 1). First, monetary policy is committed to the overarching, if not exclusive, goal of price stability, understood as a constant positive inflation rate, measured by historical changes in the consumer price index (commitment).¹ Second, the monetary authority publicly announces a medium-term numerical target, with or without bands, for the inflation rate (target). Third, to achieve this target, the central bank regularly determines its policy interest rate based on a large information set primarily focused on, but not limited to, a formal inflation rate forecast model (instrument). Fourth, the central bank communicates transparently and periodically on its objectives and informed decisions (transparency). Fifth, the monetary authority is held accountable, either formally or with a public stake in its reputation, for the effective outcome of the inflation rate (accountability). There is an intimate link between the last two elements, as gains in accountability critically depend on the effectiveness of transparency. The second and third elements operationalize the conduct of monetary policy and in relation to the first one determine the institutional credibility of the central bank.

Conceptually, IT provides a structured approach to what a central bank should do in the post-Bretton Woods world of multiple money producers. It is a response to the failure of many central banks to produce money with a relatively stable purchasing power. Recurrent currency devaluations in the case of fixed exchange rates and continuous depreciations in the case of floating exchanges have been alerting the public at least since the

¹ This is also the sense in which this article uses the word *inflation*, in striking opposition to the admitted Austrian definition of inflation as any increase in the money supply beyond what it would have been in the free market, i.e., “the process of issuing money beyond any increase in the stock of specie” (Rothbard 2009, 990).

early 1970s about the poor performance of the domestic central bank. Thus, IT emerged in the 1990s as a practical solution for central banks in search of existential revival.

The Intellectual Roots of Inflation Targeting

Developments in economic theory in the 1970s and 1980s seriously challenged the conventional Phillips curve view according to which monetary policy can achieve higher growth and lower unemployment through a tradeoff against higher inflation. The challenge came out of macroeconomists' interest in individual actions, notably as informed by their judgment about the future state of the economy. Thus, the formal integration in the analysis of inflation expectations concluded that money is neutral in the long run, in the sense that increases in the money supply have a lasting impact on prices and nominal variables only, with no effect on real output and employment (Friedman 1968). The power of this conclusion, which derives exclusively from the focus on expectations, led to stronger attention to expectations themselves. Economists from the entire intellectual spectrum quickly admitted that the assumption of choice rationality, i.e., of individuals' optimizing behavior, necessarily implied rationality of the formation of their views and opinions about the future. Thus, the assumption of rational expectations (Muth 1961)—that economic actors form their beliefs about the future based on all relevant information with respect to the causal relations in the economy, to the policies pursued by the authorities, and to the economic models and theories that underpin these policies—became the new norm. This so-called rational expectations revolution (Begg 1982) radicalized the revised view of the expectations-augmented Phillips curve, in particular, and of the potency of economic policy in general.

One of the most relevant pieces of the economic agents' information set for forming their expectations is the very model used by the economist to describe the functioning of the economy. This congruence between the assumed causal relationships between economic variables and the individual belief in these relationships leads to the self-validation of the assumed hypothetical model. Hence, rational expectations became a modeling tool that serves the purpose of proving the formal validity of the model's conclusions (Gertchev

2007, 326). As a result, economic science further disintegrated into separate schools, each defined by its own set of auxiliary assumptions. The New Classics, who emphasize the lack of any friction and therefore the permanent and instantaneous clearing of all markets, conclude what is already implied by these assumptions—that monetary policy is inefficient at any moment, hence including in the short run (Lucas 1972; Sargent and Wallace 1975). The broader implication is that if discretion does not work, then monetary policy should follow a rule (Kydland and Prescott 1977). The New Keynesians, who assume a noncompetitive, sticky, or monopolistic price-setting mechanism, allow for a lag in the adjustment between economic variables, thereby creating room and scope for a well-designed policy. Moreover, the temporal lag in the New Keynesian version of the Phillips curve triggers an interpretation of current inflation as causally determined by future inflation expectations. Therefore, if a central bank aims to control inflation, it must first control inflation expectations, for which a credible commitment to a simple rule is most appropriate.

Essentially, inflation targeting is rooted in this theory-informed belief in the virtues of a rule-based monetary policy. It is in this context that the five aforementioned framework elements are best understood. Before proceeding to a presentation of the targeting rule itself, it is expedient to make two additional points on the choice of the target and of the instrument. First, without ever discussing details about the principles that should guide the numerical determination of the inflation target, advocates of IT simply admit that a low positive inflation rate should be pursued: “*It seems clear that an inflation target of zero or near zero is not desirable for several reasons*” (Bernanke and Mishkin 1997, 110; our emphasis). Following a very succinct discussion according to which i) inflation figures are overstating actual inflation, ii) too low inflation worsens the allocative efficiency of resources if nominal wages are rigid, and iii) deflation is bad, the IT advocates openly acknowledge that “*Indeed, a potentially important advantage of inflation targeting is that it provides not only a ceiling for the inflation rate, but also a floor*” (ibid., 110). Thus, what seems clear, indeed, is that IT is premised on a strong proinflation bias.²

² Only Frömmel (2019) has raised the question of the most consistent rationalization of the inflation target value itself. Within a Hayekian intellectual framework, he

Second, with respect to the choice of the monetary policy instrument, proponents of IT consider the deregulation of the financial sector to have compromised the stability of the relation between the supply of and demand for money (Debelle 1997, 6). Due to the resulting volatility of “money velocity,” there is no longer an empirically exploitable link between changes in the supply of money and the inflation rate (Mishkin 2004, 28). Hence, the choice of the money supply and of monetary aggregates as the operational intermediate target by the central bank appears impractical and unfit (Svensson 1997, 8). Rather, the central bank should strive to control the interest rate, in such a way that “inflation targeting provides a *nominal anchor for policy and the economy*” (Bernanke and Mishkin 1997, 108; our emphasis).

The Theoretical Optimality of Inflation Targeting

The rationalization of IT as the most optimal conduct of monetary policy relies on two building blocks: the so-called transmission mechanism and the minimization of an objective loss function.

The transmission mechanism is a depiction of the relevant causal relationships that describe the functioning of a monetary economy. The advocates of IT borrow this description from an alleged “conventional wisdom [which] appears to grow increasingly dominant” (Svensson 1999, 609). De facto, the economy is depicted in line with the tenets of a standard macroeconomic aggregate supply and aggregate demand model in the New Keynesian fashion. In such a model of the closed economy, monetary policy affects aggregate demand via its impact on the interest rate “and possibly on the availability of credit” (ibid., 609). Then, the effect on inflation stems from the aggregate supply, which is an expectations-augmented Phillips curve. This expectations channel is critical, as “[it] allows monetary policy to affect inflation expectations which, in turn, affect inflation, with a lag, via wage- and price-setting behaviour” (ibid., 609). In the open economy, expected and induced changes in the exchange rate are additional channels of transmission for monetary policy, as they either contribute to aggregate demand or directly impact the prices of goods (Svensson 2000, 158).

argues convincingly that monetary policy should target a negative inflation rate, equal to the opposite of the growth rate.

This standard macroeconomic model has two remarkable implications. First, it manages to abstract from a detailed analysis of the monetary equilibrium. In particular, it ignores the role of the supply of and demand for money in the determination of monetary prices. Thus, it is questionable whether the very foundation of IT belongs to monetary theory at all. The most vocal theoretician of IT has actually acknowledged this peculiar feature: "In this view of the transmission mechanism, it is apparent that, perhaps somehow paradoxically and heretically, money only plays a minor role" (Svensson 1999, 610). Second, as an explanation of the factors that drive general changes in monetary prices is needed nevertheless, this explanation is provided by the modern infatuation with expectations. Hence, inflation expectations become the cornerstone of both theorizing about inflation and monetary policy.

The second building block of IT exemplifies this last point. In opposition to an instrument rule, such as the Taylor rule, which links the policy interest rate to some economic factors according to a deterministic reaction function, a targeting rule links the policy instrument to the minimization of a loss function. The loss function grows when inflation deviates from the target, and it can integrate deviations from other policy goals too, such as of output from its potential or of the exchange rate from its target or its volatility, etc. Strict IT includes only inflation deviations in the loss function. Flexible IT accounts for other potential goals of monetary policy. One way or another, the loss function is minimized when the actual inflation rate is at or very close to the targeted inflation rate. Now, faced with this tautology already implied in the very notion of inflation targeting, what should a central bank do in practice, especially given that according to the transmission mechanism it has no direct control over inflation?

The proposed solution consists of the central bank setting its policy rate at such a level that its own *inflation forecast*, conditioned by the formal macroeconomic models developed by its research department and based on any other relevant information, moves closer to the *inflation target*: "As emphasized in Section 2, using conditional forecasts as intermediate target variables is arguably the most efficient way of implementing monetary policy, since it can be interpreted as implementing first-order conditions for a minimum of the loss function, using all relevant information" (Svensson 1999,

627). Therefore, inflation-forecast targeting becomes the operationalized real-world version of the theoretical IT. Since, allegedly, what matters for actual inflation are the inflation expectations of money users, the central bank must then engage in an intense communication campaign to engineer a congruence between modeled expectations, i.e., its own forecasts and projections, and real-world expectations, i.e., the public's actual beliefs. This includes the regular publication of inflation reports, of the central bank's updated forecasts and of the reasons that underpin its effective policy decisions.

Hence, IT boils down to the regular and yet nonmechanical setting of the policy interest rate, based on a large set of data and informed justifications. In recognition of the simplicity of this evident fact, some economists prefer to consider IT as a case of “constrained discretion” rather than a firm monetary rule (Bernanke and Mishkin 1997, 106; Kim 2011). What this view implies is that IT epitomizes the notion of an independent central bank in search of reputation and credibility, in the sense of covering its interest rate policy decisions with the mantle of scientism. The very fact that the optimizing approach takes the inflation target for granted³ best reveals the fictitiousness of the entire approach. The true issue with respect to optimality is the optimality of inflation itself. This, however, is a question that the supposedly optimal IT never raises. The unavoidable conclusion is that the true contribution of IT has been to rationalize the operational independence of modern central banks in terms of controlling the policy interest rate. In short, IT has become so popular, because it provides both a *raison d'être* and a *modus operandi* to central bankers.

Performance Assessment of Inflation Targeting

Central banks could not have embarked on IT so overwhelmingly had it failed to deliver on the promised results. Naturally, economists focused their attention on assessing its performance and the possible link to institutional prerequisites or other conditions. Interestingly, even though the reviews of IT experiences do not

³ The restatement of the 2 percent inflation target as a goal “over the longer run” by the Fed as of August 27, 2020, illustrates the arbitrariness of the target.

reach consensus on the materiality of macroeconomic benefits, they manage nevertheless to issue a rather favorable overall assessment.

As a starting point, all performance reviews recognize that IT has been successful in reducing the inflation rate. However, this temporal correlation only begs the question of whether a systematic underlying causality is at work. The IT literature has proved especially inventive in the variety of its responses. A very early review concluded that IT "is useful for those countries which may lack anti-inflation credibility" and that subsequently IT "is not necessarily appropriate for all countries" (Debelle 1997, 21 and 29). This is an open recognition that IT is just a tool to set up a fully fledged central bank in control of an independent monetary policy. IT becomes instrumental in producing "a convergence of central bank behaviour to that of the Bundesbank," which itself needs no IT to gain its independence and credibility (Neumann and Hagen 2002, 136). Thus, even though the "evidence does not support the claim that IT is superior to strategies that focus on monetary aggregates," it matters because it helps low-credibility central banks gain in reputation (*ibid.*, 144).

Various econometric techniques, correcting for the resulting self-selection bias, helped reassess the evidence on macroeconomic performance in terms of reduced inflation rates, lowered inflation volatility, potential output gap, or even interest rate stability. The results are rather unanimous in concluding that IT in itself does not improve the economic performance of a country (Ball and Sheridan 2003, 17; Lee 2011, 396). Yet, in line with the relativism of methodological positivism, no firm conclusion is drawn. First, it is pointed out that the lack of a clear positive link between IT and macroeconomic performance implies in no way that IT is harmful. Second, if the available data has not yet confirmed a positive causal relationship, this would only mean that the test has not been conclusive and that a firm conclusion would require more data: "Thus a paper that replicates this study in 25 or 50 years may find ample evidence that targeting improves performance" (Ball and Sheridan 2003, 17). The authors admit, however, that if IT central banks do not bring about better macroeconomic results than non-IT central banks, this might suggest that both groups are pursuing the same interest rate policy, despite their formally different policy frameworks. This in fact reinforces the view that IT is but a device for weak central banks to acquire independent political stance.

From that perspective, the macroeconomic success of IT is necessarily related to the broader institutional and policy setup in a country. The International Monetary Fund (IMF), in particular, has devoted great attention to the question of the required institutions and practical details to make IT a suitable strategy, especially for less developed and emerging economies (Masson, Savastano, and Sharma 1997; Schaechter, Stone, and Zelmer 2000; Clinton et al. 2015). The importance of stable fiscal, monetary, and financial institutions for smoothing the impact of currency depreciation on banks' and companies' balance sheets and for preventing a sudden stop in foreign capital inflows has become a highlight of the debate on whether the exchange rate regime matters at all (Calvo and Mishkin 2003). The inclusion of such considerations in the debate has resulted in a very positive overall attitude towards IT. Although the literature recognizes controlled government spending and banks' sound risk exposures as prerequisites for independent monetary policy, it also admits that, because of its strong commitment to achieving the price stability goal, IT effectively brings about these very same necessary conditions (Amato and Gerlage 2002; Mishkin 2004, 11). Again, economists have turned the argument in such a way that neither in theory nor in practice could one find an obstacle to the widespread adoption of IT by central banks.

The discussion of the broader institutional setup surrounding IT has widened to include the exchange rate regime itself. The conventional view that IT necessarily implies the central bank's neglect for the exchange rate has been challenged, notably thanks to the prevalence of the so-called financial transmission channel. Often the distinctive feature of small open emerging economies is their high degree of currency and bank liability dollarization, which amplifies the effect of exchange rate volatility on real output and macrofinancial stability. Since central banks in emerging economies consider this liability dollarization as a serious source of vulnerability, they more often than not, and upon advice from economic theory, intervene in the foreign exchange markets in order to contain sharp movements in the exchange rate. This raises the question of the potential incompatibility of IT with the necessary reality of more or less frequent foreign exchange interventions.

The latest research has concluded that far from being incompatible with IT, foreign exchange interventions can enhance its efficacy. In

the context of dollarization, in order to mitigate the currency risks, “exchange-rate-anchored IT produces much better results” (Buffie, Airaud, and Zanna 2018, 182). Fundamentally, in that specific context the central bank is bound to pursue two objectives and must therefore have recourse to two policy instruments (ibid., 161). Although foreign exchange interventions might amplify inflation volatility, the more credible a central bank is, the narrower the tradeoff between reduced output and increased inflation volatility (Adler, Lama, and Medina 2019, 1). Finally, research from the IMF concludes that there might be plenty of good reasons for an IT central bank to intervene on the forex market: manage risks from currency mismatches, contain an exchange rate shock, support a weak interest rate transmission channel, build up official reserves, and buffer foreign capital flows to contain the credit cycle (Hofman et al. 2020). In spite of two potential costs, namely moral hazard due to the implicit public guarantee on private risky behavior and possibly confusing and deanchoring inflation expectations, the compatibility of IT with any exchange rate regime has been established *de facto* (ibid., 18).

The literature on the macroeconomic effects of IT skillfully explores different aspects of monetary policy and its impact on the economy. This literature review leads to two conclusions. First, most of the discussion has not focused on IT itself as a standalone policy, but rather on its broader effect in terms of observed changes in macroeconomic variables. From that perspective, it belongs more to the area of economic history than to the field of monetary theory.⁴ Second, whenever the findings reveal inconclusive data, they are depicted in a context of benevolent doubt. As a result, the studies

⁴ A large part of the literature on the performance of IT belongs to the field of *public policies evaluation* and consists in the application of evaluation-specific econometric techniques to the outcomes of IT in a given economy during a given period. Evaluation has become extremely popular within public policy agencies at all levels, both *ex ante*, to justify, and *ex post*, to assess the impact of concrete policy interventions. Public authorities have developed evaluation from a mere accountability exercise into a crucial foundation of so-called evidence-based policy-making. It should be obvious that in its constant search to invalidate or confirm an assumed policy impact, policy evaluation denies that economic and social theory has something meaningful to say about the design and assessment of public policy. Evaluation is methodological positivism discovered by public agencies in search of existential justification.

of IT exhibit a clear pro-IT bias that gives the perception that the dissimulated goal of IT literature is to legitimize and popularize the adoption of that strategy by central banks.

Analytical Foundation of Inflation Targeting

The intellectual roots and biases of IT have been highlighted above. IT builds upon the New Keynesian version of an aggregate supply and aggregate demand macroeconomic model. It admits that high inflation disturbs economic choices. Yet it considers virtuous a positive inflation rate and sees deflation as a danger. Since these conjectures have received their fair share of rational critique elsewhere, and as they do not form the core of IT, they will not be analyzed further. Here, the focus will be the question of what the analytical core of IT is. Two elements in particular make the essence of IT.

First, IT relies on a presumably stable relation between nominal interest rates and inflation. This same link between interest and inflation underpins the claim by its proponents that IT offers central banks a solution for exerting control over inflation. At the same time, the relation between monetary aggregates, i.e., money supply, and inflation is de facto denied due to the instability of money demand or of the so-called velocity of circulation. In other words, the nominal interest rate is presented as the single most important economic variable that brings a monetary economy into equilibrium and consequently provides a policy tool by which to change that equilibrium.

Although IT proponents avoid the notion of monetary equilibrium, this is precisely what they mean by the very frequently used concept of a “monetary anchor.” Practically any publication on IT refers to it but without defining it clearly. The IT-controlled interest rate is sometimes meant to anchor inflation expectations: “One role for inflation targets is to provide an anchor or coordinating device for inflation expectations” (Debelle 1997, 17). At other times, the anchor refers to monetary policy only: “to bind its [the central bank’s] policy to an intermediate target that serves as the monetary anchor for monetary policy” (Neumann and Hagen 2002, 145). Others consider IT to anchor the economy itself: “inflation targeting can confer some important advantages. It provides a nominal anchor

for policy and the economy” (Bernanke and Mishkin 1997, 108). One explicit discussion on the “need for a nominal anchor” explores IT as a monetary system for the economy (Freedman and Laxton 2009, 8–11). It appears, therefore, that this “monetary anchor” function of IT is a crucial analytical foundation, which also represents a specific view of the monetary equilibrium of an economy.

The second essential element of IT is the conjecture that in a world of multiple currencies this “monetary anchor” is independent from the relative quality of the domestic money. The monetary equilibrium of the national economy and the influence that the domestic central bank can exert upon it relate exclusively to the interest rate. This assumption underlies all claims about the very possibility of an independent monetary policy, i.e., a policy that is capable of controlling domestic inflation. As noted above, researchers have noted lately that more often than not central banks in emerging economies pursue (sterilized) exchange rate interventions while following IT. These interventions have been presented as a matter of choosing to employ a second tool that actually enhances the impact of the independent monetary policy. The implication is that all central banks operate on an equal footing, irrespective of the relative quality of their products as perceived by money users. This very egalitarian approach to paper money and central banking allows IT proponents to advocate its adoption by any central bank.

The foundations of IT are at odds with the essential contribution to monetary theory of the Austrian school of economics. The next section focuses on two crucial analytical weaknesses of IT that seriously question both its theoretical justification and its fitness to the real world.

THE ANALYTICAL PITFALLS OF INFLATION TARGETING

The Austrian theory of money uniquely integrates monetary, or macroeconomic, and individual, or microeconomic, phenomena through the pathbreaking application of the concept of marginal utility to the monetary good itself. The resulting successful analytical apparatus is naturally the most fit to approach contemporary issues arising from the coexistence of multiples monies.

The Monetary Relation as the True Anchor of the Economy

Money, as the most commonly used medium of exchange, derives its utility from its capacity to exchange against other goods in the future. The monetary good does not embed these specific services of intermediation technologically, in the way a piano, a book, or a hammer physically contain and determine their own specific services. Rather, the services of a given unit of money depend on the quantity of goods it could sell for, i.e., on its expected purchasing power at the moment of exchange.⁵ Consequently, individuals' demand to hold money is effectively a demand for "real" money balances. At higher monetary prices, a larger money balance provides the same monetary services as a smaller money balance at lower prices. Individuals value the "real" monetary services of a given stock of money based on the marginal utility of the relevant unit, as in the case of any other good. These individual valuations bring about society's aggregate demand to hold money, which contributes to the determination of all monetary prices: "It is demand, a subjective element whose intensity is entirely determined by value judgments, and not any objective fact, any power to bring about a certain effect, that plays a role in the formation of the market's exchange ratios" (Mises [1949] 1998, 397).

The supply of money is the other factor that plays a role in the determination of prices: "The purchasing power of money is determined by demand and supply, as is the case with the prices of all vendible goods and services" (*ibid.*, 407). Supply of and demand for money interact through the so-called money relation that encompasses all markets. Indeed, as a universal medium of exchange, money exchanges against all other goods. Hence, the purchasing power of money is determined by the very same process that is behind all

⁵ This point is crucial for establishing the social and individual optimality of any amount of money in the economy: "The services money renders are conditioned by the height of its purchasing power. Nobody wants to have in his cash holding a definite number of pieces of money or a definite weight of money; he wants to keep a cash holding of a definite amount of purchasing power. As the operation of the market tends to determine the final state of money's purchasing power at a height at which the supply of and the demand for money coincide, there can never be an excess or a deficiency of money" (Mises [1949] 1998, 418). This conclusion implies that monetary theory itself cannot provide a rationale for monetary policy, which is therefore necessarily rooted in nonmonetary considerations.

goods' price formation. The valuation of consumer goods and the appraisal of producer goods occur concomitantly and through the same market exchanges that explain how the purchasing power of money forms and evolves. From that perspective, the monetary relation is the foundation of that general coordination process between individual actions that ensures the all-time clearing and equilibration of all markets (Salerno 2011, 181–97).⁶

This true anchor of all catallactic phenomena operates through continuous market exchanges based on Mises's crucial observation that "Nobody ever keeps more money than he wants to have as cash holding" (Mises [1949] 1998, 401). Whenever individuals find themselves in possession of excess cash holdings, as in the hypothetical case of a general increase in the money supply, they divert the surplus monetary units toward additional exchanges that bring about a tendency toward higher-than-otherwise prices. Should individuals feel a deficit in their cash balances, they will dump other goods and services on the market in an attempt to increase their monetary reserves, which puts in motion a tendency toward lower-than-otherwise prices. These price movements are actuated by concrete market exchanges that bring about a new distribution, and hence a different employment, of the resources in the economy. They come to an equilibrating halt when, at the updated price and ownership structure, the acting individuals consider their effective monetary holdings adequate to their respective demands and therefore take no further action to add to or subtract from their cash holdings.

The crucial point is that the money relation truly anchors the economy through actual individual actions of buying and selling. Given a stock of money or changes therein, individuals' demand for money relative to other goods is the determining factor of prices. From the point of view of the acting individual, the stock of money

⁶ Mises called this the driving force of money: "While money can be thought of only in a changing economy, it is in itself an element of further changes. Every change in the economic data sets it in motion and makes it the driving force of new changes. Every shift in the mutual relation of the exchange ratios between the various nonmonetary goods not only brings about changes in production and in what is popularly called distribution, but also provokes changes in the money relation and thus further changes. Nothing can happen in the orbit of vendible goods without affecting the orbit of money, and all that happens in the orbit of money affects the orbit of commodities" (Mises [1949] 1998, 415).

in his possession is merely an economic datum among others. The conscious effort, by means of market exchanges, to bring his stock of money in correspondence with his valuation-driven demand for monetary services drives the price formation mechanism, which is also a resource allocation mechanism. The description of money price formation as relying on the actuality and necessity of individuals' market actions produces a praxeological quantity theory of money, fully integrated with the marginal value theory.

Hence, it is the demand for money and individuals' purposeful buying and selling of goods and services, analytically referred to as the "real" cash balances doctrine, that bring about the nominal anchoring of the economy, to borrow the vocabulary of the inflation-targeting literature. In this framework, there can be no direct causal link between interest rates and inflation. If a relationship exists between these two variables, it is the money relation itself that brings it about. Knut Wicksell's attempt to relate interest rates to prices exemplifies this point amply.⁷ Wicksell was a convinced proponent of the classical version of the quantity theory of money: "Absolute prices on the other hand—money prices—are a matter in the last analysis of pure convention, depending on the *choice of a standard of price* which it lies within our own power to make" (Wicksell [1898] 1962, 4).⁸ Yet, when it comes to providing an account of actual price changes, the reference to individual actions becomes unavoidable:

Now let us suppose that for some reason or other commodity prices rise while the stock of money remains unchanged, or that the stock of money

⁷ Beyond the specific contribution of Wicksell to this problem, the reference to him in this context is unavoidable because of Michael Woodford's explicit tribute to Wicksell in the very title of his modern, now authoritative, textbook on monetary theory, in advocacy of rule-based monetary policy (Woodford 2011).

⁸ Consider also this more analytical passage on the dichotomy between relative and money prices: "It is then obvious that the fundamental conditions of exchange are not affected by the intervention of money.... So the function of money is here purely that of an intermediary; it comes to an *end* as soon as the exchange has been effected. Hence we arrive at an important, if self-evident, fact the neglect of which has constantly resulted in false conclusions. The exchange of commodities in itself, and the conditions of production and consumption on which it depends, affect only exchange values or *relative* prices: they can exert *no direct influence whatever on the absolute level of money prices*" (Wicksell [1898] 1962, 23; original emphasis).

is diminished while prices remain temporarily unchanged. The cash balances will gradually appear to be too small in relation to the new level of prices.... I therefore seek to enlarge my balance.... The same is true of all other owners and consumers of commodities. But in fact nobody will succeed in realising the object at which each is aiming—to increase his cash balance; for the sum of individual cash balances is limited by the amount of the available stock of money, or rather is identical with it. On the other hand, the universal reduction in demand and increase in supply of commodities will necessarily bring about a continuous fall in all prices. This can only cease when prices have fallen to the level at which the cash balances are regarded as adequate. (*ibid.*, 39–40)

In his dynamic explanation of the cumulative price changes triggered by discrepancies between the market and the normal interest rates, Wickseil refers to this same analytical device. Price changes, and hence inflation, are rooted in individuals' endeavors to equilibrate their demand for money to the supply thereof. In short, human action as regards the money relation brings about and regulates the social phenomenon of inflation.

This conclusion exposes four major deficiencies with the analytical foundation of the inflation-targeting framework. First, the explicit neglect of the demand for money and of monetary aggregates, on the ground that they are empirically unstable, is a fatal theoretical flaw. Fundamentally, it is a reflection of the classical dichotomized classification of economic phenomena into real and monetary areas. It is in this context only that one can think in conceptual categories such as aggregate demand for money or average velocity of circulation. Conscious of the related lack of realism, the proponents of inflation targeting propose to break the dichotomy through the integration of so-called microeconomic foundations into a formal aggregate model. However, this proposed alternative to the praxeological approach based on individuals' concrete actions is bound to fail precisely because it ignores the critical importance of the demand for money and relies instead on conceptual categories that cannot be identified in the real world. In other words, the replacement of the money relation by the inflation target as an alleged monetary anchor for the economy, and hence for policy, is intellectually bankrupt and illusory.

Second, this analytical neglect for the money relation results in a mechanical, and even distorted, view of the relation between

interest rates and inflation. Lower interest rates lead to inflation only to the extent that they trigger an increase in the money supply. By implication, a central bank can influence inflation through its control over the interbank refinancing rate only to the extent that it is effectively influencing bank credit policy. This point, which was evident for Wicksell and has become a hallmark of Austrian monetary theory, is either silenced or outright ignored by the proponents of inflation targeting: “With the aggregate demand channel, monetary policy affects aggregate demand, with a lag, via its effects on the short interest rate (*and possibly on the availability of credit*)” (Svensson 2000, 158; our emphasis). In fact, in modern economies bank credit expansion is the primary means to bring additional means of exchange into existence. At any level of nominal interest rates and irrespective of central bank-engineered changes, many other factors—e.g., minimum cofinancing by borrowers’ own funds, minimum revenue requirements for borrowers, creditors’ collateral evaluation, or return expectations—determine banks’ willingness to extend and borrowers’ readiness to take extra credit. Consequently, no direct mechanical relationship exists between interest rate changes and inflation.

Third, the money relation shows that inflation expectations influence actual inflation only through their effect on the demand for money. The anticipation of future price increases is tantamount to an expected decline in the marginal utility of money holders’ balances relative to other goods. The subsequent tendency to lower the demand to hold money balances, through increased purchases of other goods, brings about the actual tendency for prices to increase. The sequence, speed and magnitude of the price increases are engendered by and depend on the additional exchanges made possible by the lowered demand for money. This realistic and theoretically consistent view contrasts patently with the mechanistic approach followed by IT proponents who ground the role of inflation expectations in the self-validating properties of rational expectations rather than in the causal relations produced by human action.

Fourth, the fact that money permeates *all* markets suggests that the policy emphasis on exclusively targeting consumer prices lacks theoretical foundation. Producer and asset prices, as well as the exchange rate of a money relative to other currencies, are equally important aspects of the general price structure in the economy.

Depending on individuals' concrete preferences and market choices, a decline in the purchasing power of money may translate initially into higher producer prices, while consumer prices first remain broadly stable. The resulting differences in sectoral price spreads trigger a resource reallocation, which is an integral part of explaining the dynamics of business cycles. IT's narrow focus on consumer prices as the single meaningful manifestation of inflation conveys a very incomplete and therefore distorted view of the market process itself.⁹

Relations Between Multiple Money Producers

An important aspect of the contemporary monetary order is the coexistence of multiple fiat money producers, each of them enjoying a monopoly protected by legal tender laws upon territories that commonly, though not always, coincide with the national boundaries. This multitude of monies goes together with a diversity in their relative quality. This observation has important bearing on each central bank's capacity to conduct monetary policy on its own.

The monetary relation, again, best reveals the quality differences between fiat monies. In the absence of an international commodity money, such as gold, there arises the problem of financing trade between nations using different monies. One solution is to use one or a few of the national fiat monies for intermediating international exchanges. The international use of these originally national monies implies a substantial expansion beyond their national boundaries in the demand to hold them. This is reflected, for instance, in so-called international currencies being held in reserve by all central banks and by commercial banks worldwide. Thanks to this foreign demand, which grows with the expansion of international division

⁹ Yet although lacking theoretical justification, this focus can be understood from the point of view of the self-interest of a monopolist money producer. Although many assets provide store-of-value services, there are few alternatives to the medium-of-exchange function of money. In fact, most such alternatives are other, foreign monies. This implies that changes in the money relation are most visible in asset price changes and in exchange rate movements, which appear more volatile than changes in consumer prices. Thus, a money producer who wants to convince people of the quality of his money would naturally insist upon measuring its purchasing power in terms of consumer prices.

of labor and cooperation, the international currencies' purchasing power is strengthened, which in turn confirms their outstanding position. Hence, international monies are necessarily of better quality than the simply national fiat monies.

It appears, hence, that an international monetary order based on multiple fiat monies puts in place a particular dynamic of rivalry between central banks. The producers of international reserve currencies enjoy special privilege due to their significantly enlarged territory of use. Hence, the inflationary impact of any round of monetary expansion on the strictly national economy is diluted significantly. This allows the central banks that issue these currencies to be comparatively more expansionary, to follow a relatively more inflationary policy, and to benefit from practicing seigniorage abroad.¹⁰ The resulting rivalry between producers of international monies creates a tendency toward further centralization and domination with the view of expanding each money's territory of use. Fixed exchange rates, currency boards, and outright dollarization are effective means for achieving this goal and represent forms of *de facto* monetary imperialism.

In this system, which describes the present-day monetary order, the producers of strictly national monies appear effectively dominated. To the extent that the international transactions in goods and capital are free, they influence the domestic monetary conditions. In addition to having to hold the international currencies for their cross-border transactions, and despite legal tender laws, individuals enjoy some degree of freedom to allocate part or all of their money holdings toward the foreign currency at the expense of the domestic money. Thus, the unavoidable international currency holdings domestically and abroad imply that these national central banks do not have full control of the domestic money supply. In particular, the choice of currency composition in individuals' money holdings implies that the demand to hold the national money is influenced by its perceived relative quality. On one hand, a spontaneous tendency toward further dollarization triggers higher prices in domestic currency and a relative depreciation. On the other hand,

¹⁰ Given that the production of fiat money is the political means of exploitation *par excellence*, this system of double-tier exploitation has aptly been called "monetary imperialism" (Hoppe 1990).

a stronger demand for domestic money at the expense of foreign currency holdings induces the money producer to acquire the extra units of international reserve money in exchange for additional units of its own exclusively domestic money. Thus, the producers of strictly national monies have to intervene in the foreign exchange market depending on individual preferences with respect to the currency composition of money holdings.¹¹ In all circumstances, the national-money central banks lose their autonomy and hence cannot exercise an independent monetary policy.

What sense, then, could one make of the advocacy of IT for emerging and developing economies, where the national money producers are in a dominated position? The striking fact of the current system of dominant international currencies and dominated national monies is its inherent instability. The very multiplicity of monies puts in motion a rivalrous environment between all central banks aiming to ensure that their product, whether strictly domestic or international, remains relatively attractive. To achieve this, the gradual loss in a money's purchasing power due to the regular expansion of its supply should not be greater than that of other monies. Otherwise, this could trigger a decline in the demand to hold that money, which would de facto reduce the extent of its use and could even compromise its particular standing as an international currency. Thus, it is in the common interest of all money producers to coordinate their monetary expansion with the view of avoiding disruptive changes in the relative quality of their products. The popularization of IT for all central banks, with its emphasis on a similar inflation rate for all economies, i.e., a similar loss of purchasing power for all monies, is best understood as such a coordination device.

INFLATION TARGETING IN UKRAINE

After communism in the East collapsed in 1989 and Ukraine gained independence from the Soviet Union in 1991, the ruling political

¹¹ The money holders need not be national residents only. Nonresident foreigners, especially if animated by speculative motives, play a crucial role. Thus, even though a strictly national money might have a geographically limited scope, it is still part of the global international money relation and in necessary economic competition with other national and international monies.

elite, not without favorable public opinion sick with nostalgia, procrastinated in transitioning away from central planning. Ukrainian politicians refused to submit the allocation of resources to the discipline of international market competition. Instead, they tried to shelter and privilege the nascent cooperatives, allowed since 1987 and often politically connected, and to avoid socially painful reforms by maintaining the status quo of controlled prices and government subsidies (Havrylyshyn 2017, 63–64). This also included keeping a network of bilateral trade treaties at nonmarket exchange rates with the former Soviet republics at a time when the latter were already opening their economies to international competition. Thus, the misallocation of resources in Ukraine persisted and deepened until late 1994, when eventually price liberalization started (*ibid.*, 90).¹² Because of a corrupt and insider-biased privatization process that gave birth to a large number of oligarchs with monopolistic stakes in practically all sectors,¹³ the economy of Ukraine continued to lag behind its regional peers even during the reformist period of 1994–2000. Ten years after 1994, the gross domestic product (GDP) in dollars per capita was only 35 percent higher. During the same decade, the per capita GDP had increased by 54 percent in Russia, from an initial level two and a half times higher, and by 132 percent in Poland.¹⁴ Recently, after two years of stagnation in 2011 and 2012, the real GDP contracted by a cumulative 15.7 percent in 2014 and 2015. After returning to modest though accelerating real growth that reached 3.2 percent in 2019,¹⁵ the nominal per capita GDP in Ukraine barely amounted to USD 3,660, i.e., slightly above one-fifth of the average for Central Europe and the Baltics.

Oligarchic monopolies, systematic encroachment on property rights, and delayed market reforms have contributed to an exceptionally low level of investment in Ukraine. Gross fixed capital

¹² Gas and electricity prices for households were not liberalized until 2019.

¹³ Andrusiv et al. (2018) contains the clearest presentation of oligarchic interests by sector.

¹⁴ World Bank National Accounts Data (GDP per capita current US\$, NY.GDP.PCAP.CD); accessed Feb. 8, 2021), <https://databank.worldbank.org/reports.aspx?source=2&series=NY.GDP.PCAP.CD&country=#>.

¹⁵ Ukrstat (The Change of Gross Domestic Product, Volume, Archives; accessed Feb. 8, 2021), http://www.ukrstat.gov.ua/operativ/operativ2004/vvp/ind_vvp/ind_vvp_e/arh_indvvp_e.html.

formation averaged only 16.6 percent of GDP between 2009 and 2019, respectively 2.8 and 4.8 percentage points behind the economies of Poland and Russia.¹⁶ Investors from abroad have also shown little interest in Ukraine. The stock of foreign direct investment amounted to USD 1,186 per inhabitant in 2019, while it reached USD 7,373 and 4,024 in Poland and Russia, respectively.¹⁷ Although low levels of investment, along with high likelihood of misallocation, are the major cause of the delayed development of Ukraine, monetary factors have also contributed to the economic backwardness.

Monetary Developments in Ukraine

Initially a member of the rouble zone, the National Bank of Ukraine (NBU) introduced the karbovanets in January 1992. Presented as a “coupon” currency, the real function of the karbovanets was to withdraw the rouble from domestic transactions. The NBU succeeded in centralizing Ukrainians’ rouble holdings, which provided the government with the reserves necessary for centrally planned international transactions. Later in that same year, the Central Bank of Russia refused to supply more roubles to the Ukrainian government, which would have used them to finance dubious subsidies and the general deficit of an unreformed state.¹⁸

¹⁶ World Bank National Accounts Data (Gross fixed capital formation, % of GDP, NE.GDI.FTOT.ZS; accessed Feb. 8, 2021), <https://databank.worldbank.org/reports.aspx?source=2&series=NE.GDI.FTOT.ZS&country>. The difference of 8 percentage points to Romania is even more striking.

¹⁷ IMF International Financial Statistics (International Investment Position, Liabilities, Direct investment [BPM6], US Dollar; accessed on Feb. 8, 2021), https://data.imf.org/?sk=78748667-480d-45ce-9768-e3541d7b3932&hide_uv=1. International official statistics estimate the 2019 population of Ukraine at 44.0 million, with the last fully-fledged census from 2001 showing 48.4 million inhabitants. A refined methodology from end-2019, also correcting for the regions outside government control (1.9 million in Crimea, 4.4 million in Donetsk, and 2.2 million in Luhansk), suggests that a more correct population figure would be 35.5 million. This would put foreign direct investment per head at USD 1,470, which does not alter the country comparison materially.

¹⁸ Although the Russian government indeed started the policy of price liberalization about two years before Ukraine, the conflict was due ultimately to the choice of who the first beneficiary of any newly created money should be. Already in October 1992, the Russian central bank had stopped honoring some of the payments that the NBU had authorized and financed with its own credits. The split of the rouble

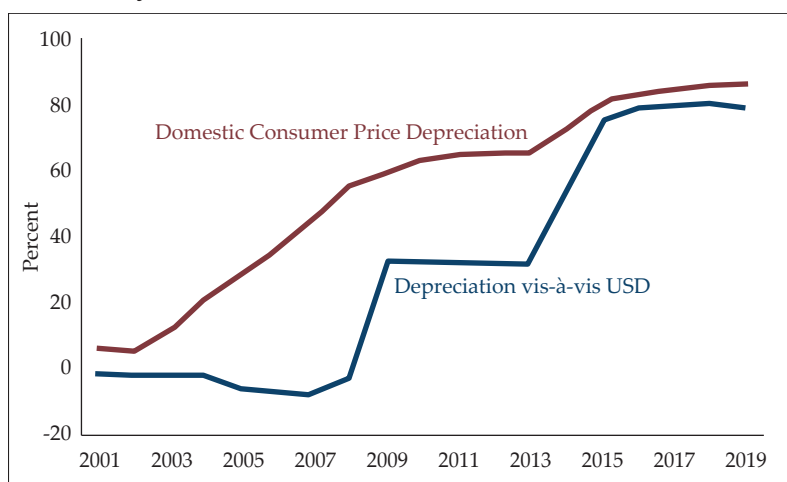
Once the karbovanets had replaced the rouble completely, the Ukrainian government removed the domestic legal tender privilege of the rouble. The NBU discontinued converting the karbovanets into the rouble and started producing the karbovanets independently in the autumn of 1992. Naturally, this resulted in a very strong hyperinflationary episode that started later that same year and lasted through 1993. Because of the loss of purchasing power, the exchange rate of the karbovanets to the dollar depreciated from 120 in January 1992 to 17,000 in September 1993 (Harvylyshin, Miller, and Perraudin 1994, 391).

The regular and relatively high inflation during the following years, due to the continued monetary financing of unreformed and inefficient state-owned companies, was depleting the official international reserves. It is in this context that, eventually, the Ukrainian authorities recognized the need for a monetary reform and the NBU replaced the karbovanets with the modern hryvnia (UAH) in September 1996. The authorities attempted to gain the confidence of the money users with a peg to the US dollar at UAH 1.85. However, the NBU continued to inflate and revised the peg down to UAH 5.5 in 2000, which implied an external devaluation by 66 percent. Since then, the monetary history of Ukraine has been marked by the uninterrupted depreciation of the hryvnia's purchasing power, exerting continuous pressure on the sustainability of the peg (see chart 1).¹⁹

zone into independent money producers (Ukraine left on November 12, 1992) provided the final solution to this conflict. Johnson and Ustenko (1993) provide very interesting details on the early post-1989 monetary history of Ukraine.

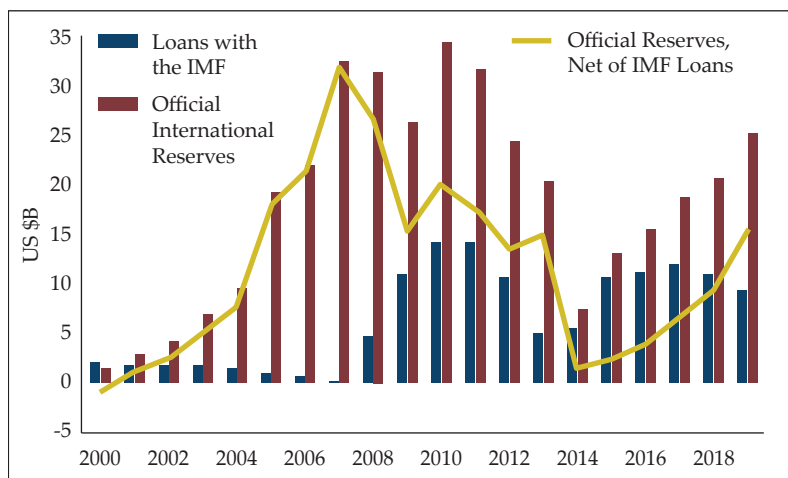
¹⁹ "Official hryvnia exchange rate against foreign currencies," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/Exchange_r.xls and "Consumer Price Indices," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/macro/CPI_y.xlsx.

Chart 1. Cumulative internal and external depreciation of the hryvnia relative to the US dollar, 2000–19



The devaluation of 2009 relative to the US dollar continued to lag behind the internal depreciation, despite the stability of consumer prices during the economic stagnation of 2011 and 2012. The NBU increased its holdings of government securities by 50 percent in 2013, triggering a 20 percent increase in the monetary base. The peg to the dollar was abandoned in early 2014, and after a further doubling of central bank credit to the government, official international reserves were almost depleted by end-2014 (see chart 2).²⁰ By that time, the sizable external depreciation of the hryvnia had caught up with the cumulative loss of domestic purchasing power by 80 percent since 2000. The floating exchange rate to the dollar has remained broadly stable around UAH 27 for the last five years.

²⁰ "International Investment Position of Ukraine," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/ES/IIP_y_en.xlsx.

Chart 2. Official Ukrainian international reserves, 2000–19

The Ukrainian Experience with Inflation Targeting

The National Bank of Ukraine decided and publicly announced in September 2015 that by end-2016 it would have a fully functioning inflation-targeting framework implemented. It set its inflation targets at $12 \pm 3\%$ for end-2016, $8 \pm 2\%$ for end-2017, $6 \pm 2\%$ for end-2018, and $5 \pm 1\%$ for end-2019 and as medium-term objective beyond. Although the NBU had no difficulty in meeting the 2016 target, due to its largeness, it missed the targets for the next two years. Annual inflation remained close to 9 percent until the summer of 2019, when it started a steady decline to 1.7 percent in May 2020 before rebounding slowly to 2.5 percent in last August (see chart 3).²¹ Meanwhile, after cutting its policy interest rate by 350 basis points in the second half of 2019, the NBU embarked upon an even more aggressive policy and lowered its policy rate from 13.5 percent in December 2019 to 6 percent as of June 2020.

²¹ "Consumer price indices (to corresponding month of the previous year, %)," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/macro/CPI_m.xlsx and "NBU Key Policy Rate," National Bank of Ukraine, accessed on Feb. 8, 2021, <https://bank.gov.ua/en/monetary/stages/archive-rish>.

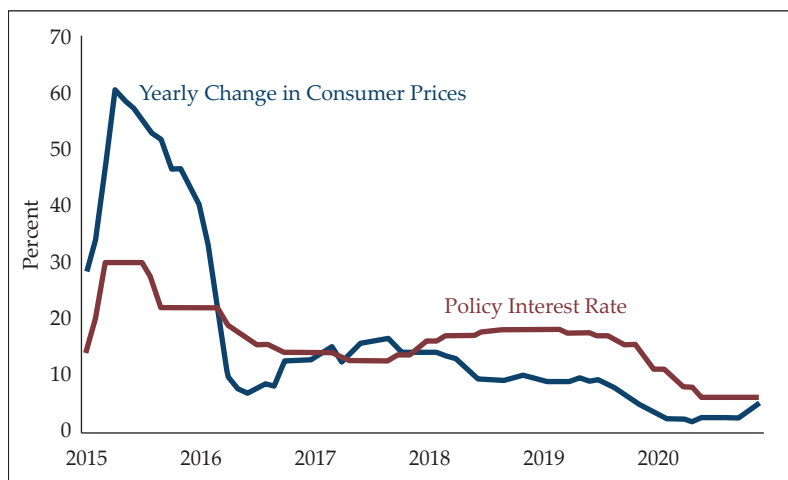
Arguably, although inflation targeting in Ukraine failed during its first three years, eventually it delivered on its medium-term target for a few months, before consistently missing the lower band of this target range. This raises the question of how much NBU policy contributed to that achievement and which factors ultimately kept inflation in, and below, the target zone.

Let us first examine the NBU's inflation forecasting and its relation to the policy interest rate.²² For end-2016, the NBU inflation forecast of 12 percent was very close to the actual rate of consumer price change of 12.4 percent. The NBU kept its end-2017 inflation forecast at 9.1 percent until July 2017. In line with this expected decline in inflation, the central bank cut its policy rate gradually from 22 percent in January 2016 to 12.5 percent in mid-2017. Contradicting the forecast, actual inflation started to accelerate in 2017. Faced with this reality, the NBU revised its end-of-year inflation forecast up to 12.2 percent, which eventually turned out to be 1.5 percentage points below the effective figure. It also initiated a cycle of rate hikes that lasted until April 2019. In October 2018, reality forced the NBU to again revise its initial inflation forecast of 8.9 percent to 10.1 percent, which turned out to be broadly correct, though outside the target range. Given its two-year record of undershooting forecasts, and the relative stability of actual inflation around 9 percent until August 2019, the NBU put its inflation forecast at 6.3 percent, i.e., slightly above the upper bound of the end-2019 target. The NBU started lowering its policy interest rate cautiously in April 2019 and accelerated the cuts beginning in September, when inflation began its decline. By August 2020, the inflation rate had been more than halved and sat below the lower band of the target, surprising all analysts.²³ The NBU inflation forecasts for end-2020 remained somewhat volatile, though anchored within the target range.

²² Data on the inflation forecasts by the NBU is extracted from the NBU quarterly "Inflation Reports," accessed on Feb. 8, 2021, https://bank.gov.ua/en/publications?page=1&perPage=5&search=&document=&pubCategory=2&keywords=&created_from=&created_to=.

²³ The consumer price index hit the middle of the target range in December 2020. However, this appears to be an accidental development that is unlikely to remain a permanent achievement.

Chart 3. Inflation and NBU policy interest rate, January 2015–December 2020

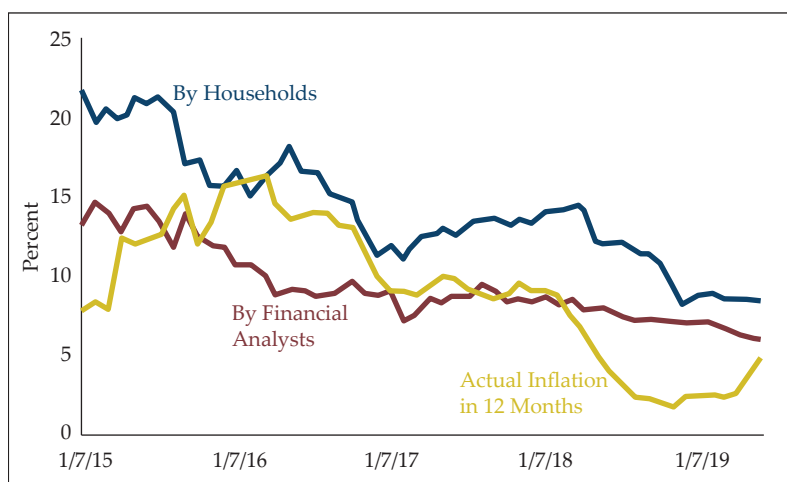


These developments invite two conclusions. First, the NBU is using a formal model that has failed to anticipate actual inflation within reasonable margins of error for the last three years. The only reason why the central bank did not adjust its forecast in October 2019 is that, at the time, the forecast looked correct as nobody foresaw that the decline in inflation would accelerate toward the end of the year. Second, there is no identifiable causal link between the inflation forecasts and the changes in the policy interest rate. Except for the October upward revisions, the NBU inflation forecasts have been on a systematic downward slope. The NBU lowered its policy rate until September 2017, increased it for the next twelve months, kept it constant between September 2018 and April 2019, and then decreased it afterward. Moves in the policy instrument do not appear motivated or even informed by the inflation forecasts. Rather, the NBU policy actions resemble more of a trial-and-error approach based on actual inflation developments.²⁴

²⁴ The erratic nature of the NBU policy persists even with an assumed standard lag of four to six quarters between the policy interest and inflation.

If we look now at the inflation expectations of market participants (see chart 4),²⁵ they have been at odds with both actual inflation and the NBU forecast. Although financial analysts' expectations were somewhat closer to the NBU forecast, they had been undershooting actual inflation from 2016 until the summer of 2017 and failed to anticipate the disinflation from the second half of 2019. Households, i.e., money users themselves, were much more pessimistic than both financial experts and the reality itself for most of the period.²⁶ Strikingly, households' inflation expectations, even though declining from above 20 percent to around 9 percent in mid-2019 and 7 percent in mid-2020, fell outside the NBU inflation forecast and even its inflation target. Thus, households deliberately ignored, or disagreed with, the central bank's policy announcements. Yet they did revise their expectations downward in line with realized inflation and possibly other factors. This is a sign that households had been increasing their confidence in the domestic money slowly yet gradually.

Chart 4. Inflation expectations for the next twelve months, July 2015–December 2019



²⁵ "Inflation expectations," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/macro/Surveys_price.xlsx.

²⁶ This overshooting is probably due to Ukraine's long inflationary history and to households' having a different perception of the right measure of inflation.

Though still short lived, the Ukrainian experience with IT offers enough insights to seriously question all of the framework's assumptions. First, there is no clear correlation between interest rate policy moves, inflation forecasts, and actual inflation. Second, money users' inflation expectations seem little influenced by official inflation forecasts. Third, the Ukrainian case does not confirm the presumed direct causal relationship between inflation expectations and inflation. Finally, the standard theory behind IT fails to account for the strong disinflation in the second half of 2019.

In fact, developments in the supply of money and the demand for money much better explain the changes in inflation since the formal introduction of IT in Ukraine. The growth rates of both base and broad money, as measured by the aggregate M3, declined steadily from 2016 to 2018 before rebounding in late 2019 (see Table 1).²⁷ Interestingly enough, the expansion of base money, which is under stricter control by the central bank, had already *accelerated* in 2018, when the NBU *increased* its policy interest rate. This calls into question the very foundations of IT. Credit expansion, by both the central bank and the commercial banks, has abated even more strongly. More specifically, domestic credit, including in hryvnias, contracted in 2019, which is consistent with the rapid disinflation toward the end of that year and the low inflation in 2020.²⁸

Table 1. Changes in money supply and in bank credit, 2016–19
(all figures are percentages)

	Base Money	M3	Domestic Credit, All Currencies	Domestic Credit in Hryvnias
2016	13.56	10.93	11.27	23.39
2017	4.60	9.60	4.40	10.23
2018	9.20	5.70	3.00	3.05
2019	9.60	12.58	-8.51	-2.71

²⁷ "Surveys of Financial Corporations," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/3.1-Monetary_Statistics_e.xlsx.

²⁸ Note that that the annual money supply growth rates have tripled by November 2020, which has contributed to the increase in consumer prices inflation as from December that year.

Changes in the demand for money, which are not directly observable, are more difficult to fathom. Nevertheless, the very high degree of dollarization of the Ukrainian economy allows for a relative analysis of the residents' demand for the hryvnia, as opposed to their demand for foreign currency. From that perspective, a number of factors suggest that the demand for the hryvnia had been strengthening even prior to IT adoption and especially in late 2019. First, investments in currency and deposits abroad have been mostly stable since 2012, which suggests that dollarization has come to a halt.²⁹ The ratio between estimated foreign currency cash held by residents and the monetary aggregate M3 has been declining steadily from 2.1 in 2015 to 1.5 in 2019. Second, over this same four-year period, the degree of dollarization of households' deposits diminished from 52.7 percent to 42.0 percent.³⁰ The abating dollarization of the Ukrainian economy is a sign that demand for the domestic currency has been strengthening, thereby creating a tendency toward its relative appreciation in terms of both other goods and other monies.

The relative strengthening in the demand for the domestic currency accelerated in the second half of 2019 and resulted in the significant appreciation of the hryvnia compared to the dollar. Capital inflows from abroad, including into government debt, accelerated, causing the net foreign assets held by commercial banks to increase in the single year 2019 by more than in the previous four years. This substantial net inflow of foreign currency liquidity nourished a sustained demand for the hryvnia, which ultimately could be provided only by its monopolistic producer. Consequently, the NBU had to intervene more intensely in 2019 and made net foreign currency purchases in exchange for additional hryvnia in the amount of about USD 8 billion, which was

²⁹ According to NBU data on the international investment position of Ukraine (see footnote 22), investments in currency and deposits abroad reached USD 109.6 billion in 2012 (63 percent of GDP), then declined to USD 100.7 billion in 2016, and stabilized at USD 100.4 billion in 2019 (67 percent of GDP). Of these assets, the estimated holdings of foreign currency cash only were, respectively, USD 83.6 billion, USD 83.1 billion, and USD 88.6 billion.

³⁰ "Deposits held with deposit-taking corporations (excluding National Bank of Ukraine)," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/3.2-Deposits_e.xlsx.

five and a half times more than in 2018 and eight times more than in 2017.³¹

This brings us to the last piece of evidence related to the Ukrainian experience with IT: the central bank's open market interventions. One feature of the supplying of base money by the NBU is particularly striking—the vast majority of open market interventions are foreign exchange based (see Table 2).³² For instance, in 2017 and 2018 interest rate-based operations accounted for 22.1 percent and 5.8 percent of all hryvnia liquidity supplied to commercial banks. In 2019, the central bank used its interest rate-based interventions to absorb liquidity by issuing more certificates of deposits *while it lowered the policy interest rate*.³³ This data reveals that since the implementation of IT in Ukraine, the NBU's increased supplying of base money has been in response to banks' net aggregate supply of foreign currency, which turns out to be the main component of their demand for hryvnia, given the extent of dollarization and openness of the economy. The 2019 surge in the interbank demand for hryvnias in exchange for dollars corroborates the relative increase in the broad demand for the domestic currency discussed above and explains the sharp disinflation. Together, these factors lead to one conclusion—the NBU has been reacting and adapting its policy to the improved liquidity situation of banks as determined by their customers' transactions and the resulting enhanced demand for the domestic currency. This illustrates the analytical point that in a world of multiple rival currencies, individuals' demand to hold the domestic money effectively limits the capacity of the domestic central bank to conduct independent monetary policy.

³¹ "NBU currency interventions," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/Finmarket/InterventionsResults_eng.xlsx.

³² "Current Data on Banking System Liquidity and Factors Affecting Liquidity," National Bank of Ukraine, accessed on Feb. 8, 2021, https://bank.gov.ua/files/Arhiv_liquidity_eng.xlsx. The original file by the NBU presents the daily change in banks' reserves as the balancing item between open-market operations (interest-rate based and others) and the so-called autonomous absorbing factors (cash in circulation, the Single Treasury Account and others). The table rearranges these items from the economic perspective of changes in base money supply and demand, on an annual basis.

³³ In 2020, the first year in which most of the open market operations are interest-based, the main driving factor is the spectacular increase in the demand for cash, most likely driven by a robust precautionary attitude toward the uncertainty related to the COVID-19 lockdowns and other policies.

Table 2. Open market interventions by the National Bank of Ukraine and changes in the demand for base money, 2017–20

Millions of UAH	Open Market Interventions		TOTAL	Changes in the Demand for Base Money			
	Interest-Rate Based	FX-Based and Others		Cash	Banks' Reserves	Gov't Deposit	Others
2017	6,883	24,215	31,098	20,487	-3,015	13,160	466
2018	2,152	35,175	37,327	38,575	-1,841	2,875	-2,282
2019	-94,120	193,668	99,549	24,922	16,783	63,947	-6,103
2020	50,275	20,730	71,005	133,344	-14,943	-36,089	-11,307

This review of Ukraine's recent experience with inflation targeting shows that monetary demand and supply factors have been the main drivers of inflation developments. Moreover, the changes in the supply of base money have not been autonomous; rather, they have accommodated respective and underlying changes in the domestic economy's demand for hryvnias relative to the US dollar. The central bank's open market operations, presumably directed by interest rate moves and geared toward the goals and targets of monetary policy, do not appear to be determined independently. Rather, they respond to changes in the demand for the domestic currency, in particular relative to foreign currencies. In short, the Ukrainian experience illustrates that the primary function of IT is to create the illusion of scientific control over money production and hence to legitimize modern central banking.

CONCLUSION

Over the last three decades, inflation targeting has evolved from a new tentative approach to setting monetary policy into an established authoritative wisdom, acclaimed by both academia and policymakers. This article has documented economists' endeavors to justify IT and disentangled its main principles and assumptions from the realistic and individualistic standpoint of monetary theory in the Austrian tradition. Although helpful for understanding IT in its specific historical context, this approach also allows for more

general insights into contemporary developments in monetary analysis. In particular, IT can hardly be considered as belonging to monetary theory at all. Its excessive emphasis on formal optimizing models offers no new knowledge about the monetary relations in an economy. More specifically, IT commits two analytical blunders—excessively formalistic emphasis on the role of inflation expectations and total neglect for individuals' demand for money. In fact, the only meaningful way to integrate inflation expectations into the analysis of inflation would be through the demand for money, i.e., through individuals' revealed actions to hold more or less money. From that point of view, IT is definitely a failed intellectual attempt. Moreover, it supports a simplistic, mechanistic view of complex volitional social phenomena and hence contributes to veiling modern central banking with the mantle of expert scientism. Put briefly, it distorts impartial theory, subordinating it to interested policy. It builds up analytical illusions, because it aims at upholding the practical illusion of independent central banking.

The hollow content of IT naturally makes it unfit to properly explain real-world monetary developments. The recent experience of Ukraine provides an illustration. The empirical evidence does not support some of the main tenets of IT, such as a direct link between inflation expectations and inflation, congruence between official forecasts and the public's expectations, or even a perceptible directional link between official inflation forecasts and policy interest rate changes. Moreover, IT gives no useful insights into two striking features of the Ukrainian reality that a valid monetary theory should be able to account for. First, despite formally sticking to strict IT, the central bank in Ukraine has been intervening much more prominently in the foreign currency market, through exchange rate interventions, than in the domestic interbank market through interest rate operations. Second, rapid disinflation, which surprised all analysts and for which the central bank itself has claimed no merit, occurred in the last two quarters of 2019. Two essential elements of Austrian monetary theory, namely its emphasis on the demand to hold money as part of the all-permeating monetary relation and its insight into the nature of fiat monies and modern central banking, offer a compelling explanation for these two outcomes. This is evidence of the superiority of economic theory based on a realistic approach to human action in understanding inflation.

REFERENCES

- Adler, Gustavo, Ruy Lama, and Juan Pablo Medina. 2019. "Foreign Exchange Intervention and Inflation Targeting: The Role of Credibility." *Journal of Economic Dynamics and Control* 106: 1–20.
- Adrian, Tobias, Douglas Laxton, and Maurice Obstfeld. 2018. "An Overview of Inflation-Forecast Targeting." In *Advancing the Frontiers of Monetary Policy*, edited by Tobias Adrian, Douglas Laxton, and Maurice Obstfeld, chapter 1. Washington, D.C.: International Monetary Fund.
- Agénor, Pierre-Richard. 2000. "Monetary Policy under Flexible Exchange Rates: An Introduction to Inflation Targeting." World Bank Policy Research Working Paper 2511, Washington, D.C.
- Amato, Jeffery, and Stefan Gerlach. 2002. "Inflation Targeting in Emerging Market and Transition Economies: Lessons after a Decade." *European Economic Review* 46: 781–90.
- Andrusiv, Victor, Oleg Ustenko, Yurii Romanenko, and Ihar Tyshkevich. 2018. *The Future of the Ukrainian Oligarchs*. Kyiv, Ukraine: Ukrainian Institute for the Future.
- Ball, Laurence, and Niamh Sheridan. 2003. "Does Inflation Targeting Matter?" IMF Working Paper WP/03/129, Washington, D.C., June.
- Begg, David. 1982. *The Rational Expectations Revolution in Macroeconomics*. Baltimore: Johns Hopkins University Press.
- Bernanke, Ben S., and Frederic S. Mishkin. 1997. "Inflation Targeting: A New Framework for Monetary Policy?" *Journal of Economic Perspectives* 11, no. 2: 97–116.
- Buffie, Edward, M. Airaud, and Felipe Zanna. 2018. "Inflation Targeting and Exchange Rate Management in Less Developed Countries." *Journal of International Money and Finance* 81: 159–84.
- Calvo, Guillermo, and Frederic S. Mishkin. 2003. "The Mirage of Exchange Rate Regimes for Emerging Market Countries." *Journal of Economic Perspectives* 17, no. 4: 99–118.
- Clinton, Kevin, Charles Freedman, Michel Juillard, Ondra Kamenik, Douglas Laxton, and Hou Wang. 2015. "Inflation-Forecast Targeting: Applying the Principle of Transparency." IMF Working Paper WP/15/132, Washington, D.C.

- Debelle, Guy. 1997. "Inflation Targeting in Practice." IMF Working Paper WP/97/35, Washington, D.C.
- Freedman, Charles, and Douglas Laxton. 2009. "Why Inflation Targeting?" IMF Working Paper WP/09/86, Washington, D.C.
- Friedman, Milton. 1968. "The Role of Monetary Policy." *American Economic Review* 58, no. 1: 1–17.
- Frömmel, Tomas. 2019. "Negative Inflation Targeting: A Proposal of a Non-distortionary Monetary Policy." *Quarterly Journal of Austrian Economics* 22, no. 3: 336–56.
- Gertchev, Nikolay. 2007. "A Critique of Adaptive and Rational Expectations." *Quarterly Journal of Austrian Economics* 10: 313–29.
- Havrylyshyn, Oleh. 2017. *The Political Economy of Independent Ukraine: Slow Starts, False Starts, and a Last Chance?* London: Palgrave Macmillan.
- Harvylyshin, Oleh, Marcus Miller, and William Perraudin. 1994. "Deficits, Inflation and the Political Economy of Ukraine." *Economic Policy* 9, no. 19: 353–401.
- Hofman, David, Marcos Chamon, Pragyant Deb, Thomas Harjes, Umang Rawat, and Itaru Yamamoto. 2020. "Intervention under Inflation Targeting—When Could It Make Sense?" IMF Working Paper WP/20/9, Washington, D.C.
- Hoppe, Hans-Hermann. 1990. "Banking, Nation States and International Politics: A Sociological Reconstruction of the Present Economic Order." *Review of Austrian Economics* 4: 55–87.
- International Monetary Fund. 2018. *Annual Report on Exchange Arrangements and Exchange Restrictions*. Washington, D.C.: International Monetary Fund.
- Johnson, Simon, and Oleg Ustenko. 1993. "Ukraine Slips into Hyperinflation." Washington, D.C.: National Council for Soviet and East European Research.
- Kim, Junham. 2011. "Inflation Targeting as Constrained Discretion." *Journal of Money, Credit and Banking* 43, no. 7: 1505–22.
- Kumhof, Michael, Shujing Li, and Isabel Yan. 2007. "Balance of Payments Crises under Inflation Targeting." IMF Working Paper WP/07/84, Washington, D.C.

- Kydland, Finn, and Edward Prescott. 1977. "Rules Rather Than Discretion: The Inconsistency of Optimal Plans." *Journal of Political Economy* 85, no. 3: 473–92.
- Lee, Wang-Sheng. 2011. "Comparative Case Studies of the Effects of Inflation Targeting in Emerging Economies." *Oxford Economic Papers* 63, no. 2: 375–97.
- Lucas, Robert E. 1972. "Expectations and the Neutrality of Money." *Journal of Economic Theory* 4: 103–24.
- Masson, Paul, Miguel Savastano, and Sunil Sharma. 1997. "The Scope for Inflation Targeting in Developing Countries." IMF Working Paper WP/97/130, Washington, D.C.
- Mises, Ludwig von. (1949) 1998. *Human Action: A Treatise on Economics*. Scholar's ed. Auburn, Ala.: Ludwig von Mises Institute.
- Mishkin, Frederic S. 2004. "Can Inflation Targeting Work in Emerging Market Countries?" NBER Working Paper 10646, Cambridge, Mass.
- Muth, John F. 1961. "Rational Expectations and the Theory of Price Movements." *Econometrica* 29, no. 3: 315–35.
- Neumann, Manfred J. M., and Jürgen von Hagen. 2002. "Does Inflation Targeting Matter?" *Federal Reserve Bank of St. Louis Review*, July/August 2002, 127–48.
- Rose, Andrew. 2007. "A Stable International Monetary System Emerges: Inflation Targeting is Bretton Woods, Reversed." *Journal of International Money and Finance* 26: 663–81.
- Rothbard, Murray N. (1962, 1970) 2009. *Man, Economy and State, with Power and Market*. 2d scholar's ed. Auburn, Ala.: Ludwig von Mises Institute.
- Salerno, Joseph T. 2010. *Money: Sound and Unsound*. Auburn, Ala.: Ludwig von Mises Institute.
- Sargent, Thomas, and Neil Wallace. 1975. "'Rational' Expectations, the Optimal Monetary Instrument, and the Optimal Monetary Supply Rule." *Journal of Political Economy* 83, no. 2: 241–54.
- Schaechter, Andrea, Mark R. Stone, and Mark Zelmer. 2000. "Adopting Inflation Targeting: Practical Issues for Emerging Market Countries." IMF Occasional Paper 202, Washington, D.C.

- Svensson, Lars. 1997. "Exchange Rate Target or Inflation Target for Norway." In *Choosing a Monetary Policy Target*, edited by Anne Berit Christiansen and Jan Frederik Qvigstad, 120–38. Oslo, Norway: Scandinavian University Press.
- . 1999. "Inflation Targeting as a Monetary Policy Rule." *Journal of Monetary Economics* 43: 607–54.
- . 2000. "Open-Economy Inflation Targeting." *Journal of International Economics* 50: 155–83.
- Wicksell, Knut. (1898) 1962. *Interest and Prices: A Study of the Causes Regulating the Value of Money*. Reprint, New York: Sentry Press.
- Woodford, Michael. 2011. *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton, N.J.: Princeton University Press.

MR. HAYEK AND THE CLASSICS; A SUGGESTED INTERPRETATION OF THE BUSINESS-CYCLE THEORY IN *PRICES AND PRODUCTION*

NILS HERGER*

JEL CLASSIFICATION: B12, B22, B53, E14, E32, E52

ABSTRACT: This paper endeavors to develop a modern theoretical underpinning of Friedrich August von Hayek's business-cycle theory as published during the Great Depression in his book *Prices and Production*. According to Hayek, economic cycles are caused by monetary shocks, which distort the relative-price schedule across economic sectors. Possible consequences of these price distortions, which are also called "Cantillon effects," include malinvestment and an unsustainable production structure, which sooner or later has to be corrected by a recession. It turns out that this type of economic fluctuation can be condensed into a simple two-sector overlapping generations model.

INTRODUCTION

A collapse in aggregate demand, which is followed by sluggish price adjustments, is probably the most widely cited explanation

* Nils Herger (nils.herger@szgerzensee.ch) is lecturer at the Study Center Gerzensee of the Swiss National Bank and lecturer at the University of Bern.

This paper has benefited from valuable comments and suggestions by Dirk Niepelt and an anonymous referee. The usual disclaimer applies.



for recurrent boom-and-bust cycles in economic activity. The corresponding business cycle theory was, of course, popularized amid the mass unemployment of the Great Depression through Keynes's landmark *General Theory*, published in 1936. In a nutshell, Keynes argued that shortfalls between aggregate demand and aggregate supply, which are typically associated with a reluctance to invest and a savings glut, are neither automatically, nor quickly reversed through changes in interest rates, prices, or wages (see, e.g., De Vroey 2016, 3ff.; Niehans 1990, 349ff.). In particular, the price adjustment mechanism can malfunction, because wage reductions or interest rate cuts can lead to deflation, which lures entrepreneurs into postponing investment and, hence, aggravates the downturn. Low levels of interest rates and deflationary policies cannot restore the "animal spirits" of entrepreneurs, to employ Keynes's famous catchphrase (1936). Rather, to revive aggregate demand by breaking the vicious cycle that depresses investment, a fiscal stimulus is arguably warranted. In contrast to low interest rates through monetary policy, demand activation through fiscal policy is thought to exhibit powerful multiplier effects on investment and consumption and, therefore, has turned into the preferred Keynesian tool for stabilizing macroeconomic activity.

However, according to another contemporary interpretation, the Great Depression was an unavoidable reaction to the overexpansion of the 1920s (De Vroey 2016, 4; Kindleberger 1973, 130). The corresponding theoretical case was probably most prominently made by Friedrich August von Hayek in his book *Prices and Production*, which was published in 1931 and was based on four lectures delivered at the London School of Economics (LSE). In brief, Hayek argued that recessions are necessary evils following any boom which has led to overinvestment and a distorted capital and production structure. More specifically, such distortions in prices and production are thought to be initiated by money and credit expansions. Insofar as newly created money and credit flow via specific sectors into the economy, Hayek suggested that a loose monetary policy is typically associated with a distorted relative-price schedule. Manipulated price signals misguide, in turn, individual consumption and investment decisions and, at least in some sectors, produce an overaccumulation of capital. Such overexpansion leads to an unsustainable production structure. Sooner or later, redundant parts of the capital stock have

to be liquidated, which can arguably only occur through a recession with dampened consumption and divestment. According to this narrative, any form of macroeconomic stabilization policy is futile. In particular, fiscal and monetary stimuli cannot prevent, but only postpone, the inevitable downturn and, possibly, expose the capital and production structure to even greater distortions. In particular, manipulation of monetary variables does no good, insofar as such interventions preserve the mistaken price signals that lie at the origin of boom-and-bust cycles.

Major elements of Keynesian economics, such as the role of inflexible prices and wages, or the temporary lack of market clearing between savings and investment, had already been highlighted by classical economists (see Sowell 1974, chap. 2; Niehans 1990, 54, 59, 103, 349; De Vroey 2011). In a similar vein, the business cycle theory proposed by Hayek drew heavily on earlier contributions to economic theory. Above all, it drew on a detailed account of how money enters the economy via specific sectors, and how corresponding booms could entail relative-price effects on real economic activity, that had already been published by the French economist Richard Cantillon in 1755. In particular, Cantillon observed that new discoveries of monetary metal, such as gold, could initially affect economic activity and prices closely related to the mining sector but are only gradually felt in, e.g., the agricultural sector. This implies that, in relative terms, agricultural prices will temporarily change. These types of relative-price distortions give, in turn, rise to real economic effects (see, e.g., Bordo 1983, 242; Thornton 2006).

Even though Keynes's and Hayek's views on economic fluctuations are both rooted in classical economics and partially overlap by, e.g., focusing on movements in savings and investment as the main components of the business cycle, there are also conceptual differences. In particular, Keynes (1936) analysed economic relationships between purely aggregate, or macroeconomic, variables including the overall price and wage level, identified destabilizing downward spirals between prices and economic activity, and advocated fiscal policy as stabilisation tool for an inherently unstable macroeconomic system. Furthermore, in his view, recessions can be avoided when vicious cycles leading to unnecessarily low economic activity are interrupted through adequate economic-policy interventions. Conversely, Hayek (1931) suggested that relative prices

and the composition of consumption, investment, and capital matter more than their aggregate values, highlighted the role of individual savings and investment decisions for economic analysis, suggested that flexible price adjustments act as automatic stabilisers, and interpreted recessions as unavoidable consequences of instable money-and-credit policies, which undermine an inherently stable macroeconomic system.

Keynes (1936) presented a theory without integrating the various economic relationships into a complete model (Patinkin 1990). As the narrative of the *General Theory* often remains vague, and lends itself to various interpretations, it was followed by a voluminous literature trying to explain what Keynes really meant (see De Vroey 2016, 23ff.). Keynesianism has entered economic textbooks mainly through the IS-LM model of Hicks (1938), whose interpretation was recognized by Keynes (1973, 80) himself (see De Vroey and Hoover 2004). Since this triumphant advance in the late 1930s, this type of the Keynesian theory has led to the New Keynesian model (NKM), which to this day provides probably the most popular framework to analyze short-term interrelationships between economic policy, inflation, and unemployment (see, e.g., Galí, 2015).

Conversely, the type of economic-cycle theory advocated by Cantillon or Hayek has only received sporadic attention, mainly after a credit-boom has ended in a severe recession (see, e.g., Cochran 2010, 2011). From a theoretical point of view, the historical dominance of Keynes (1936) is perhaps surprising, because modern macroeconomic theory has taken up distinct elements of Hayek (1931), such as the insistence on developing macroeconomic theory from individual decision-making, or the recognition that policy interventions can cause, rather than improve, bad economic outcomes (see, e.g., Scheide 1986). However, similar to the original work of Keynes, the largely verbal exposé of Hayek does not always lend itself to a straightforward interpretation. This problem is aggravated by the fact that there have hitherto been virtually no theoretical models to clarify the postulated relationships between relative-price signals, the capital and production structure, and fluctuations in consumption and investment. Possibly the only exception is Beaudry, Galizia, and Portier (2016), who have employed a modern monetary model with search and matching frictions to show that a liquidation of overaccumulated capital can

indeed cause high levels of unemployment, which cannot always be corrected via Keynesian fiscal policy.

Against this background, this article endeavors to contribute to the literature by developing a simple theoretical framework that captures some of the key elements of the cycle theory put forward in *Prices and Production*. For this task, a model is warranted where individuals as producers and/or consumers decide to save and invest in different forms of capital, where money flows via specific sectors into the economy such that policy shocks can alter the relative-price schedule between these sectors and hence change the consumption, investment, and production structure. Furthermore, the model should be dynamic, such that cyclical adjustments toward its long-term equilibrium can potentially arise. This article suggests that these elements can be found in overlapping generations (OLG) models—one of the main frameworks of modern macroeconomics (see, e.g., Romer 2019, 76ff.)—with two sectors (see Galor 1992). Following Cantillon's (1755) scenario, the sectors in the model presented herein will be a gold-mining sector that produces monetary metal that provides a store value and an agricultural sector that produces consumption goods (perishable food). Within this context, Cantillon effects will simply originate in extraordinary discoveries of gold, which change the relative prices between the sectors. As will be shown with this two-sector OLG model, relative-price effects can indeed generate cycles in economic activity.

In acknowledgement of the early origin of some elements put forward in *Prices and Production*, the simple two-sector OLG model shall be referred to as the Cantillon-Hayek cycle (CHC) theory, but this label should not disguise its obvious overlap with the Austrian business cycle (ABC) theory, as discussed by, e.g., Cochran (2010, 2011) in light of the global financial crisis (see also Hébert 1985).¹ A key difference, however, is that the ABC theory typically emphasizes the destabilizing effects of monetary policy and credit creation in a fractional reserve banking system (see, e.g., Hébert, 1985, 275ff.; Cochran, 2011, 271–72). In contradistinction, in the model developed in this study the role of the money and banking sector is ignored.

¹ Furthermore, Prychitko (2010) and Mulligan (2013) suggest that the ABC theory overlaps, in turn, with Minsky's financial instability hypothesis.

This article is organized as follows: The first section reviews the CHC theory and provides an overview of the relevant literature. Section 2 develops the simple model reflecting the principal elements of this theory. The final section provides some concluding remarks.

I. THE CANTILLON-HAYEK CYCLE THEORY IN WORDS

As Hayek (1931, chap. 1) himself emphasized, he did not develop his economic cycle theory from scratch, but drew heavily on earlier economic thought. Among other contributions, he refers to the quantity equation in David Hume's 1752 *Political Discourses*, the relative-price effects in Cantillon's 1755 *Essai Sur La Nature Du Commerce En Général*, the impact of the quantity of money upon interest rates and prices as discussed in Henry Thornton's 1802 "Paper Credit of Great Britain," and the role of the natural rate of interest for economic stability in Knut Wicksell's 1898 *Geldzins und Güterpreise* (see also Niehans 1990, 24ff., 53ff., 105ff., 247ff.). Furthermore, reflecting Hayek's personal and intellectual origin in Vienna, stepping-stones for his cycle theory were laid by fellow Austrian economists, especially Ludwig von Mises with his 1912 in-depth verbal discussion of the functions, forms, and the value of money, including its interrelationships with credit and relative prices. In particular, Mises's (1912, part 2, chap. 6) analysis of the role of relative-price effects as regards current "consumption goods" and "investment goods," e.g., those that are not destined for current consumption, is singled out by Hayek (1931, 25–26) as an important ingredient in his cycle theory.² However, many of these ideas were only introduced to an English-speaking audience through Hayek's 1931 *Prices and Production*.³ This book makes a contribution in its own right by integrating the abovementioned strands of the literature to argue that relative-price effects can

² The terminology for goods that are destined for current consumption and future consumption is not uniform between Mises and Hayek. Mises (1912, part 2, chap. 6, section 1) refers to "present goods" ("gegenwärtige Güter") and "future goods" ("künftige Güter"), while Hayek (1931, 25, 36–37) refers to "consumers' goods" and "producers' goods."

³ Elements of *Prices and Production* first appeared in German in Hayek (1928a, 1928b, 1929a, 1929b).

alter the production structure such that money and credit booms generate economic fluctuations (see, e.g., Ekelund and Hébert 1997, 515–16). During the 1930s, partially as a response to points of criticism raised by Keynes and his disciples, Hayek elaborated on his cycle theory (see, e.g., Wapshott 2012). Landmark contributions toward this debate include “Monetary Theory and the Trade Cycle” (1933), “Profits, Interest, and Investment” (1939), and “The Pure Theory of Capital” (1941). Finally, when high inflation had turned into a major problem, Hayek (1979) revisited his cycle theory, but focused on the role of price stability (see White 1999; Cochran 2011).

The quantity theory serves as the point of departure for the theoretical analysis in *Prices and Production*. It is indeed uncontroversial that, in a fully monetized economy and over any given period, the aggregate value of payments is by definition equivalent to the aggregate value of production, which implies an intimate relationship between the money stock, the overall velocity of money, the general price level, and total production. However, whereas Keynes (1936, chap. 20, section 3) found the quantity equation wanting because it can break down during periods with deficient aggregate demand, Hayek (1931, 5ff.) argued that relationships between aggregate money, overall inflation, and total production disguise the crucial role of disaggregate prices and the structure of production in a multisector economy. Heterogenous developments at the individual level are, arguably, crucial for understanding the disturbing effects of economic cycles. The distinction between an aggregate and a disaggregate theory cuts into fundamental methodological issues as regards the appropriate level of economic analysis and the role of individuals as decision-makers. For example, Hayek (1931, 4–5) lambasted a naïve interpretation of the quantity theory as an attempt “to establish *direct* causal connections between the *total* quantity of money, the *general level* of all prices and, perhaps, also the *total* amount of production.”

He goes on to suggest that this is inadequate because

none of these magnitudes *as such* ever exert an influence on the decision of individuals; yet it is on the assumption of a knowledge of the decision of individuals that the main propositions of ... economic theory are based.... In fact, neither aggregates nor averages do act upon one another, and it will never be possible to establish necessary connections of cause and effect between them as we can between individual

phenomena, individual prices, etc. I would even go so far as to assert that, from the very nature of economic theory, averages can never form a link in its reasoning. (Hayek, 1931, 4–5)

This paragraph reflects the key tenets of Austrian economics that decisions are subjective and are made by individuals who differ in motives, knowledge, or expectations (see, e.g., Ekelund and Hébert 1997, 508ff.).⁴

Launching an economic analysis from the individual level can have far-reaching implications. Above all, under a disaggregate view, shocks to, e.g., money and credit do not directly affect overall inflation, but impact first and foremost specific prices (including certain wages and interest rates). Furthermore, unless the economy involves completely homogenous individuals, these shocks are typically transmitted to prices and production in a heterogeneous manner. In particular, regardless of whether we contemplate an increase in the amount of currency through monetary policy interventions or privately created deposits by commercial banks, the added money and credit flows via specific sectors into the economy and is typically spent by select individuals on certain classes of goods, services, and assets. Taken together, individual heterogeneity in a disaggregated economy implies that monetary shocks can give rise to so-called relative-price effects. The view that across a range of products nominal prices will change at uneven rates, and that the associated relative changes entail real economic effects, can be traced back to Cantillon (1755, part 2, chap. 6). In particular, Cantillon described how new discoveries of monetary metal within a purely metallic currency system initially benefit

⁴ In contrast, in the preface to the French edition of *The General Theory*, Keynes (1942) seems to argue that there is no major difference between modeling individual decisions and relationships between macroeconomic aggregates:

I regard the price level as a whole as being determined in precisely the same way as individual prices; that is to say, under the influence of supply and demand. Technical conditions, the level of wages, the extent of unused capacity of plant and labour, and the state of markets and competition determine the supply conditions of individual products and of products as a whole. The decisions of entrepreneurs, which provide the incomes of individual producers and the decisions of those individuals as to the disposition of such incomes determine the demand conditions. And prices—both individual prices and the price-level—emerge as the resultant of these two factors.

the gold miners, whereas the new bullion and coins trickle only gradually through to other sectors, such as agriculture, and hence alter relative food prices in the process (see also Niehans 1990, 31–33).⁵ Bearing witness to their historical origin, the relative-price effects from monetary shocks are also called “Cantillon effects” (see, e.g., Bordo 1983, 242; Thornton 2006, 47ff.).

Cantillon effects are obviously not restricted to a society of miners and farmers. For example, Malthus (1811) said of an increasing circulation of paper money (or notes) that relative-price effects can arise between individuals who currently produce and consume and individuals who only consume. In his words:

If a thousand millions of notes were added to the circulation, and distributed to the various classes of society exactly in the same proportions as before, neither the capital of the country, nor the facility of borrowing, would be in the slightest degree increased. But, on every fresh issue of notes, ... a larger proportion falls into the hands of those who consume and produce, and a smaller proportion into the hands of those who only consume. And as we have always considered capital as that portion of the national accumulations and annual produce, which is at the command of those who mean to employ it with a view to reproduction, we are bound to acknowledge that an increased issue of notes tends to increase the national capital. (Malthus 1811, 364–65)

Why would relative-price effects matter for aggregate economic fluctuations? In this regard, Hayek (1931, chap. 2, chap. 3) observes that prices not only fulfill a compensation function in individual transactions, but also act as an information and coordination device by indicating economic scarcity and sending signals organizing economic activity. Hence, manipulated prices can misguide

⁵ Cantillon effects can be invoked against the view that the quantity theory necessarily implies the neutrality of money when prices are flexible. In particular, Cantillon (1755, part 2, chap. 7) argued that money is not per se neutral with respect to (flexible) prices, because

money does not affect equally all the kinds of products and merchandise, proportionally to the quantity of money, unless what is added continues in the same circulation as the money before, that is to say unless those who offer in the market one ounce of silver be the same and only ones who now offer two ounces when the amount of money in circulation is doubled in quantity. (qtd. in Thornton 2006, 48)

individual decisions and, in turn, distort the capital and production structure of the economy. Above all, misleading money and credit policies have an immediate effect on interest rates and investment decisions. These manipulations are not innocuous: they lead to an unsustainable production structure, which makes an economy more and more prone to a crisis. In particular, an indiscriminate creation of money and credit tends to push interest rates below their equilibrium level—or what Wicksell (1898) called the natural rate. Low levels of interest rates can foster, in turn, investment in relatively capital-intensive sectors (Hayek 1931, 86–87; 37ff.). Borrowing heavily from Austrian capital theory—and employing the corresponding terminology—Hayek (1931) devotes chapter 2 to describing how money and credit booms can guide economic activity toward a “longer,” “more roundabout,” or “more capitalistic” production structure. In modern terminology, this probably refers to investments in goods whose returns come in the relatively distant future (see Steele, 1992, 478ff.). When contemplating present value calculations, it is indeed conceivable that, e.g., low interest rates increase the range of profitable investment projects (see Steele 1992, 479).

Typically, a shift toward a more capitalistic production structure—in terms of an increasing output of “investment goods”—comes at the expense of sectors whose output consists of current “consumption goods” (Hayek 1931, 88). Insofar as the money and credit boom is an exogenous event, individuals are essentially forced to live with a lower amount of current consumption goods to “set aside” the savings that are needed to support the investment boom. It is again noteworthy that this doctrine of “forced savings” can be traced back to classical writings, e.g., Malthus (1811, 364) and Thornton (1802, 263) (see also Hayek 1932; Sowell 1974, 65). However, Hayek connected the forced savings doctrine with the abovementioned distinction between individuals who produce and consume (or entrepreneurs), and individuals who only consume. In particular, as regards the reduction in the available amount of consumption goods when moving toward a more capitalistic production structure, he observed that

this sacrifice is not voluntary.... It is made by the consumers in general who, because of the increased competition from the entrepreneurs who have received the additional money, are forced to forgo part of what they used to consume. It comes about not because they want to consume

less, but because they get less goods for their money income. There can be no doubt that, if their money receipts should rise again, they would immediately attempt to expand consumption to the usual proportion. (Hayek 1931, 57)

In other words, relative-price effects can generate a production structure with overinvestment and underconsumption. However, when the money and credit expansion slows down, or is even reversed, the misallocation between investment and consumption goods will be corrected (Hayek, 1931, 89ff.). Arguably, this correction is necessarily associated with an economic downturn (Hayek 1931, 92–93; Hayek 1979, 25). Taken together, a distorted production structure is unsustainable, as

the machinery of capitalistic production will function smoothly only so long as we are satisfied to consume no more than that part of our total wealth which under the existing organisation of production is destined for current consumption. Every increase in consumption, if it is not to disturb production, requires previous new saving.... If the increase of production is to be maintained continuously, it is necessary that the amount of intermediate products in all stages is proportionally increased.... The impression that the already existing capital structure would enable us to increase production almost indefinitely is a deception. (Hayek 1931, 95)

The policy conclusions of the CHC theory are diametrically opposed to the Keynesian belief in the merits of government intervention to stabilize the economy. According to Hayek, policies such as monetary expansions and fiscal stimuli are not the solution but rather the cause of economic instability. To recapitulate, manipulated price and interest rate signals interfere with individual investment and consumption plans. Misguided individual consumption and investment decisions bestow an economy with a distorted production and capital structure. Insofar as a money-and-credit boom is typically associated with an overexpansion, which has eventually to be corrected by a liquidation of capital, fiscal or monetary stimuli cannot prevent a downturn from happening (Hayek 1931, 97ff.). Rather, such government interventions are problematic, because they preserve, or even aggravate, the distorted price signals and, thereby, tend to prolong and/or deepen the recession (see also Beaudry, Galizia, and Portier 2018, 119–20).

Economic downturns are necessary evils, and recoveries require a restoration of interest rate and price signals, based on which investments in a sustainable production and capital structure can be made (Hayek 1931, 99).

According to the CHC theory, the only way to dampen economic fluctuations is to stabilize money and credit conditions (Hayek 1931, 97ff; Hayek 1939, 73–82; Hayek 1979, 4).⁶ In this way, Cantillon effects and distorted production structures do not occur in the first place and unnecessary large swings in investment and savings are avoided. However, it is not entirely clear what stable monetary conditions concretely mean. Hayek (1931, chap. 4) refers to upholding the convertibility of the currency at the established mint par of the gold standard, but after the transition to a pure fiat currency during the 1970s resulted in high inflation, Hayek (1979) turned to price stability as the key criterion (see White 1999; Cochran 2011).

II. MORE THAN WORDS: A SIMPLE TWO-SECTOR MODEL OF THE CANTILLON-HAYEK CYCLE THEORY

2.1. Background

For a modern economist who has read the purely verbal exposés of Cantillon (1755) or Hayek (1931), it is probably not always clear how exactly relative-price effects can alter the capital and production structure such that boom-and-bust cycles arise. What determines the long-term equilibrium with respect to which concepts such as “overinvestment” are defined? Can an economic boom indeed be followed by cyclical adjustments toward that equilibrium and, if so, what assumptions are required to obtain this result? These and other questions can only be answered by means of a theoretical model.

To capture the key ideas of the CHC theory, a microfounded model is warranted that lends itself to introducing a money-like asset, encompasses several forms of capital, includes separate

⁶ Hence, like monetarism, the CHC theory interprets cycles as monetary phenomena. However, the monetary distortions occurring at the disaggregate level in Hayek (1931) stand in sharp contrast to the overarching role attributed to monetary aggregates in, e.g., Friedman and Schwartz (1963).

sectors producing investment and consumption goods, allows for relative-price changes that give rise to Cantillon effects, and distinguishes between individuals who primarily produce and individuals who primarily consume. Furthermore, the different sectors and individuals should be more or less directly affected by monetary expansions, and the model should be dynamic in order to determine whether the adjustment toward some long-term equilibrium occurs in a cyclical manner. Arguably, these elements can be found in two-sector overlapping generations (OLG) models pioneered by Galor (1992) and discussed in Azariadis (1993, 258–67), Farmer (1997), Farmer and Wendner (2003), and Cremers (2006). In particular, a standard (one-sector) OLG model lends itself to the introduction of a medium of exchange à la Samuelson (1958), accounts for the allocation between consumption and investment, encompasses different groups of individuals (“generations”), and embodies the concept of the steady state as long-term equilibrium. Furthermore, when an OLG model encompasses two sectors, the relative price of investment and consumption goods associated with these sectors can potentially change.

What is particularly relevant in the context of this study is Farmer and Wendner’s (2003) suggestion that two-sector OLG models can exhibit cyclical adjustment patterns after a policy shock. However, Farmer and Wendner (2003), as well as Galor (1992), focus on the role of economic growth and Cremers (2006) on the role of dynamic inefficiency in a two-sector economy. Consequently, these papers neglect issues related to business cycles, which Hayek (1931) emphasized.

Against this background, this section endeavors to develop a simple model to show how relative-price effects can, under certain parameter sets, give rise to economic cycles in a two-sector OLG environment. To keep the model simple and tractable, capital will be the only production factor (there is no labor market), and the effects of time discounting, population growth, and technological progress are ignored. Finally, specific production functions are imposed.⁷ In

⁷ Thanks to these simplifications, it is possible to avoid such issues as multiple equilibria, which can arise in an OLG environment and have been used to study business cycles (see, e.g., Grandmont 1985). Cycles associated with multiple equilibria are typically not attributed to shocks or variations in economic policy and, hence, do not reflect the CHC theory.

particular, the two-sector OLG model with a Cobb–Douglas–Leontief technology (Farmer 1997; Farmer and Wendner 2003) will be extended to a constant elasticity of substitution (CES)–Leontief economy. In the current context, the flexibility of the CES function is needed in order to compare the different reactions of capital inputs to relative-price changes across a range of production technologies. Of course, Cantillon’s agricultural and gold-mining sectors hardly account for the roles of monetary policy in the manipulation of interest rates or of the commercial banking sector in creating unstable credit booms, as emphasized by the ABC theory. Also, the CES–Leontief economy only hints at the lengthening of the production structure, as discussed by Hayek (1931, chap. 2). Nevertheless, the two-sector OLG model reflects a standard framework in modern macroeconomics, and can apparently capture the link between relative-price manipulations between different economic sectors, changes in the capital structure, and cyclical adjustments toward a new equilibrium.

2.2. Notation and Basic Assumptions

The present OLG model encompasses two forms of capital. Variables, e.g., physical and land capital, pertaining to these forms, are represented by superscripts i and j . There are two economic sectors. Variables pertaining to these sectors are denoted by superscripts a and g . Subscript t refers to time periods.

The a sector is like agriculture in Cantillon’s (1755, part 2, chap. 6) example. In particular, in each period t , this sector employs both forms of capital, e.g., k_t^{ai} and k_t^{aj} , to produce a nondurable consumption good, y_t^a .

The g sector employs both forms of capital, e.g., k_t^{gi} and k_t^{gj} , to produce a pure investment good, x_t^g , which cannot be consumed. In concrete terms, the g sector is like gold mining in Cantillon’s (1755, part 2, chap. 6) example.

Although the two forms of capital are not sector specific, they differ insofar as some forms of capital are endowed and others can be produced. In particular, there is a fixed endowment of j -form capital that does not depreciate (e.g., constant land capital). To simplify the model, this endowment is assumed to be $k^j=2$. It is

also assumed that j -form capital is perfectly mobile and is allocated between the sectors according to

$$(1) k^j = k_t^{aj} + k_t^{gj} = 2$$

Conversely, it is assumed that i -form capital is perfectly immobile between the sectors. To simplify the analysis, the endowment of i -form capital in the a -sector is normalized to one, that is, $k_t^{ai} = 1 \forall t$. However, i -form capital in the g -sector is assumed to depreciate fully at the end of period t , but can be augmented through the production of investment goods (x_t^g). Hence, the corresponding capital accumulation function equals

$$(2) k_{t+1}^{gi} = x_t^g$$

Prices pertaining to goods produced in the a sector and the g sector are denoted by, respectively, p_t^a and p_t^g .

Relative price: the relative price between a sector (consumption) and g sector (investment) goods is defined as

$$(3) p_t = \frac{p_t^g}{p_t^a}$$

With relative prices, such as p_t , one price can be chosen as numéraire. It is here assumed that $\bar{p}_t^g = 1$.

Note that the relative price p_t will be required to express values in the same unit. Where necessary, prices will be converted into a sector units.

Remark 1 (relative-price effects): fluctuations of relative prices (modeled by equation [3]) are at the heart of the CHC theory, as they capture the Cantillon effects that are supposed to induce boom-and-bust cycles (see section 1). In particular, such relative-price effects can originate in a shock to, or manipulation of, the current g sector price, i.e., the numéraire. For example, an increase of \bar{p}_t^g , which implies an increase in p_t , signals that goods in the g sector (i.e., gold) have become relatively more expensive.

A representative individual enters the economy at time $t=0,1,2,\dots$ and exits at $t+1$. As there is no population growth, variables coincide with their per capita values. However, during period t , individuals own the fixed stock of j -form capital and are pure producers of investment goods x_t^g and consumption goods y_t^a . During period $t+1$, individuals are pure consumers of an amount denoted by c_{t+1} .

Remark 2 (heterogenous population): the overlapping structure just mentioned implies that during each period t , the population consists of a group of (pure) producers, and a group of (pure) consumers.

2.3. Assumptions about the Production Functions

The production of consumption goods is assumed to obey a simple Leontief function with both forms of capital as factor inputs. With $k_t^{ai}=1$ (see section 2.2), that function is

$$(4) y_t^a = \min(1, k_t^{aj})$$

The rigid production structure of Leontief functions simplifies the analysis by limiting the output of consumption goods in the a sector to one unit. Furthermore, Leontief technologies typically require a fixed combination of factor inputs (here only capital) to optimally produce a given amount of output. Specifically, to produce the maximal amount of consumption goods with function (4), the optimal capital input in the a sector would be fixed to 1, that is,

$$(5) k_t^{ai} = k_t^{aj} = 1$$

It is assumed that investment goods in the g sector are produced by means of a constant elasticity of substitution (CES) function given by

$$(6) x_t^g = \left[(k_t^{gi})^\rho + (k_t^{gj})^\rho \right]^{\frac{v}{\rho}}, \text{ with } 0 < v \leq 1 \text{ and } -\infty < \rho \leq 1$$

Within the current context, this production function is useful, because it encompasses a range of technologies to produce investment goods, which are typically the main channel through which fluctuations occur in the CHC theory (see section 1). Specifically, v reflects whether or not the production of x_t^g is subject to scale economies, where $v=1$ yields constant returns and $0 < v < 1$ decreasing returns to scale.⁸ Furthermore, ρ is a substitution parameter, which determines the CES, denoted by σ , between the inputs of different forms of capital via $\sigma=1/(1-\rho)$. When $0 < \rho < 1$, there is a high elasticity of substitution (e.g., $\sigma > 1$). When $\rho < 0$, the CES is $\sigma < 1$, which implies that the capital structure that produces

⁸ Increasing returns to scale would arise in (6), if $1 < v$. However, because capital is here the only production factor, this case seems implausible.

x_t^g is rather rigid. Special cases arise when ρ approaches 1 (and $\sigma=\infty$), which yields a linear; when ρ approaches 0 (and $\sigma=1$), which yields a Cobb-Douglas; and when $\rho=-\infty$ (and $\sigma=0$), which yields a Leontief production function.⁹

Under a high degree of substitutability between the different forms of capital, as measured by ρ , it will be more likely that relative-price effects will give rise to a distorted production structure and, in turn, economic cycles. Conversely, with a Leontief technology, e.g., $\rho=-\infty$, the two forms of capital are perfect complements and typically enter (6) in fixed proportions. In this scenario, relative-price changes do not affect the capital structure in the g sector at all and are hence unlikely to initiate economic cycles.

2.4. The Saving and Consumption Decisions

In the current two-sector OLG model, the saving decision is trivial.

Remark 3 (forced savings): Any individual is initially a pure producer and becomes a pure consumer during the next period (see section 2.2). This assumption reflects the concept of “forced savings,” as individuals have no other option but to save their income to satisfy future consumption (which shall enter into the standard utility function, $u(c_t)$). They cannot shift consumption across time or postpone productive activity.

Consumption is subject to the budget constraint. Specifically, as a pure producer during period t , an individual generates income from producing investment goods, x_t^g , and consumption goods, y_t^a . Savings, denoted by s_t , are given by the difference between the current output and expenditures for buying i -form capital in the g sector at price p_t from current pure consumers. Hence, the budget constraint of the pure producer during period t equals

$$(7) \frac{x_t^g}{p_t} + y_t^a - \frac{k_t^{gi}}{p_t} = s_t$$

where p_t harmonizes price units.

At the aggregate level, which encompasses the producer and consumer during period t , savings are determined by the difference

⁹ See, e.g., Varian (1992, 13–20).

between output (of investment and consumption goods) and consumption, that is,

$$(8) \frac{x_t^g}{p_t} + y_t^a - c_t = s_t$$

Because consumption goods are nondurable (e.g., perishable food), they cannot be stored. Hence, in each period, the market-clearing condition equates consumption c_t with the output of consumption goods:

$$(9) c_t = y_t^a$$

Inserting (9) into (8) yields

$$(10) \frac{x_t^g}{p_t} = s_t$$

which reflects the usual aggregate equivalence between investment, which is valued at the relative price, and savings. Inserting (10) back into (7) yields

$$(11) y_t^a = \frac{k_t^{gi}}{p_t}$$

An interpretation of (11) is that i -form capital in the g sector, which is produced from past investment goods (x_{t-1}^g) according to (2), encapsulates the option to buy current consumption goods at relative price (p_t). The values k_t^{gi} , p_t , and y_t^a concurring with such a transaction are necessarily determined through bargaining between the consumer and the producer. To pin down these values, assume that the pure consumer can make the pure producer a take-it-or-leave-it offer. It is well known that under this bargaining arrangement, the pure consumer can extract all the gains from trade (see, e.g., Nosal and Rocheteau 2011, 61ff.). In the current model, this implies that the consumer will demand the maximum output of y_t^a to maximize his utility, $u(c_t)$, with $y_t^a = c_t$ (see (9)). Because there is a one-unit endowment of i -form capital in the a sector, the maximum output of consumption goods in (4) equals $y_t^a = 1$. Furthermore, according to (5), a one-to-one capital input is required to optimally produce $y_t^a = 1$. Taken together, we have:

$$(12) y_t^a = k_t^{ai} = k_t^{aj} = 1 \quad \forall t$$

For the sake of simplicity, it is henceforth assumed that the conditions hold that stabilize the output of consumption goods as well as the corresponding capital inputs at one unit. This concurs with the CHC theory insofar as cycles in economic activity are primarily attributed to movements in the investment goods sector.

2.5. Capital Allocation and Production Structures of Different Lengths

Because i -form capital is immobile, its allocation is not guided by an intersectoral arbitrage condition. Conversely, producers can freely allocate j -form capital between the sectors. On capital markets with perfect intersectoral mobility (see section 2.2), arbitrage transactions equalize the marginal effect of j -form capital upon the revenue to produce investment goods in the g sector, denoted by R_t^g , and consumption goods in the a sector, denoted by R_t^a ; that is,

$$(13) \frac{\partial R_t^g}{\partial k_t^{gj}} = \frac{\partial R_t^a}{\partial k_t^{aj}}$$

Recall from section 2.2 that j -form capital is owned by the pure producers and, thus, not subject to a rental price. Therefore, the revenue in the a sector is simply given by $R_t^a = y_t^a$. With the Leontief technology of (4), the output of consumption goods equals

$$(14) y_t^a = \begin{cases} k_t^{aj} & \text{if } k_t^{aj} < 1 \\ 1 & \text{otherwise} \end{cases}$$

The properties of (14)—especially its marginal product of capital—depend on how the actual combination of capital compares with its optimal input. As long as k_t^{aj} (e.g., agricultural land) is the limiting production factor, (14) implies that

$$(15) \frac{\partial R_t^a}{\partial k_t^{aj}} = 1$$

The g sector revenue is given by $R_t^g = x_t^g / p_t$, where p_t is needed to harmonize price units. By substituting the production function (6) for R_t^g and employing (13) and (15), a consolidated production function for investment goods that only depends on p_t is derived (see appendix A) and is given as

$$(16) x_t^g = \left(\frac{p_t}{v} \right)^{\frac{v}{v-\rho}}$$

According to (16), when $v-\rho > 0$, a higher value of p_t (which implies that the relative g sector price has increased) leads to a larger output of x_t^g . When the returns to scale effect of v in the production function (6) exceeds the substitution effect of ρ , an increase in the relative g sector price expands the output of investment goods. Conversely, when $v-\rho$ in the denominator of the exponent of (16) is negative, the substitution away from

produced capital in the g sector dominates, and an increase in p_t reduces the output of x_t^g .

In any case, as x_t^g determines the capital stock (k_{t+1}^{gi}) according to (2), changes in p_t affect period $t+1$, the period when the current producer has become a pure consumer. Furthermore, capital is a variable in the g sector production function (6) of the future producer. Hence, although the g sector does not produce a consumable good, the investment good (x_t^g) can be used as a potential medium of exchange for future claims on consumption goods (c_{t+1}). Taken together, in the spirit of Samuelson (1958), as long as individuals expect a positive future g sector price, the corresponding output can be valuable, even when investment goods never enter the utility function (see also Sargent and Ljungqvist 2012, 326ff.). However, rather than contemplating a given endowment of fiat money, in this model the medium of exchange has to be reproduced during each period.

Remark 4 (different production structures): the production structures of the a and g sectors differ. In particular, using the terminology of Hayek (1931, 32ff.), the g sector has a “long” structure in the sense of producing investment goods, which provide a way to satisfy future consumption. Conversely, the production structure of the a sector is “short” in the sense of employing current capital to produce current (nondurable) consumption goods.¹⁰

2.6. Capital and Relative-Price Dynamics and the Steady State

Because the output of consumption goods in the a sector is fixed by (12), the dynamics of the current two-sector model are governed by the production of investment goods, which depends primarily on the evolution of i -form capital in the g sector. Let the initial value be given by k_0^{gi} and the initial relative price by p_0 . Jointly, the capital accumulation function of (2); the link between relative prices, consumption, and capital of (11); the stable output of consumption goods of (12); and the consolidated production function of (16) yield

¹⁰ Because k_t^{gi} depreciates completely at the end of each period t , the current model cannot fully account for the concept of a “lengthening of the production process”. Furthermore, as investment goods x_t^g merely provide a medium to transfer value to the next period, they cannot generate an increase of productivity by “roundabout methods of production”.

$$(17) k_{t+1}^{gi} = \left(\frac{k_t^{gi}}{v} \right)^{\frac{v}{v-\rho}}$$

Taken together, the interaction between capital, k_t^{gi} , and relative prices, p_t , through (11) and (16) lies at the heart of the dynamics of the current two-sector OLG model. Indeed, below it will be shown that, depending on the parameter set, (17) can give rise to cyclical dynamics. However, before turning to the dynamic properties of (17), its long-term equilibrium is defined in terms of the steady state values for k_t^{gi} and p_t (\bar{k}^{gi} and \bar{p}) in proposition 1.

Proposition 1 (steady state): equation (17) exhibits a nontrivial steady state of $0 < \bar{k}^{gi}$, given as

$$(18) \bar{k}^{gi} = (v)^{\frac{v}{\rho}}$$

The corresponding steady state value for p_t is given as

$$(19) \bar{p} = (v)^{\frac{v}{\rho}}$$

(See appendix B for proofs.)

The steady states $0 < \bar{k}^{gi}$ and $0 < \bar{p}$ occur when $0 < v$.

2.7. Converging Cycles

Can the current two-sector OLG model generate boom-and-bust-cycles as postulated by the CHC theory? The answer depends on the dynamic properties of (17), which determine the development in the g sector. In particular, the dynamic behavior of relative prices (p_t) follow from (11) and (12), and that of the production of investment goods in the g sector from (16).

To solve the nonlinear first-order dynamic equation of (17), the first-order Taylor approximation is derived at the steady-state value \bar{k}^{gi} of (18) (see appendix C), which yields

$$(20) [k_{t+1}^{gi} - \bar{k}^{gi}] = \frac{v}{v-\rho} [k_t^{gi} - \bar{k}^{gi}]$$

Depending on whether the term $v/(v - \rho)$ of (20) is positive or negative, and whether or not this term has an absolute value that is greater or smaller than 1, the adjustment path of k_t^{gi} can be smooth or cyclical as well as convergent or explosive (see, e.g., Azariadis 1993, 33ff.; Chiang 1984, 505ff.). Typically, a set of parameters with

$-1 < v/(v - \rho) < 0$ is warranted to obtain the convergent cycles postulated by the CHC theory. Proposition 2 clarifies when this scenario arises.

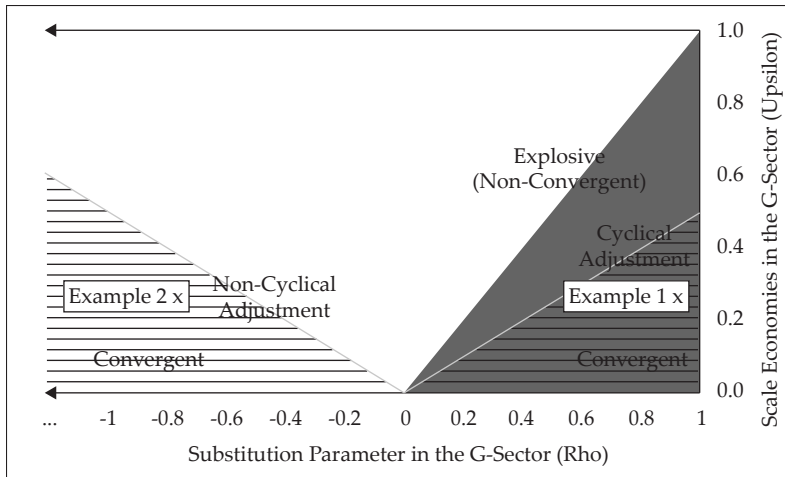
Proposition 2 (stable cyclical adjustments): in the two-sector OLG model underpinning the dynamic equation (17), i -form capital (k_t^{gi}) moves in cycles toward the steady state of \bar{k}^{gi} when

$$0 \leq v < \rho \leq 1.$$

When $v < \frac{\rho}{2}$, the corresponding cycles are convergent (e.g., nonexplosive; see appendix C for proofs).

Hence, stable cycles arise only under certain parameter sets. Above all, the substitution parameter (ρ) and economies of scale (v) of production function (6) for investment goods matter. Figure 1 depicts the different dynamic behavior across the permissible parameter values of $-\infty < \rho \leq 1$ and $0 < v \leq 1$. In particular, the gray area highlights combinations of ρ and v giving rise to cyclical dynamics and the hatched area combinations resulting in convergent (nonexplosive) dynamics.

Figure 1. Dynamic Properties of (17) with Different Values of ρ and v



Proposition 2 and figure 1 have established that k_t^{gi} follows a cyclical adjustment path when the substitution parameter is positive and larger than the returns to scale parameter of the g sector

production function (6). This result is, perhaps, intuitive, because the high substitutability between the two forms of capital for the production of investment goods (x_t^g) implies that these structures can react markedly to relative-price changes (i.e., the Cantillon effects are quite strong). Furthermore, when the substitution effect is larger than the returns to scale effect, according to discussion around (16), an increase in p_t reduces the output of x_t^g and, in turn, k_{t+1}^{gi} .¹¹ This provides the basis for a cyclical interaction between prices and capital output.¹² Conversely, noncyclical adjustments necessarily arise when $\rho \leq 0$, e.g., when capital inputs are rather complementary.¹³

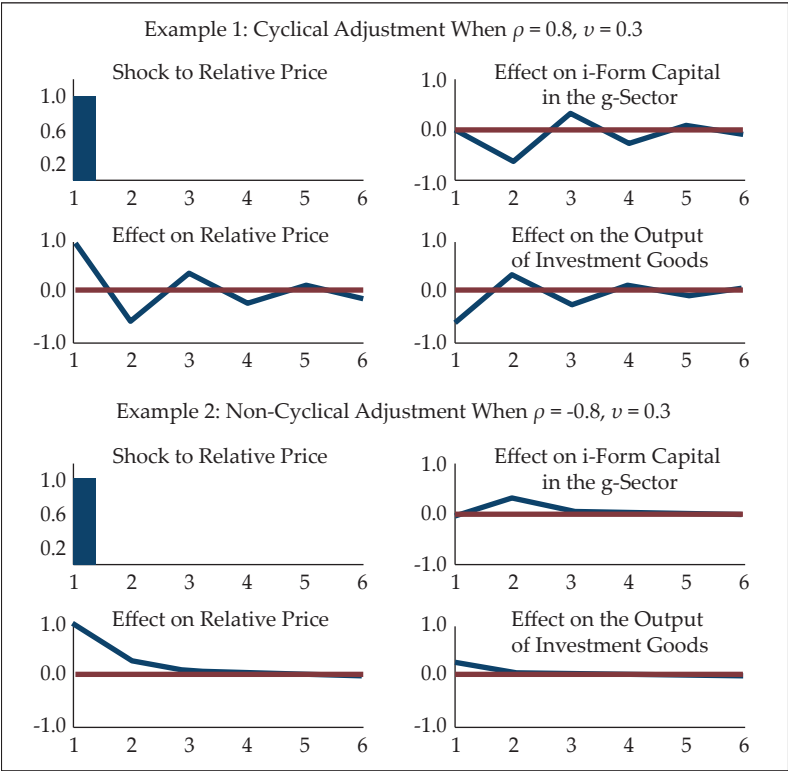
Figure 2 illustrates the main result by showing numerical examples for a (stable) cyclical and a noncyclical adjustment of p_t , x_t^g , and k_{t+1}^{gi} to a shock to relative prices in period $t = 1$. In particular, a positive shock to p_t is considered, meaning that the relative g sector price increases (see remark 1). When the different forms of capital are highly substitutable, as in example 1 with $\rho = 0.8$, this relative-price shock decreases the current output of investment goods (x_t^g) according to (16) and, subsequently, k_{t+1}^{gi} according to (2). As a reaction to this development, future relative prices decline and subsequent cycles between capital and relative prices arise. Conversely, when lowering the substitution parameter to $\rho = -0.8$ in example 2, there are no cycles, because the capital structure in the g sector is rather rigid, and the initial increase in p_t is followed by a smooth regression to the original level.

¹¹ This type of price-quantity interaction has been widely documented for the cobweb model (also known as the “hog cycle”). For a textbook discussion of the cobweb model, see Chiang (1984, 561–65).

¹² When the stability condition $v < \rho/2$ is violated, the interaction between p_t and k_{t+1}^{gi} produces nonconvergent cycles.

¹³ Again, a noncyclical adjustment can occur in a convergent or nonconvergent manner (see figure 1).

Figure 2. Examples of a Cyclical and Noncyclical Adjustment



SUMMARY AND CONCLUSION

This paper suggests that the cycle theory described verbally by Friedrich August von Hayek—and in a rudimentary form much earlier by Richard Cantillon—can be expressed through a simple overlapping generations model. In particular, when two sectors are introduced into the OLG model, it is possible for economic shocks to alter the relative prices of goods associated with these sectors. This can lead to a reorganization of the production structure and subsequent boom-and-bust cycles. Hopefully, presenting the Cantillon-Hayek theory using a modern macroeconomic model clarifies the underlying narrative for audiences that are perhaps unfamiliar with the original verbal discussions and helps uncover

the different answers to seminal questions in business cycle research when compared with the Keynesian theory.

The Cantillon-Hayek cycle theory offers vastly different answers to enduring questions about the nature of business cycles, such as the disturbances that cause fluctuations in economic activity. According to the Keynesian view, demand shocks are paramount. Conversely, in the Cantillon-Hayek theory, economic fluctuations originate in excessive monetary expansion that distorts the price schedule and misdirects investment toward capital-intensive sectors. This leads to an overaccumulation of certain forms of capital, which must eventually be undone through a recession. Furthermore, economic expansions and recessions typically persist for some period of time. Hence, the question of what causes this persistence arises. Whereas Keynesians emphasize the role of price stickiness, in the Cantillon-Hayek theory, cycles are not immediately eliminated due to the delays in reorganizing the capital stock, which implies that booms and busts can become entrenched. Finally, why can nominal variables, such as money, have real effects? To explain this, Keynesians invoke sticky prices. By contrast, even when individual prices are fully flexible, the Cantillon-Hayek theory recognizes that money can flow via specific sectors into the economy. Hence, prices of goods closely associated with the economic sectors through which nominal expansions occur can change relative to other prices. Temporarily, such “Cantillon effects” can have real economic consequences.

This paper offers a first attempt to formalize the Cantillon-Hayek story. Important issues have been ignored to keep the model simple and tractable. Furthermore, only a theoretical link between relative-price effects and economic cycles has been established. These are topics that future scholarship can address.

REFERENCES

- Azariadis, Costas. 1993. *Intertemporal Macroeconomics*. Cambridge, Mass.: Blackwell Publishers.
- Beaudry, Paul, Dana Galizia, and Franck Portier. 2018. “Reconciling Hayek’s and Keynes’ Views of Recessions.” *Review of Economic Studies* 85, no. 1: 119–56.

- Bordo, Michael David. 1983, "Some Aspects of the Monetary Economics of Richard Cantillon," *Journal of Monetary Economics* 12, no. 2: 235–58.
- Cantillon, Richard. 1931. *Essay on the Nature of Commerce in General*. Translated by Robert Higgs. London: Macmillan.
- Chiang, Alpha C. 1984. *Fundamental Methods of Mathematical Economics*. 3d ed. New York: McGraw Hill.
- Cochran, John P. 2010. "Capital in Disequilibrium: Understanding the 'Great Recession' and the Potential for Recovery" *Quarterly Journal of Austrian Economics* 13, no. 3: 42–63."
- . 2011. "Hayek and the 21st Century Boom-Bust and Recession-Recovery." *Quarterly Journal of Austrian Economics* 14, no. 3: 263–87.
- Cremers, Emily T. 2006. "Dynamic Efficiency in the Two-Sector Overlapping Generations Model." *Journal of Economic Dynamics and Control* 30, no. 11: 1915–36.
- De Vroey, Michel. 2016. *A History of Macroeconomics from Keynes to Lucas and Beyond*. Cambridge: Cambridge University Press.
- De Vroey, Michel, and Kevin D. Hoover, eds. 2004. "The IS-LM Model: Its Rise, Fall, and Strange Persistence." Supplement, *History of Political Economy* 36, annual supplement.
- Ekelund, Robert B., and Robert F. Hébert. 1997. *A History of Economic Theory and Method*. 4th ed. New York: McGraw Hill.
- Farmer, Karl. 1997. "Heterogenous Capital in a Two-Sector Overlapping-Generations Model." *Metroeconomica* 48, no. 1: 36–54.
- Farmer, Karl, and Ronald Wendner. 2003. "A Two-Sector Overlapping Generations Model with Heterogenous Capital." *Economic Theory* 22: 773–92.
- Friedman, Milton, and Anna Jacobson Schwartz. 1963. *A Monetary History of the United States, 1867–1960*. Princeton, N.J.: Princeton University Press.
- Galí, Jordi. 2015. *Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework and Its Applications*. 2d ed. Princeton, N.J.: Princeton University Press.
- Galor, Oded. 1992. "A Two-Sector Overlapping-Generations Model: A Global Characterization of the Dynamical System." *Econometrica* 60, no. 6: 1351–86.

- Grandmont, Jean-Michel. 1985. "On Endogenous Competitive Business Cycles." *Econometrica* 53, no. 5: 995–1045.
- Hayek, Friedrich A. 1928a. "Einige Bemerkungen über das Verhältnis der Geldtheorie zur Konjunkturtheorie." *Schriften des Vereins für Socialpolitik* 173: 247–94.
- . 1928b. "Das intertemporale Gleichgewichtssystem für Preise und die Bewegungen des 'Geldwertes.'" *Weltwirtschaftliches Archiv* 28: 33–76.
- . 1929a. *Geldtheorie und Konjunkturtheorie*. Vienna: Hölder-Pichler-Tempsky.
- . 1929b. "Gibt es einen Widersinn des Sparens?" *Zeitschrift für Nationalökonomie* 1: 387–29.
- . 1931. *Prices and Production*. London: Routledge.
- . 1932. "A Note on the Development of the Doctrine of 'Forced Saving.'" *Quarterly Journal of Economics* 47, no. 1: 123–33."
- . 1933. *Monetary Theory and the Trade Cycle*. London: Jonathan Cape.
- . 1939. *Profits, Interest, and Investment, and Other Essays on the Theory of Industrial Fluctuations*. London: Routledge and Kegan Paul.
- . 1941. *The Pure Theory of Capital*. London: Routledge and Kegan Paul.
- . 1979. *Unemployment and Monetary Policy: Government as Generator of the Business Cycle*. San Francisco, Calif.: Cato Institute.
- Hébert, Robert F. 1985. "Was Richard Cantillon an Austrian Economist?" *Journal of Libertarian Studies* 7, no. 2: 269–79.
- Hicks, J. R. 1938. Mr. Keynes and the "Classics"; a Suggested Interpretation. *Econometrica* 5, no. 2: 147–59.
- Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. London: Macmillan.
- . 1942. *Théorie g'én'érale de l'emploi, de l'int'érêt et de la monnaie*. Translated by Jean de Largentaye. Paris: Payot.
- . 1973. *The General Theory and After*. Vol. 14 of *The Collected Writings of John Maynard Keynes*. London: Macmillan.
- Kindleberger, Charles P. 1973. *The World in Depression, 1929–1939*. Berkeley: University of California Press.

- Ljungqvist, Lars, and Thomas J. Sargent. 2012. *Recursive Macroeconomic Theory*. 2d ed. Cambridge, Mass.: Massachusetts Institute of Technology Press.
- Malthus, T. R. 1811. "Depreciation of Paper Currency." *Edinburgh Review* 17: 340–71.
- Mises, Ludwig von. 1912. *Theorie des Geldes und der Umlaufsmittel*, Munich: Verlag von Ducker und Humblot.
- Mulligan, Robert F. 2013. "New Evidence on the Structure of Production: Real and Austrian Business Cycle Theory in Light of Minsky's Financial Instability Hypothesis." *Journal of Economic Behavior and Organization* 89: 67–77.
- Niehans, Jürg. 1980. *A History of Economic Theory—Classic Contributions, 1720–1980*. Baltimore: Johns Hopkins University Press.
- Nosal, Ed, and Guillaume Rocheteau. 2011. *Money, Payments, and Liquidity*. Cambridge, Mass.: Massachusetts Institute of Technology Press.
- Patinkin, Don. 1990. "On Different Interpretations of the General Theory." *Journal of Monetary Economics* 26, no. 2: 205–43.
- Prychitko, David L. 2010. "Competing Explanations of the Minsky Moment: The Financial Instability Hypothesis in Light of Austrian Theory." *Review of Austrian Economics* 23: 199–221.
- Romer, David. 2019. *Advanced Macroeconomics*. 5th ed. New York: McGraw Hill.
- Samuelson, Paul A. 1958. "An Exact Consumption-Loan Model of Interest with or without the Social Contrivance of Money." *Journal of Political Economy* 66, no. 6: 467–82.
- Scheide, Joachim. 1986. "New Classical and Austrian Business Cycle Theory: Is There a Difference?" *Review of World Economics/Weltwirtschaftliches Archiv* 122: 575–98.
- Sowell, Thomas. 1974. *Classical Economics Reconsidered*. Princeton, N.J.: Princeton University Press.
- Steele, G. R. 1992. "Hayek's Contribution to Business Cycle Theory: A Modern Assessment." *History of Political Economy* 24, no. 2: 477–91.
- Thornton, Henry. 1802. *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*. London: F. and C. Rivington.

- Thornton, Mark. 2006. "Cantillon on the Cause of the Business Cycle." *Quarterly Journal of Austrian Economics* 9, no. 3: 45–60.
- Varian, Hal R. 1992. *Microeconomic Analysis*. 3d ed. New York: W. W. Norton.
- Wapshott, Nicholas. 2012. *Keynes Hayek: The Clash That Defined Modern Economics*. New York: W. W. Norton.
- Wicksell, Knut. 1898. *Geldzins und Güterpreise: Eine Studie über die den Tauschwert des Geldes bestimmenden Ursachen*. Jena, Germany: Verlag von Gustav Fischer.
- White, Lawrence H. 1999. "Hayek's Monetary Theory and Policy: A Critical Reconstruction." *Journal of Money, Credit and Banking* 31, no. 1: 109–20.

APPENDIX A: ALLOCATION OF I-FORM CAPITAL IN THE G SECTOR

Recall from (13) that

$$\frac{\partial R_t^g}{\partial k_t^{gj}} = \frac{\partial R_t^a}{\partial k_t^{aj}}$$

From $R_t^g = x_t^g / p_t$ and (6), it follows that

$$\frac{\partial R_t^g}{\partial k_t^{gj}} = \frac{v \left[(k_t^{gi})^\rho + (k_t^{gj})^\rho \right]^{\frac{v-\rho}{\rho}} (k_t^{gj})^{\rho-1}}{p_t}$$

From (15) it follows that

$$\frac{\partial R_t^a}{\partial k_t^{aj}} = 1$$

Taken together, we have

$$\frac{v \left[(k_t^{gi})^\rho + (k_t^{gj})^\rho \right]^{\frac{v-\rho}{\rho}} (k_t^{gj})^{\rho-1}}{p_t} = 1$$

Rearranging yields

$$\left[(k_t^{gi})^\rho + (k_t^{gj})^\rho \right]^{\frac{v-\rho}{\rho}} = \frac{p_t}{v} (k_t^{gj})^{1-\rho}$$

Solving this for $(k_t^{gj})^\rho$ yields

$$(k_t^{gj})^\rho = \left(\frac{p_t}{v}\right)^{\frac{\rho}{v-\rho}} (k_t^{gj})^{\frac{\rho(1-\rho)}{v-\rho}} - (k_t^{gi})^\rho$$

Inserting this into (6) yields

$$x_t^g = \left[\left(\frac{p_t}{v}\right)^{\frac{\rho}{v-\rho}} (k_t^{gj})^{\frac{\rho(1-\rho)}{v-\rho}} - (k_t^{gi})^\rho + (k_t^{gi})^\rho \right]^{\frac{v}{\rho}}$$

Simplifying yields

$$x_t^g = \left(\frac{p_t}{v}\right)^{\frac{v}{v-\rho}} (k_t^{gj})^{\frac{v(1-\rho)}{v-\rho}}$$

According to (12), $k_t^{aj} = 1$. Applying this to (1) implies that $k_t^{gj} = 1 - k_t^{aj} = 1$. Hence,

$$x_t^g = \left(\frac{p_t}{v}\right)^{\frac{v}{v-\rho}}$$

APPENDIX B: STEADY STATE

Inserting $k_{t+1}^{gi} = k_t^{gi} = \bar{k}^{gi}$ into (17) yields

$$\bar{k}^{gi} = \left(\frac{\bar{k}^{gi}}{v}\right)^{\frac{v}{v-\rho}}$$

Solving for \bar{k}^{gi} yields (18); that is,

$$\bar{k}^{gi} = (v)^{\frac{v}{\rho}}$$

The steady state relative price results from inserting $k_t^{gi} = \bar{k}^{gi}$ into (11) and using (12).

APPENDIX C: CONVERGING CYCLES

The first-order Taylor approximation of (17) around the steady state value of \bar{k}^{gi} is

$$[k_{t+1}^{gi} - \bar{k}^{gi}] = \frac{\partial k_{t+1}^{gi}}{\partial k_t^{gi}} [k_t^{gi} - \bar{k}^{gi}]$$

with

$$\frac{\partial k_{t+1}^{gi}}{\partial k_t^{gi}} = \frac{v}{v-\rho} \left(\frac{k_t^{gi}}{v}\right)^{\frac{\rho}{v-\rho}} \frac{1}{v}$$

Hence,

$$[k_{t+1}^{gi} - \bar{k}^{gi}] = \frac{v}{v - \rho} \left(\frac{k_t^{gi}}{v} \right)^{\frac{\rho}{v-\rho}} \frac{1}{v} [k_t^{gi} - \bar{k}^{gi}]$$

Using the steady state value $k_t^{gi} = \bar{k}^{gi}$ of (18) yields

$$[k_{t+1}^{gi} - \bar{k}^{gi}] = \frac{v}{v - \rho} \left(\frac{(v)^{\frac{v}{\rho}}}{v} \right)^{\frac{-\rho}{v-\rho}} \frac{1}{v} [k_t^{gi} - \bar{k}^{gi}]$$

Simplification yields

$$[k_{t+1}^{gi} - \bar{k}^{gi}] = \underbrace{\frac{v}{v - \rho}}_{=c} [k_t^{gi} - \bar{k}^{gi}]$$

Cycles arise when $c < 0$. Because the numerator of c is nonnegative when $0 < v$, this condition is satisfied when the denominator of c is negative. This implies that $v < \rho$.

Cycles are stable when $-1 < c$, which is satisfied when $v < \frac{\rho}{2}$.

MEASURING THE QUALITY OF MONEY

VYTAUTAS ŽUKAUSKAS*

JEL CLASSIFICATION: E41, E52, E58, E51, E44

ABSTRACT: This article explains the theoretical importance of the quality of money as a factor of the demand for money and develops the composite indicator that measures the quality of money for the eurozone. The demand for money, i.e., the amount of money people keep in their balances, besides other well-known factors (e.g., interest rate, price level, and income) depends on how people subjectively perceive a particular money's ability to serve its main functions: a medium of exchange, a store of value, and the unit of account. These properties depend not only on the instruments of monetary policy and the extent to which they are used, but also on the institutional framework of the monetary system. The article suggests that the quality of money is influenced by the institutional framework and monetary policy and that thus the quality of money is a separate channel for the transmission of money policy that works not through the usual mechanism of changing the supply of money, but through central banks affecting the demand for money. An important contribution of this article is that it develops an empirical composite indicator, which measures the quality of money in the eurozone in 1999–2019 and shows the gradual decline in the quality of euro.

*Vytautas Žukauskas (vytautas.zukauskas@gmail.com) is a PhD candidate in economics at the ISM University of Management and Economics and a senior policy analyst at the Lithuanian Free Market Institute. The author would like to thank Professor Guido Hülsmann and anonymous referees for their helpful and very constructive comments.



INTRODUCTION

Monetary policy has an immense impact on the development of economies, and thus on the economic well-being of people. There are numerous studies investigating the channels through which central banks influence economies. How effectively certain goals may be achieved via monetary policy depends on how well we understand these channels and their relative importance. However, the recent emergence of unconventional monetary policy and vast expansion of financial markets calls for the revision of the standard view of monetary policy transmission channels.

The relationship between the demand for money balances and its determinants is a critical component in the formulation and transmission of monetary policy (Goldfeld 1994), especially because economic depressions and inflationary booms can be interpreted as caused by the disequilibrium between the supply¹ of and demand for money (Yeager [1956] 1997).²

Various factors have been proposed as the determinants of the demand for money. Yeager ([1956] 1997, 5–6) claims that the demand for money essentially depends on the volume of transactions and on the price level, with interest rates, expectations, and business conditions also playing a role:

Households and businesses demand cash balances for what are usually classified as transactions, precautionary, speculative, and investment motives. Consideration of these motives shows that the total of cash balances demanded tends to be positively associated with the physical volume of transactions paid for in money (which depends in turn on

¹ Throughout this text the “supply” of money will mean the available total stock of money. In cases where the argument is about the effects of the production of new money this will be indicated (e.g., “increase” or “change” in the supply of money).

² Yeager ([1956] 1997) views the equality between the demand for money and supply of money as the equilibrium condition and identifies the disequilibrium in the money market as the primary cause of depressions and inflationary booms. Depressions occur when there is an excess demand for money, in the sense that people want to hold more money than exists. Inflationary booms occur when there is an excess supply of money, in the sense that more money exists than people want to hold.

payment practices and other institutional conditions, on the human and business population, and on the level of production or real income) and with the level of prices and wages. Interest rates and expectations of future price levels and business conditions also presumably have some effect on the demand for money.

Yeager ([1956] 1997, 7) compares money to any other commodity by saying that the number of money units that people demand varies inversely with the purchasing power as the value of the unit: we want to hold more units of any good if its value is higher. And as with other goods, there is some value or purchasing power of money unit that equilibrates the amounts demanded and supplied.

According to Laidler (1971), a stable demand function is a characteristic monetarist belief and is also supported by the empirical evidence. By “stable” Laidler means that money holdings “can be explained ... by functional relationships which include a relatively small number of arguments” (Laidler 1982, 39).

In practice a “small” number of arguments has meant three or four—typically including a scale variable such as income, permanent income or wealth, an opportunity cost variable such as nominal interest rate or some measure of the expected inflation rate, and, if nominal balances have been the dependent variable, the general price level. (Laidler 1982, 39–40)

The liquidity preference framework emphasized the opportunity cost as the factor of the money demand. The demand for money depends on the tradeoff between the liquidity of holding money and the opportunity cost of holding it, which is the interest rate earned on holding less liquid but interest-earning alternatives.³ To this day authors name different factors in the demand for money balances, but the most prominent variables include the interest rate, level of income, price level, number of transactions, transaction costs, and the preferences of money holders.⁴

In the traditional framework, monetary policy works through changes in the supply of money. One of the defining features of

³ See, e.g., Modigliani (1944); Tobin (1958).

⁴ See, e.g., Goldfeld (1994); Serletis (2007).

monetarism is a “quantity theory” approach to macroeconomics, which is “a view that fluctuations in the quantity of money are the dominant cause of fluctuations in money income” (Laidler 1982, 3). Since the demand curve for money is downward sloping,⁵ an increase in the supply of money equilibrates the money market at the lower interest rate and higher quantity of money demanded.⁶ Shifts in the supply of money, interest rate, and the amount of financial assets held by market participants in turn affect the economy (and ultimately the aggregate demand) through different transmission channels.⁷

It is important that according to the traditional view the supply of money is essentially the key element through which central banks conduct the monetary policy. Monetary policy-induced changes in the supply of money are part of the transmission mechanism of monetary policy—the shifts in the demand for money are not.

This view is challenged by economists who suggest that central banks influence the demand for money through the quality of money. Hendershott (1969) claimed that the emphasis on the quantity of money and the Fisherian equation in judging the impact of monetary policy on the economy is misplaced, while its popularity stems from two factors: (1) the attractive simplicity of the naïve quantity theory and (2) historical correlations between money supply and output. Bagus (2009) argues that changes in the *quality* not only quantity of money are important for the demand and purchasing power of money. Quality of money is defined as the capacity of money, as perceived by economic actors, to fulfil its main functions, namely to serve as a medium of exchange, as a store of wealth, and as an accounting unit. According to Bagus and Howden (2016, 111), “As the purchasing power of money may change due

⁵ A lower interest rate means a lower opportunity cost for holding money, which increases the quantity of money demanded.

⁶ Modern monetary economics often uses the quantity theory of exchange in determining the purchasing power of money. The quantity theory of money is usually expressed with Fisher’s famous equation of exchange, $MV = PY$, where M is the quantity of money, V is its velocity (i.e., rate of circulation), Y is real output, and P is the price index of this output.

⁷ See Mishkin (1995); Taylor (1995); and Bernanke and Gertler (1995) on the channels of conventional instruments and Gagnon et al. (2011); Campbell et al. (2012); Bauer and Rudebusch (2013); and Kuttner (2018, 126) on the unconventional instruments.

only to a shift in the demand for money, the subjective valuation of money can change even with the expectation of a constant money supply.” Central banks influence characteristics of money (e.g., redemption of money and quality of the central bank’s balance sheet, conditions and stability of the banking system, organization and constitution of monetary authority), which determine actors’ preferences toward money. The quantity theory of money obscures the real problem at hand regarding the value of and demand for the monetary unit (Bagus and Howden 2016, 110).

More recently, Žukauskas and Hülsmann (2019) showed how monetary policy–induced the changes in the quality of money and shifts in the demand for money can explain the movements in the prices of financial assets. The reasoning is that the decline in the quality of money shifts the demand away from money to other assets (e.g., financial assets). They suggest a *total-demand* approach, which emphasizes the importance of quality of money for the *reservation* demand for money (demand by the holders of money). The notion of quality of money may shift the understanding of how central banks influence the economy. If it is correct, then theorists will need to accept that monetary policy works not only through the supply but also through the demand side of money.

There has been some discussion of the dimensions of monetary policy which may impact the quality of money and thus the demand for money.⁸ However, there have not been any attempts to measure this impact. The notion of the quality of money stems from the subjective value theory, in which the qualities that determine the value of objects are subjective and are hard to quantify. The absence of measurement makes it difficult to judge the importance of quality of money as a demand-side channel of monetary policy. This paper attempts to fill this gap. It will discuss the dimensions of monetary policy that are relevant for the notion of the quality of money, and it will quantify them by compiling a composite indicator of the quality of money.

The first part of the article will discuss the theory behind the subjective nature of the value and demand for money. The second part will focus on the quality of money. The third part will cover the

⁸ E.g., Bagus (2009); Bagus and Howden (2016).

methodological issues in compiling the composite indicator. The fourth part will present the results of the index. The fifth part will discuss the limitations and the importance of the quality of money and its measurement in the context of monetary policy.

1. THE SUBJECTIVE NATURE OF THE DEMAND FOR MONEY

The theory behind monetarism and the stable money demand function tends to overlook the subjective nature of the demand for money. The quantity theory of money as formulated by Fisher (1911) and restated by Friedman (1956) still dominates the way economists look at the purchasing power of money. This theory focuses on the supply of money, and it does not explicitly suggest a role for the subjective factors which determine the demand for money. “While such an analysis is not obviously incorrect, the attention the equation affords to past quantities, both of money and nominal transactions, obscures the real problem at hand regarding the value of and demand for the monetary unit.” (Bagus and Howden 2016, 110).

The qualitative (or demand-side) approach is older than the modern focus on the quantitative (supply-side) factors in the analysis of the value of money:

A long history of qualitative and demand-side analysis predates the modern attention to supply-side factors determining money's value. Early authors such as Mariana ([1609] 1994) and Petty (1662) illustrate this long tradition of the quality theory of money. Smith ([1776] 1863) explains the origin of money by pointing to the importance of certain qualities such as a commodity's divisibility and durability. Similar discussions of the qualities of a “good” medium of exchange are found in the classic works of Say ([1803] 1843), Mill ([1848] 1909), and Senior ([1850] 1854). Menger ([1871] 2007) explained the origin of money as a market process whereby commodities with certain marketable qualities prevail at becoming generally accepted exchange media. By the time Jevons ([1875] 1876) wrote his treatise *Money and the Mechanism of Exchange*, the characteristics or qualities of “good” money were generally known (and are still today summarily detailed in most introductory monetary economics texts). (Bagus and Howden 2016, 111–12)

Some economists, predominantly those in the Austrian school of economic thought, clearly recognize that the demand and value of money are subjective and that they stem from money's ability to fulfil its functions in the market (medium of exchange, store of value, unit of account). To be properly used as money, a good must have certain characteristics. Classically, these are divisibility, fungibility (or universal want), durability, and stability of value.

Mises in the *Theory of Money and Credit* and *Human Action* explained how prices and the value of money can be explained using the same principles used to explain the prices and value of other goods in the economy. The price of money is its purchasing power, and it emerges in the market as a *result* of the demand for and the supply of money (the so-called money relation). It is clear that according to Mises the demand for money is subjective. Catallactics can tell us about the advantages of holding money and about the factors which may influence the demand for money, but the demand for money can never be reduced to a specific function.

But all of these objective factors always affect the matter only as motivations of the individual. They are never capable of a direct influence upon the actual amount of his demand for money. Here, as in all departments of economic life, it is the subjective valuations of the separate economic agents that alone are decisive. The store of purchasing power held by two such agents whose objective economic circumstances were identical might be quite different if the advantages and disadvantages of such a store were estimated differently by the different agents. (Mises [1934] 2012, 154)

Also,

The various actors make up their minds about what they believe the adequate height of their cash holding should be. They carry out their resolution by renouncing the purchase of commodities, securities, and interest-bearing claims, and by selling such assets or conversely by increasing their purchases. With money, things are not different from what they are with regard to all other goods and services. The demand for money is determined by the conduct of people intent upon acquiring it for their cash holding. (Mises [1949] 1998, 401)

The subjective demand for money is closely linked to the recognition that money is a good. Like any other good, money is demanded by the market participants for its valuable services. Hutt (1956) explains that money should not be considered unproductive or barren, as was claimed by many influential authors (e.g., Aristotle, Locke), who influenced modern thinkers. Keynes claimed that by choosing to hold money for convenience and security market participants are foregoing the interest that could be earned by holding other assets which bring nothing “in the shape of output” (Keynes 1936, 226). However, according to Hutt, money is productive in exactly the same sense as other goods in the economy. Money assets held provide valuable services, and they derive their value from their power to render these services. The amount of money that market participants decide to hold is determined by the marginal utility of its services. In fact, this means that money has a “prospective yield (of ‘utilities’), which invites the holding of money, as the normal return to investment” (Hutt 1956, 198). The demand for money is effectively the demand to hold. It stems from the value of being in a position to acquire other things at “the most profitable time, or at the most convenient time” (Hutt 1956, 206). Thus, holding money is not forgoing the yield which could be earned by holding other interest-bearing assets. By holding money, one earns a nonpecuniary yield in the form of money services.⁹

The services that the owner receives from holding money are related to the uncertainty in the market economy. Rothbard ([1962, 1970] 2009, 767) recognizes that the demand for money emerges from the uncertainty that economic agents face: money’s “uses are based precisely on the fact that the individual is not certain on what he will spend his money or of the precise time that he will spend it in the future.” Although these uses are objective in the sense that every economic agent faces uncertainty, the demand for money is still subjective:

⁹ Also Hutt (1956, 207):

The fact that we hold money assets for any period at all indicates that, although we do not want to use these assets *in any other way*, their services *do* occupy a place on our scale of preferences, just like the services of all the other capital resources which we refrain from exchanging.

Economists have attempted mechanically to reduce the demand for money to various sources. There is no such mechanical determination, however. Each individual decides for himself by his own standards his whole demand for cash balances, and we can only trace various influences which different catallactic events may have had on demand. (Rothbard [1962, 1970] 2009, 768)

An important contribution of Rothbard is his application of total demand and stock analysis to the analysis of money and the purchasing power of money. Money is unique in the sense that people simultaneously have a reservation and exchange demand for money. As Rothbard ([1962, 1970] 2009, 757) noted, “In contrast to other commodities, everyone on the market has both an exchange demand and a reservation demand for money.” The total demand for money on the market consists of two parts: the exchange demand for money (by sellers of all other goods who wish to purchase money) and the reservation demand for money (the demand for money to hold by those who already hold it) (Rothbard, [1962, 1970] 2009, 756). Exchange demand for money is the pre-income demand, and reservation demand for money is the post-income demand. Individuals demand money that they do not yet own by offering their goods or services in return for money—this is the exchange demand for money. Individuals also demand money that they own by choosing to not spend it and keep it in their cash balances—this is the reservation demand for money.

The price level is determined by the intersection of the total demand and the total stock of money. The total-demand and stock analysis utilized by Rothbard is an elegant analytical tool which clearly shows the errors inherent in the quantity theory of money, which assumes a mechanistic relationship between the supply of money and prices. Both the exchange and reservation demand for money are subjective, thus an increase in the supply of money can produce different effects on prices depending on how people react to this change, by deciding to hold a higher or lower share of additional money in their money balances.

An important question is which one—exchange or reservation demand—is more important for the determination of prices and the purchasing power of money. According to Rothbard ([1962, 1970] 2009, 759), the reservation demand for money is more important because it is “more volatile.” The volatility of the reservation demand

comes from the fact that holders of money may, for some reason (e.g., they think that the purchasing power of money will go down), want to drastically reduce their holdings of money by spending them. They cannot reduce their exchange demand for money so easily, because it is a lot easier to spend their cash balances than to turn to exchanging their goods and services for nonmonetary goods (barter) or other competing money in the market. Thus, the importance of the reservation demand for money comes from the fact that it is more volatile and thus more important in the *changes* in prices and the purchasing power of money. However, precisely because it is more stable, an argument can be made that exchange demand for money, i.e., the supply of goods and services, has an important influence on the purchasing prices and power of money, at least in the short run. Even if the reservation demand for money decreases significantly, the exchange demand for money can stay relatively stable and keep the prices and purchasing power of money from dropping rapidly.

Horwitz (1990) applies subjectivist principles to the demand for money as well and criticizes as oversimplified “neoclassical and Keynesian models that portray the only opportunity cost of money held as interest-bearing securities”. His approach claims that the choice to hold money depends on the utility of the most valuable alternative forgone:

When an actor is facing a decision to hold wealth in the form of money, she is deciding between a number of prospective utility streams. We can broadly categorize those streams as the utility from non-financial assets and the utility from both the availability and interest returns from non-money financial assets. (Horwitz 1990, 465)

Most importantly, the demand for money is subjective, since only the chooser can determine the utility that their choice provides. Moreover, the cost of holding money is subjective, because it is never objectively realized.

What is given up in a choice is by definition what was not chosen, so the “measure” of that cost must necessarily be the expected utility of the sacrificed alternative. Such expectations can be definitively described only by the chooser. (Horwitz 1990, 465)

The subjectivity of the demand for money brings us back to the monetary policy. If the demand for money balances has an important subjective element to it, the demand for money can be influenced, but it is not mechanically determined by such factors as income, price level, or interest rate. If this is the case, then central banks and monetary policy may not just influence the amount of money that people are willing to hold through the manipulation of the money supply and the interest rate. The subjectivist approach to the demand for money allows for the recognition that the impact of central banks on money (and prices) may be much broader. And this is exactly the claim of the recent literature on the quality of money.

2. QUALITY OF MONEY AND ITS DIMENSIONS

The theory of the quality of money maintains that the demand for money depends on the quality of money. Money's quality can be defined as "the capacity of money, as perceived by actors, to fulfil all its main functions, namely to serve as a medium of exchange, as a store of wealth, and as an accounting unit" (Bagus 2009, 22–23). The quality of money is one of the important factors, along with uncertainty, financial innovations (credit cards, ATMs, money market mutual funds), frequency of payment, etc. that affect the reservation or cash balance demand for money (Žukauskas and Hülsmann 2019).

Money supply, according to this view, is just one of the factors affecting the quality of money. Existing total supply of money at any time does not matter in the sense that money can be used as a universal medium of exchange despite the amount of monetary units available (a lower amount just means a lower price level). Money supply matters for the quality of money if we add the dimensions of time and changes in the supply of money. Changes in the supply of money influence the extent of the stability of the purchasing power of money. However, there are a lot more factors or dimensions influencing the quality of money: "As the purchasing power of money may change due only to a shift in the demand for money, the subjective valuation of money can change even with the expectation of a constant money supply." (Bagus and Howden 2016, 111)

The idea behind the quality of money is that central banks, through monetary policy, influence other characteristics of money (besides money supply) that are relevant for money users. A shift in these characteristics impacts the quality and subjective value of money, and “[c]hanges in money’s quality affect the demand for money and, consequently, its purchasing power” Bagus (2015, 19).

According to Bagus, “good” monetary systems have objective qualities. The quality of a money is closely linked to the quality of the monetary regime, which can be defined as “the capacity of a monetary system to provide an institutional framework for a good medium of exchange, store of wealth, and accounting unit” (Bagus 2015, 19–20).

According to Bagus (2015), the unit of account function is fulfilled by nearly all monetary systems equally well, and it is impaired only in extreme situations. Thus it is meaningful to concentrate on the characteristics of a good medium of exchange and store of value.¹⁰ The main requirements for money as a medium of exchange are low storage and transportation costs, easy handling, durability, divisibility, resistance to tarnish, homogeneity, and ease of recognition. However, “These properties hardly change today as paper-based fiat standards have eased the physical usability of the monetary unit, as well as the costs to provide it” (Bagus 2015, 23). Another relevant property of a medium of exchange is the number of users, because more users imply more demand for the medium of exchange. “As more people accept it in trade, the medium of exchange is more useful” (Bagus 2015, 23). Existence of ample nonmonetary demand for the money as either a consumer good or a factor of production is yet another important characteristic for a medium of exchange. However, in fiat money systems, where money is not redeemable, it does not have this property altogether.

One of the most important variables in money’s function as a store of value is the possibility of increases in its quantity.

¹⁰ According to Röpke (1954), money’s functions often disappear in a certain order. First, money ceases to be a storage of wealth. Then, money loses its function as a unit of account. The last function that is lost in a hyperinflation is the function of medium of exchange.

“Different monetary regimes allow for different mechanisms to increase the quantity of money, thereby influencing money’s quality. Thus, monetary systems may set strict or less strict limits for increases in the money supply” (Bagus 2015, 24). The stability of the financial system is also an important property of money and a factor in its store-of-value function.

There are monetary regimes that are more prone to generate business cycles, over-indebtedness and illiquidity than other regimes. Business cycles, over-indebtedness and illiquidity may provoke interventions and bailouts on the part of the government or monetary authorities. In the wake of the bailouts the quantity of money is often increased, or even the quality of the monetary system is diluted. (24)

The monetary regime’s independence from the government and the restrictions that it sets to eliminate or limit the government’s manipulation of money are also important to money as a store of value. “Interventions by the government often decrease the quality of money in its own favor by increases in money’s quantity or through a deterioration in the reserves backing it” (25).

To sum up, the quality of money as a store of value and a medium of exchange can essentially change in five ways (Bagus and Howden 2016, 113):

1. Money supply—the supply of money in existence today and in the future
2. Redemption ratio (in the case of commodity money systems)—the amount and value of assets or other goods that back the currency (that money can be redeemed for)
3. Conditions and stability of the banking system—a financially troubled, illiquid banking system increases risk of bailouts, which may lead to higher quantity of money (if financed through debt monetization)
4. Institutional framework of the monetary authority, which can mean:
 - a. The independence of the central bank (if the central bank follows directives from the government, this increases the risk of debt monetization to finance spending)

- b. Accountability and transparency—the quality of money will improve if central bankers are accountable and responsible for their policies and if there is transparency
 - c. The central bank's constitution, that is, its philosophy or objectives (e.g., price stability versus ancillary aims of full employment, increasing asset prices, and maintenance of a currency), its price inflation target, whether it has a rule-based monetary policy or simply targets asset prices
 - d. Staff and decision-makers at the central bank, who influence monetary policy primarily through building consensus
5. Quality of the central bank's balance sheet—the quality of the reserves and assets backing the money determines the central bank's ability to maintain and defend the currency's value in the future

Therefore, by incorporating the quality of money, it is possible to understand how the purchasing power of money can vary with a constant money stock, namely when the perceived quality of money changes. The quality of money affects the purchasing power of money by first altering the demand for money, which reflects the changed valuation of a fixed quantity of money on each person's value scale. When the quality of money improves, the demand for money, and, consequently, money's purchasing power, will be higher. If subjective valuation of money falls, people will reduce their cash balances and prices will increase. The subjectivity of valuation and demand for money also means that changes in the perceived quality of money can be very abrupt (which would lead to a strong and quick change in the purchasing power of money), whereas changes in the quantity of money are usually gradual.

3. METHODOLOGY OF THE COMPOSITE INDICATOR

Based on the framework discussed above, this section will develop an empirical composite indicator for the quality of money and apply it to the euro area. "Composite," also known as "synthetic," indicators are "formed when individual indicators are compiled into a single index, on the basis of an underlying model

of the multi-dimensional concept that is being measured” (Nardo et al. 2005, 8). Essentially, a composite indicator consists of numerous “components” that reflect a “complex system,” making it easier to understand in full rather than by reducing it to its “spare parts” (Greco et al. 2019). The literature on composite indicators suggests a particular procedure to compile a composite indicator. We will analyze the quality of money using these steps.

THEORETICAL FRAMEWORK

The first step in the creation of a composite indicator is the theoretical framework, which establishes what is being measured, its measurable dimensions, and eventually the indicators that constitute the composite indicator. The strength of the theoretical framework determines how meaningful the composite is. The quality of money and its measurable dimensions have already been discussed above. Here we will focus on the indicators.

The selected indicators must carry relevant information about the core components of the phenomenon being measured. Practitioners use proxy variables when direct indicators or data are not available (OECD and JRC 2008). Although the selection of indicators is vested in the theoretical framework, practitioners admit that it is a process which depends on the judgments of the researcher.¹¹

The selection of the indicators for the quality of money index and the dimensions of it was heavily influenced by the existing scholarship on the quality of money, which has been discussed above. As shown in table 1, the index consists of five dimensions and eighteen indicators. The indicators in the central bank balance sheet dimension follow the suggestions of Bagus (2015) and Bagus and Howden (2016). The rest of the indicators were selected to reflect the other significant aspects of the quality of money. The choice of dimensions and indicators will be discussed below.

¹¹ According to the Competence Centre on Composite Indicators and Scoreboards (2020), “Because there is no single definitive set of indicators for any given purpose, the selection of data to incorporate in a composite can be quite subjective. Different indicators of varying quality could be chosen to monitor progress in the same performance or policy area.”

The Central Bank Balance Sheet

The quality of money can be measured indirectly by the assets that back the monetary base. Central bank assets serve as collateral that “backs” the currency and represents the central bank’s capability to defend the value of the currency domestically and internationally. The balance sheet will be assessed by three liquidity ratios, two international strength ratios, and one equity ratio (see table 1). The idea behind the liquidity ratios is that the higher the share of liquid and high-quality assets in the central bank’s reserves, the higher the quality of money will be. During a crisis, liquid assets can be used to support a faltering currency. International strength ratios indicate a central bank’s potential to defend the external value (i.e., the foreign exchange rate) of a currency. International strength ratios show the percentage of monetary liabilities that are backed with foreign reserves, which can be used to support the currency’s value on the foreign exchange market. The equity ratio indicates the central bank’s leverage. A higher ratio implies a more conservative situation (i.e., less leverage) and an increased quality of money.

Money Supply

Changes in the money supply is one of the factors influencing the quality of money. Existing total stock of money at any time does not matter in the sense that money can be used as a medium of exchange despite the number of monetary units available. However, changes in the money supply influence the long-term stability of the purchasing power of money. The index contains four indicators that represent different definitions of the money supply: monetary base, central bank balance sheet, and monetary aggregates M1 and M3.

Interest Rates

There is a link between money supply and interest rates. The European Central Bank (ECB) communicates its monetary policy stance by setting an interest rate target. This target is achieved primarily through open market operations—by purchasing

or selling financial assets in the market and thus increasing or decreasing the monetary base. Thus, changes in the interest rates set by the central bank show how inflationary its monetary policy is. A decrease in the interest rates is achieved through an increase in the money supply, which in the long term means a lower purchasing power of money. The quality of money index contains four indicators measuring interest rates. Three of them represent three key interest rates set by the ECB: the rates on the deposit facility, the main refinancing operations (MRO), and the marginal lending facility. The fourth indicator is based on spread between the main refinancing operations rate and Taylor's rule interest rate.

Taylor's rule is a guideline for how central banks should change interest rates in response to changes in economic conditions. It was established to adjust and set prudent rates for the short-term stabilization of the economy while still maintaining long-term growth (Taylor 1993). Machaj (2016) admits that Taylor convincingly demonstrates that low interest rates contributed to the housing bubble and mortgage market expansion. However, Machaj (2016, 12) criticizes the Taylor rule from an Austrian perspective by saying that "any rule recommended for interest rates higher than the actual ones would have been better than that actually followed (even a rule based on astrology). Apart from that, there may be nothing specific about the Taylor rule that makes it a panacea for macroeconomic problems." The technical problem with the Taylor rule is that it has many variants and that it cannot be applied precisely (e.g., it is difficult to measure the potential output). The fundamental problem is that following this rule does not ensure economic stability: "[T]argeting ... macroeconomic variables is not a recipe for intertemporal coordination understood in the Hayekian sense: as coordination between successive stages of production" (Machaj 2014). Nevertheless, in this indicator we will use the Taylor rule as a rough guide and the basis for the evaluation of the interest rate set by the monetary authority. Following the Taylor rule does not ensure macroeconomic balance, but it is quite clear that strong deviations from it are related to macroeconomic imbalances.

Financial System Stability

The conditions and stability of the financial system matter for the quality of money, because a financially troubled, illiquid banking system increases risk of bailouts, which may lead to a higher quantity of money (if financed through debt monetization). The stability of the financial system is measured by three indicators: the Composite Indicator of Systemic Stress (CISS), the euro interbank offered rate–overnight index swap rate (Euribor–OIS) spread, and the liquidity ratio of the eurozone banking sector (for a more detailed explanation of each indicator, see table 2).

Forward Guidance

Forward guidance is central bank communication—announcements, speeches, press conferences—which aims to provide information about the likely path of future policy and interest rates (Kuttner 2018, 126). Forward guidance is an unconventional instrument of monetary policy that the ECB uses to guide the expectations of market participants about the future stance of monetary policy. Forward guidance is connected to the quality of money: expectations for prolonged periods of inflationary monetary policy mean that market participants expect the interest rates to stay low and the money supply to increase faster than otherwise. The index contains one indicator (the spread between current rate of main refinancing operations and the OIS rate) which captures the extent to which market participants expect monetary policy to remain or become inflationary (see more in table 1).

Table 1. Indicators of the quality of money index

Dimension: Central bank balance sheet		
Indicator	Reasoning and explanation	Source
Liquidity I ratio	RATIO OF GOLD RESERVES TO MONETARY BASE. Gold has traditionally held a coveted position as a highly liquid asset. Gold can be sold in high quantities without bid-ask spread crises. In contrast to other nonmoney financial assets, gold has no credit risk, as it does not represent a debt (Bagus and Howden 2016, 119).	ECB
Liquidity II ratio	RATIO OF RESERVE ASSETS (GOLD AND FOREIGN RESERVES) TO MONETARY BASE. Foreign exchange reserves ¹² are normally very liquid, as they are traded daily in large volumes. Their value is less assured than gold's, since credit risk implies that their value could theoretically be reduced to zero in extreme cases (Bagus and Howden 2016, 119).	ECB
Liquidity III ratio	RATIO OF RESERVE ASSETS AND GOVERNMENT DEBT TO MONETARY BASE. The share of government bonds on the balance sheet is important when assets are viewed in terms of credit risk. High-quality government bonds (i.e., US Treasury bills) enjoy a very large and liquid market, enabling them to be sold en masse without losses through increased bid-ask spreads. Credit risk is also low. The value of such bonds is backed by the government's taxing power and ultimately by the productivity of the economy (Bagus and Howden 2016, 119–20).	ECB
Defense potential ratio	RATIO OF FOREIGN RESERVES TO MONETARY BASE. Selling foreign reserves on the open market and purchasing domestic currency can support the value of the currency in times of crisis or speculative attacks (Bagus and Howden 2016, 117).	ECB
External strength ratio	RATIO OF FOREIGN RESERVES TO TOTAL WORLD FOREIGN RESERVES. The higher a central bank's share of total world foreign exchange reserves a central bank is, the greater its potential to defend the currency internationally will be. This ratio may also indicate a currency area's previous capacity to generate exports, which benefits the quality of money through increased trade-based demand and by showing the currency area's competitiveness (Bagus and Howden 2016, 118).	ECB, IMF
Equity ratio	RATIO OF CAPITAL TO TOTAL ASSETS. Available equity can cushion potential losses on the asset side of the balance sheet and can thus prevent a government-initiated recapitalization, which could potentially increase the quantity of money, lowering the quality of money (Bagus and Howden 2016, 120).	ECB

¹² Foreign reserve assets are assets denominated in foreign currency and include reserve position in the International Monetary Fund (IMF), special drawing rights (an international reserve asset) created by the IMF, financial derivatives, loans to nonresident nonbanks, long-term loans to an IMF Trust account, and other assets that meet the reserve assets definition.

Dimension: Money supply		
Indicator	Reasoning and explanation	Source
Monetary base growth	Monetary base (currency in circulation and credit institutions' deposits held with the Eurosystem) is a measure of money supply. The growth is calculated as an annual rate.	ECB
Balance sheet growth	The size of the balance sheet (total assets) of the central bank is an important measure of money supply in circumstances of quantitative easing. Quantitative easing expands the balance sheet of the central bank beyond the level required to hold the interest rate at the target (Bernanke and Reinhart 2004). Balance sheet growth is calculated as an annual rate.	ECB
M1 growth	Monetary aggregate M1 is the sum of currency in circulation and overnight deposits. M1 growth is calculated as an annual rate.	ECB
M3 growth	Monetary aggregate M3 is the broad monetary aggregate: the sum of M1, deposits with an agreed maturity of up to two years, deposits redeemable at notice of up to three months, repurchase agreements, money market fund shares/units, and debt securities with a maturity of up to two years. M3 growth is calculated as an annual rate.	ECB

Dimension: Interest rate		
Indicator	Reasoning and explanation	Source
ECB deposit facility rate	The rate on the deposit facility, which banks may use to make overnight deposits with the Eurosystem.	ECB
ECB MRO rate	The interest rate on the main refinancing operations, which provide the bulk of liquidity to the banking system.	ECB
ECB marginal lending facility rate	The rate on the marginal lending facility, whereby the Eurosystem offers overnight credit to banks.	ECB
MRO and Taylor's rule rate spread	The spread between the target rate of the ECB's MRO and the Taylor rule's suggested rate indicates the stance of monetary policy interest rate-wise.	ECB, Bloomberg

Dimension: Financial system stability		
Indicator	Reasoning and explanation	Source
CISS	Composite Indicator of Systemic Stress (Hollo, Kremer, and Lo Duca [2012] is an indicator of contemporaneous stress in the financial system. Its specific statistical design is shaped according to standard definitions of systemic risk. The index incorporates five market-specific subindices created from a total of fifteen individual financial stress measures. The main goal of using stress indices such as the CISS is to measure the current state of instability, i.e., the financial system's current level of friction, stress, and strains (or their absence) and to condense that state of financial instability into a single statistic. The CISS's specific aim to emphasize the systemic nature of existing stresses in the financial system (systemic stress is interpreted as an ex post measure of systemic risk, i.e., risk which has materialized already).	ECB
Euribor-OIS rate spread	Euribor ¹³ reflects bank credit risk, and OIS ¹⁴ is considered risk-free; thus, the Euribor–OIS spread is widely seen as a gauge of the creditworthiness of the banking system. In times of stress, the Euribor, referencing a cash instrument, reflects both credit and liquidity risk, but the OIS has little exposure to default risk because these contracts do not involve any initial cash flows. The OIS rate is therefore an accurate measure of investor expectations of the effective rate set by the central bank over the term of the swap, whereas Euribor reflects credit risk and the expectation on future overnight rates. (Sengupta and Tam 2008)	ECB, Bloomberg
Banking system liquidity ratio	The liquidity of the commercial banking system is measured as the ratio of short-term assets (loans [up to one year], cash, and reserves at the ECB) divided by short-term liabilities (deposits redeemable at notice) and deposits of up to one year. This ratio shows the extent to which the banking system could fulfil its short-term obligations in case of financial troubles and bank runs.	ECB

¹³ The Euribor rates are based on the average interest rates at which a large panel of European banks borrow funds from one another.

¹⁴ The OIS rate represents a given country's central bank rate over the course of a certain period.

Dimension: Forward guidance		
Indicator	Reasoning and explanation	Source
MRO rate minus 2-year OIS rate spread	The OIS rate reflects expectations of future short-term interest rates plus a term premium (Hubert and Labondance 2018), which also shows expectations about a given country’s central bank rate over the course of a certain period. The spread between the current MRO and the OIS rate shows to what extent market participants expect the central bank’s interest rate policy to continue into the future.	ECB, Bloomberg

The dimensions and indicators of the index are flexible in the sense that they are mostly not specific to a particular central bank and can be applied to any currency and central bank. In this article, we will focus on the euro area and European Central Bank. To ensure maximum flexibility in using the index, it will be calculated using monthly data.¹⁵ The period for the euro analysis is the end of 1999 until the end of 2019.

One aspect not captured by the index is the institutional framework of the central bank (its independence, accountability and transparency, constitution, and staff and decision-makers) due to the lack of publicly available and quantifiable indicators. Although there are quantitative indicators of central bank independence, they are only available on an annual basis.¹⁶ Quantitative indicators of other aspects of the institutional framework are not available, since they are heavily subjective and depend on value judgments.

Once the indicators have been established, further steps in compiling the composite indicator are normalization of the data, weighting of the indicators, and aggregating them into a composite indicator. We will go through these steps very briefly; more information on the methodology can be found in the appendix.

¹⁵ If the index data is monthly, it can be easily used to calculate quarterly or yearly changes.

¹⁶ E.g., Garriga (2016), Masciandaro and Romelli (2019). Moreover, since the evaluation of central banks’ independence does not change much over the years, it is more useful as a tool for comparing different central banks’ level of independence than for tracking the change in a particular bank’s independence.

NORMALIZATION

Normalization converts the data of the indicators on a common scale. This is crucial for the comparability of different indicators and to combine them into a composite. The normalization method used for the quality of money index was the min-max transformation. The reasons why the min-max transformation was chosen over the other methods were primarily a) the data used in the index are time series of variables which do not have high variability or any extreme values (in the cases of extreme values, methods based on standard deviation or distance from the mean are preferred) and b) according to the theoretical framework, changes in the indicator's value are important in the same way, regardless of the level (if this were not the case, the transformation should be concaved (log, root, exponential, or power) instead. The min-max transformation brings all the values of all the indicators onto a scale of 0 to 100, where 0 represents the lowest value and 100 represents the highest value (the formula used in the normalization can be found in the appendix).

WEIGHTING

Composite indicator is composed of individual indicators, which may have specific weights. There are different weighting methods, but they all fall into two categories: expert/public opinion-based methods and statistical methods. The weighting procedure selected needs to reflect the object or phenomenon, and it needs to be simple in order to be able to communicate the final weighting scheme. Literature on composite indicators considers weighting based on statistical methods to be more "objective," as statistical methods are not based on a decision-maker's subjective valuation.¹⁷ Two statistical tools that are often used in weighting are correlation and multiple linear regression analysis.

The weighting of the composite indicator was decided separately at the level of the dimensions and indicators, following two steps. The first step applied regression analysis and determined the weights of the dimensions. The second step applied correlation analysis and established the weights of the individual indicators

¹⁷ See Booyesen (2002); Zhou, Ang, and Poh (2007); and Decancq and Lugo (2013).

in each dimension (a detailed explanation of the two steps can be found in the appendix).

Table 2 shows the results of the first step, which used the linear regression analysis for dimension weights. After the adjustment, the coefficients of determination are not equal, but they are more balanced than in the case of equal weighting.

Table 2. Weighting adjustments in the first step (dimensions)

Dimensions	R2 with Equal Weights	R2 After Adjustment	Weights
Central Bank Balance Sheet	14%	36%	35% (max)
Money Supply	38%	44%	15%
Interest Rate	0%	15%	35% (max)
Financial System Stability	56%	35%	5% (min)
Forward Guidance	65%	30%	10%

In the second step, the equal weighting of indicators in each dimension was adjusted to avoid double counting using the correlation analysis. As explained in the appendix on methodology, the weights were distributed equally among all indicators in each dimension unless there were high levels of correlation (higher than 0.6).

AGGREGATION

The aggregation process combines the values of a set of indicators into one composite indicator. An important distinction of aggregation methods in the literature is between “compensatory” and “noncompensatory” approaches.¹⁹ According to Bouyssou (1986, 151), aggregation is noncompensatory if no tradeoffs occur and is compensatory otherwise. The definition of compensation therefore presents a tradeoff. Compensatory aggregation assumes that poor

¹⁸ Foreign reserve assets are assets denominated in foreign currency and include reserve position in the International Monetary Fund (IMF), special drawing rights (an international reserve asset) created by the IMF, financial derivatives, loans to nonresident nonbanks, long-term loans to an IMF Trust account, and other assets that meet the reserve assets definition.

¹⁹ See Munda (2005); and Greco et al. (2019).

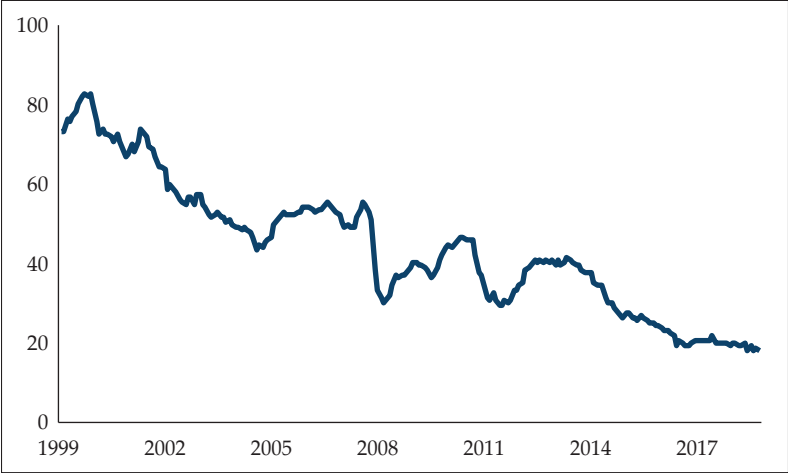
performance in some indicators can be compensated for by high performance in other indicators.

Linear compensatory aggregation was chosen as the most suitable method for aggregating the quality of money index. The value of the composite index was the arithmetic average of all the indicators weighted by their respective weights. The primary reason for this choice is that the theoretical framework, which is the source of the different dimensions of the index, implicitly assumes the possibility of compensation (bad performance in one of the dimensions of quality of money can be compensated with good performance in the others). Moreover, linear compensatory aggregation is the most common method used in the creation of composite indicators (Gan et al. 2017).

4. RESULTS

The results of the quality of money index are presented in figure 1 below. The quality of money index suggests that over the period of the euro’s existence the quality of money overall has declined by 55 points (on a scale of 0 to 100), from 73 in December 1999 to 18 in August 2019. The rate of decline on average is 0.22 points per month, or 2.7 points per year.

Figure 1. Quality of money index



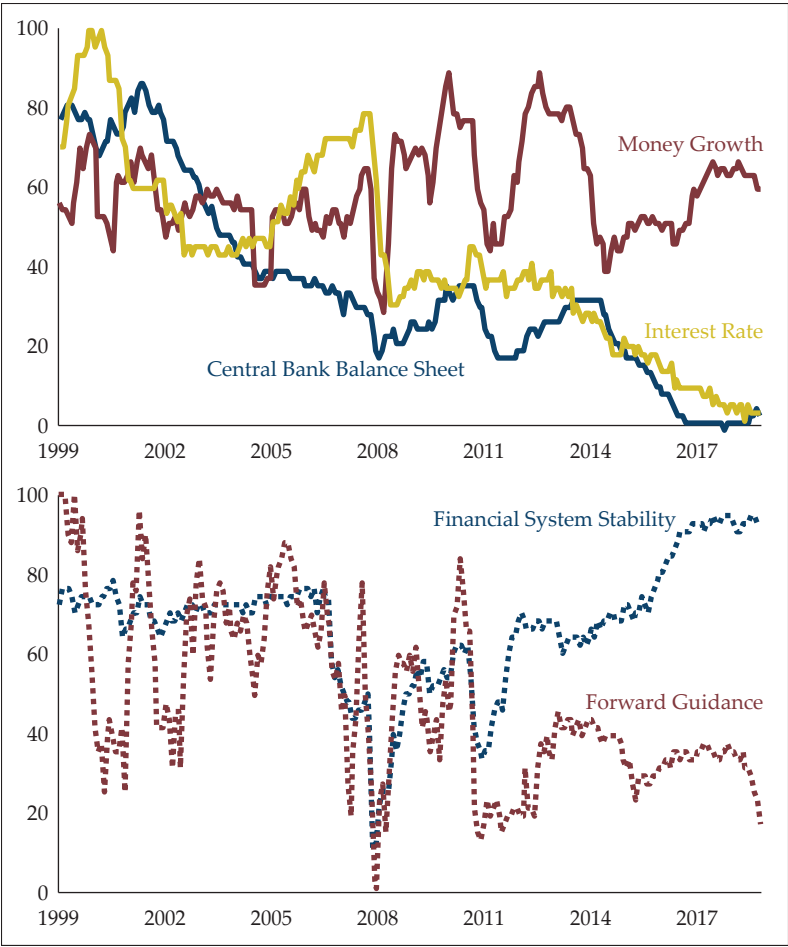
Scale: 0 to 100.

We can distinguish four periods for the euro in the quality of money index. The dynamics of the quality of money were different during each of these periods, and they represent distinctive economic conditions and ECB policy environments.

The first period, from 1999 to mid-2005, marks the initial decline in the quality of money in the eurozone. The two most important drivers of the decline were the ECB's balance sheet and interest rate policy (see Figure 2 below for the dynamics of each dimension). The quality of the balance sheet declined quite significantly during this period due to a decline in liquidity. The monetary base was growing faster than the value of gold or gold receivables, and the value of reserve assets in general was falling. Moreover, there was a drop in the value of foreign reserves and a decline in the central bank's equity ratio. In general, the ECB's balance sheet during this period became less liquid, and it had less foreign reserves and equity as a ratio to total assets. During the first period the ECB also significantly reduced the interest rate. The MRO rate was reduced from 4.75 in 2000 to 2 percent in 2003. The interest rate also fell below the one suggested by the Taylor rule after September 2001.

The second period lasted from about mid-2005 to mid-2008. The quality of money during this period stopped declining and stayed relatively stable. The quality of the balance sheet was still declining, but it was offset by the increased interest rates—the ECB had been transitioning out of the stimulating monetary policy and had gradually increased the MRO rate to 4.25 percent in 2008.

Figure 2. Dimension of the quality of money index



The third period, from mid-2008 to early 2013, was one of financial and economic turmoil. This period saw two very significant drops in the quality of money. The first one lasted from the second half of 2008 to the first half of 2009. There were many factors that contributed to this drop.

Firstly, the financial system’s stability declined rapidly. Financial turmoil spread to the real economy, which halted economic growth

and induced the ECB to try to save the financial sector and prop up the economy by rapidly reducing the interest rates to a new record low of 1 percent. It quickly increased the growth of the money supply, and this increased expectations in the market that the central bank would continue with the inflationary monetary policy.

After the first half of 2009, the economic and financial situation in the eurozone somewhat stabilized, and the drop in the quality of money was partially offset by the increase in financial stability and reduced growth in the money supply. However, the situation worsened very quickly again in the second half of 2011, when financial markets started panicking again due to the sovereign debt crisis in some of the euro countries, primarily Greece. The stability of the financial system rapidly declined again, and the bond yields of weak euro member governments soared. This was the catalyst for ECB president Mario Draghi's famous speech in which he said that "[w]ithin our mandate, the ECB is ready to do whatever it takes to preserve the euro." The ECB again lowered the interest rate, increased the money supply, and started conducting quantitative easing and forward guidance. This caused the quality of the balance sheet to decline, since the new policies reduced the liquidity, reserves, and equity of the ECB. All this contributed to the significant drop in the quality of money during this period. After these measures, the stability of the financial system increased again and somewhat reversed the drop in the quality of money.

The last period started around 2013 and lasted at least until the end of 2019. During this period, the ECB continued conducting the policies of quantitative easing and forward guidance. The interest rates were reduced further until they reached 0 percent in 2016. The growth of money supply again increased and was especially high in 2013 and 2014. Quantitative easing led to the vast expansion of the central bank's balance sheet and of the excess reserves of the commercial banks at the ECB. The ECB's communications focused on forward guidance, assuring market participants of accommodative monetary policy in the future. All these measures convinced financial markets that the troubles are behind them, and different measures showed the gradual stabilization of the financial system. Throughout this period the quality of money declined, and financial system stability is the only dimension of the index that increased. This suggests that the policies enacted by the ECB were successful

in stabilizing the financial system, but these policies caused a significant decline in the quality of money in the eurozone.

Below the limitations of the quality of money index and the importance of the quality of money—as a theoretical notion and a measurement—will be discussed briefly.

5. DISCUSSION AND LIMITATIONS

As mentioned previously, the framework of quality of money is based on the subjective value theory. Money as a good is valued to the extent that it fulfils the needs of market participants. In particular, money is valued when it has the properties of being a medium of exchange, a store of value, and a unit of account. However, these properties, which ones are most important, and how a particular money fulfils them are subjective value judgments. Therefore, attempts to chart the compositions of these properties cannot be thorough and objective by definition. They in themselves will be bound up in value judgments, which may be different from those of market participants. Moreover, the methodology (normalization, weighting, aggregation) of the creation of a composite index in itself requires the researcher to make subjective decisions.

Not all the dimensions that may be important to the quality of money can be easily quantified; e.g., the scholarship identifies the organization of monetary authority (the central bank's independence, its accountability and transparency, its constitution, and its decision-makers) as one of the dimensions that is important. However, there are no quantifiable indicators to measure it. These questions are especially laden with subjective judgments. This suggests that some of the identified dimensions of the quality of money are more quantifiable than others.

Nevertheless, the composite indicator of quality of money allowed the significant decrease in the quality of the euro since its introduction to be captured. Thus, changes in the quality of money may be an important factor in the changes in the demand for money. In theory, given all the other factors (interest rate, income, prices, etc.) in the demand for money, the preference of market participants to hold money balances may change due to fluctuating quality of money. Empirical measurement has shown that changes

in the quality of money over a year may be quite significant. Why is this important?

Quality of money is one more factor which needs to be incorporated into the analysis of the demand for money. This factor is quite different from the ones already accounted for in theories about the demand for money, particularly the quantity theory of money. A qualitative theory of the value of money allows the subjective judgments of market participants to be weighted. This means that the changes in the perception of value—and thus the demand for money—can be a lot more abrupt and extensive in comparison to the results of the quantitative theory of money, in which demand for money depends on more stable factors (quantity of money, level of output, etc.).

Moreover, the notions of quality of money and demand for money are intricately linked to prices. Price level is the result of the intersection of the demand for money balances and money supply. Shifts in the supply of money, as well as demand for money, result in changes in the price level. Thus, changes in the quality of money as one of the factors of money demand may cause changes in the price level. More particularly, if decreasing quality of money reduces the demand for money, the price level increases.

The application of the quality of money index to the eurozone, and the analysis of the index's dynamics alongside the policies of the ECB, showed that the economic and financial problems of the eurozone led the monetary authority to make decisions and enact policies which led to the deterioration of the euro's quality. Monetary policy became more inflationary. The quality of money was sacrificed in order to prop up the economy and save banks and other financial institutions.

The decreasing quality of the euro is in line with the theoretical reasoning suggested by Žukauskas and Hülsmann (2019). They claim that the quantity theory of money cannot explain why prices in the financial sector grow faster relative to prices in the nonfinancial sector and suggest a novel explanation of how monetary policy influences the prices of financial assets relative to nonfinancial assets that is based on the quality of money. A decline in the quality of money decreases the demand for money, with market participants shifting to financial assets as an alternative form of holding wealth, resulting in the increased price of financial assets.

Lastly, if quality of money, which depends on monetary policy and the overall functioning of the monetary system, is a factor in money demand, then quality of money is one of the transmission mechanisms for monetary policy. The actions of central banks influence the quality of money, which in turns affects the money demand. According to this framework, then, monetary policy not only influences the economy by changing the supply of money, but also by affecting the demand for money. Demand for money becomes (at least partly) an endogenous variable in the monetary policy.

CONCLUSIONS

This article suggests that the quality of money is a concept that offers new insights on how monetary policy may influence not only the supply of money, but also the demand for it. It offers an empirical measurement of the quality of money index here applied to the euro area. The index suggests that the quality of the euro has fallen significantly since its introduction in 1999. To the extent that the demand for money subjectively depends on the quality of money, this fall has been significant enough to influence the price level in general and prices in particular (e.g., financial asset prices).

It is important to incorporate the quality of money into the analysis of the demand for money. Moreover, since central banks influence the quality of money, it is vital to treat it as one of the channels for the transmission of monetary policy. Central banks, their institutional frameworks, and their policy decisions impact the quality of money, which in turns affects the demand for money, the price level, and other variables in the economy.

REFERENCES

- Bagus, Philip. 2009. "The Quality of Money." *Quarterly Journal of Austrian Economics* 12 no. 4: 22–45.
- . 2015. "The Quality of Monetary Regimes." In *The Next Generation of Austrian Economics: Essays in Honor of Joseph T. Salerno*, edited by Per Bylund and David Howden, 19–35). Auburn, Ala.: Mises Institute.
- Bagus, Philip, and David Howden. 2016. "Central Bank Balance Sheet Analysis." *Betriebswirtschaftliche Forschung und Praxis* 2, no. 68: 109–25.

- Bauer, Michael, and Glenn D. Rudebusch. Forthcoming. "The Signaling Channel for Federal Reserve Bond Purchases." *International Journal of Central Banking*.
- Bernanke, Ben S., and Mark Gertler. 1995. "Inside the Black Box: The Credit Channel of Monetary Policy Transmission." *Journal of Economic Perspectives* 9, no. 4: 27–48.
- Bernanke, Ben S., and Vincent R. Reinhart. 2004. "Conducting Monetary Policy at Very Low Short-Term Interest Rates." *American Economic Review* 94, no. 2: 85–90.
- Booyesen, Frederik. 2002. "An Overview and Evaluation of Composite Indices of Development." *Social Indicators Research* 59, no. (2), 115–51.
- Bouyssou, Denis. 1986. "Some Remarks on the Notion of Compensation in MCDM." *European Journal of Operational Research* 26, no. 1: 150–60.
- Campbell, Jeffrey R., Charles L. Evans, Jonas D. M. Fisher, Alejandro Justiniano. 2012. "Macroeconomic Effects of Federal Reserve Forward Guidance [with Comments and Discussion]." *Brookings Papers on Economic Activity*, 1–80.
- Competence Centre on Composite Indicators and Scoreboards. 2020. "10 Step Guide," last modified June 17, 2020. <https://composite-indicators.jrc.ec.europa.eu/?q=10-step-guide>.
- Decancq, Koen, and María Ana Lugo. 2013. "Weights in Multidimensional Indices of Wellbeing: An Overview." In "Robustness in Multidimensional Wellbeing Analysis." Special issue, *Econometric Reviews* 32, no. 1: 7–34.
- Fisher, Irving. 1911. *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest, and Crises*. New York: Macmillan.
- Friedman, Milton. 1956. "The Quantity Theory of Money: A Restatement." In *Studies in Quantity Theory of Money*, edited by Milton Friedman. Chicago: University of Chicago Press: 94–111.
- Gagnon, Joseph, Matthew Raskin, Julie Remache, and Brian Sack. 2011. "The Financial Market Effects of The Federal Reserve's Large-Scale Asset Purchases." *International Journal of Central Banking* 7, no. 1: 3–43.
- Gan, Xiaoyu, Ignacio C. Fernandez, Jie Guo, Maxwell Wilson, Yuanyuan Zhao, Bingbing Zhou, Jianguo Wu. 2017. "When to Use What: Methods for Weighting and Aggregating Sustainability Indicators." *Ecological Indicators* 81: 491–502. <https://doi.org/10.1016/j.ecolind.2017.05.068>.

- Garriga, Ana Carolina. 2016. "Central Bank Independence in the World: A New Data Set." *International Interactions* 42, no. 5: 849–68.
- Goldfeld, Stephen M. 1994. "Demand for Money: Empirical Studies." In P. Newman, M. Milgate, & J. Eatwell (Eds.), *New Palgrave Dictionary of Money and Finance*, edited by Peter Newman, Murray Milgate, and John Eatwell. London: Macmillan Press.
- Greco, Salvatore, Alessio Ishizaka, Menelaos Tasiou, and Gianpiero Torrisi. 2019. "On the Methodological Framework of Composite Indices: A Review of the Issues of Weighting, Aggregation, and Robustness." *Social Indicators Research* 141, no. 1: 61–94. <https://doi.org/10.1007/s11205-017-1832-9>.
- Hendershott, Patric H. 1969. "A Quality Theory of Money." *Nebraska Journal of Economics and Business* 8, no. 4: 28–37.
- Holló, Dániel, Manfred Kremer, and Marco Lo Duca. 2012. "CISS - a Composite Indicator of Systemic Stress in the Financial System." ECB Working Paper Series No. 1426, European Central Bank, Frankfurt am Main, Germany, March.
- Horwitz, Steven. 1990. "A Subjectivist Approach to the Demand for Money." *Journal des économistes et des études humaines* 1, no. 4: 459–72.
- Hubert, Paul, and Fabien Labondance. 2018. "The Effect of ECB Forward Guidance on the Term Structure of Interest Rates." *International Journal of Central Banking* 14, no. 5: 193–222.
- Hutt, W. H. (1956) 2008. The yield from money held. In M. Sennholz (Ed.), *On Freedom and Free Enterprise: Essays in Honor of Ludwig von Mises*, edited by Mary Sennholz, 196–216. Auburn, Ala.: Ludwig von Mises Institute.
- Yeager, Leland B. (1956) 1997. "A Cash-Balance Interpretation of Depression." In *The Fluttering Veil: Essays on Monetary Disequilibrium*, edited by George Selgin, 3–18. Indianapolis, Ind.: Liberty Fund.
- Jevons, W. Stanley. [1875] 1876. *Money and the Mechanism of Exchange*. 3rd ed. New York: D. Appleton.
- Keynes, John Maynard. 1936. *The General Theory of Employment, Interest and Money*. London: Macmillan.
- Kuttner, Kenneth N. 2018. "Outside the Box. Unconventional Monetary Policy in the Great Recession and Beyond." *Journal of Economic Perspectives* 32, no. 4: 121–46.

- Laidler, D. E. W. 1971. The Influence of Money on Economic Activity: A Survey of Some Current Problems. In *Monetary Theory and Monetary Policy in the 1970s*, edited by G. Clayton, J. Gilbert, and R. Sidgewick (eds.). Oxford: Oxford University Press.
- . 1982. *Monetarist Perspectives*. Oxford: Philip Allan Publishers.
- Machaj, Mateusz. 2014. The Taylor Rule Won't Save Us. *Mises Daily*, Sept. 17, 2014. <https://mises.org/library/taylor-rule-won%E2%80%99t-save-us>.
- . 2016. "Can the Taylor Rule Be a Good Guidance for Policy? The Case of 2001–2008 Real Estate Bubble." *Prague Economic Papers* 25, no. 4: 381–95.
- Mariana, Juan de. (1609) 1994. *De monetae mutatione*. Edited by Josef Falzberger. Heidelberg, Germany: Manutius Verlag.
- Masciandaro, Donato, and Davide Romelli. 2019. "Peaks and Troughs: Economics and Political Economy of Central Bank Independence Cycles." In *The Oxford Handbook of the Economics of Central Banking*, edited by David G. Mayes, Pierre L. Siklos, and Jan-Egbert Sturm. Oxford: Oxford University Press.
- Menger, Carl. (1871) 2007. *Principles of Economics*. Translated by James Dingwall and Bert F. Hoselitz. Auburn, Ala.: Ludwig von Mises Institute.
- Mill, John Stuart. (1848) 1909. *Principles of Political Economy with Some of their Applications to Social Philosophy*. 10th ed. Edited by W. J. Ashley. London: Longmans, Green.
- Mises, Ludwig von. (1934) 1980. *The Theory of Money and Credit*. Translated by H. E. Batson. Edited by Bettina Bien Greaves. Indianapolis, Ind.: Liberty Fund.
- . (1949) 1998. *Human Action: A Treatise on Economics*. Scholar's ed. Auburn, Ala.: Ludwig von Mises Institute.
- Mishkin, Frederic S. 1995. "Symposium on the Monetary Transmission Mechanism." *Journal of Economic Perspectives* 9, no. 4: 3–10.
- Modigliani, Franco. 1944. "Liquidity Preference and the Theory of Interest and Money." *Econometrica* 12, no. 1: 45–88. <https://doi.org/10.2307/1905567>.
- Munda, Giuseppe. 2005. "Multiple Criteria Decision Analysis and Sustainable Development." In *Multiple Criteria Decision Analysis: State*

of the Art Surveys, edited by José Figueira, Salvatore Greco, Matthias Ehrgott, 953–86. New York: Springer.

OECD and JRC. 2008. *Handbook on Constructing Composite Indicators: Methodology and User Guide*. Paris: OECD Publishing.

[Petty, William]. 1662. *A Treatise Of Taxes and Contributions*. London: N. Brooke.

Röpke, Wilhelm. 1954. *Die Lehre von der Wirtschaft*. 7th ed. Erlenbach, Switzerland: Eugen Rentsch.

Rothbard, Murray N. (1962, 1970) 2009. *Man, Economy, and State with Power and Market*. 2d scholar's ed. Auburn, Ala.: Ludwig von Mises Institute.

Say, Jean-Baptiste. (1803) 1843. *A Treatise on Political Economy: Or the Production, Distribution, and Consumption of Wealth*. New American ed. Translated by C. R. Prinsep. Philadelphia: Grigg and Elliot.

Sengupta, Rajdeep, and Yu Man Tam. 2008. "The LIBOR-OIS Spread as a Summary Indicator." *Monetary Trends*, November 2008.

Senior, Nassau William. (1850) 1854. *Political Economy*. 3d ed. London: Richard Griffin.

Serletis, Apostolos. 2007. *The Demand for Money: Theoretical and Empirical Approaches*. 2d ed. N.p.: Springer Science+Business Media.

Smith, Adam. (1776) 1863. *An Inquiry into the Nature and Causes of the Wealth of Nations*. New ed. Edinburgh: Adam and Charles Black.

Taylor, John B. 1993. "Discretion versus Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy* 39: 195–214. North-Holland.

———. 1995. "The Monetary Transmission Mechanism: An Empirical Framework." *Journal of Economic Perspectives* 9, no. 4: 11–26.

Tobin, J. 1958. "Liquidity Preference as Behavior Towards Risk." *Review of Economic Studies* 25, no. 2: 65–86. <https://doi.org/10.2307/2296205>.

Zhou, P., B. W. Ang, and K. L. Poh. 2007. "A Mathematical Programming Approach to Constructing Composite Indicators." *Ecological Economics* 62, no. 2: 291–97.

Žukauskas, Vytautas, and Jörg Guido Hülsmann. 2019. "Financial Asset Valuations: The Total Demand Approach." *Quarterly Review of Economics and Finance* 72: 123–31. <https://doi.org/10.1016/j.qref.2018.11.004>.

APPENDIX

NORMALIZATION

In cases where an indicator's higher values represent higher values in the index,

$$I_a^t = \frac{x_a^t - \min(x_a)}{\max(x_a) - \min(x_a)} * 100$$

Also, in cases where an indicator's higher values represent higher values in the index,

$$I_a^t = \frac{\max(x_a) - x_a^t}{\max(x_a) - \min(x_a)} * 100, \text{ where:}$$

I_a^t is the transformed value of an indicator (a) at time t ,

x_a^t is the data point of an indicator (a) at time t ,

$\min(x_a)$ is the minimum of all data points of an indicator (a), and

$\max(x_a)$ is the maximum of all data points of an indicator.

WEIGHTING

Weighting of dimensions (subindices)

The composite index of quality of money contains five subindices, which each contain a varying number of indicators. The weight of each subindex is decided through the regression analysis of the particular subindex and the composite index. The deciding factor is the subindex's coefficients of determination (R^2) of single-variate regressions. The aim is for the coefficients of determination of each subindex to be as close as possible to each other, which means that the proportion of predictable variance in the dependent variable (composite index) due to each independent variable (subindex) should be more or less equal and not dominated by any one subindex. The procedure starts with equal weighting of all the subindices, and the weights of the subindices with the lowest coefficients of determination are increased (at the expense of subindices with high coefficients of determination) until the level of the highest possible equality is reached. There are several restrictions to this procedure. First, for reasons of simplicity and aesthetics, the increment of

adjustment (up and down) is 5 percentage points. Second, each subindex should have a weight of no less than 5 percent. This is for theoretical integrity, to maintain at least minimum representation of each factor (subindex) in the composite index. Thirdly, no subindex should have a weight of more than 35 percent (roughly one-third). This is to avoid the overrepresentation of a subindex.

Weighting of individual indicators

The weighting of indicators in the subindices corresponds to the weights of the subindices, which are decided in the first step. Therefore, the general rule is that the weights of the indicators in a dimension are equal to the weight of the subindex divided by the number of indicators in it. There are two rules according to which the weights of individual indicators can be adjusted to reflect the indicators more accurately.

- Some subindices have several groups of indicators, which refer to different topics or types of indicators/measurements. For example, the central bank balance sheet subindex contains for liquidity, international strength, and equity position subtopics. The first rule is that for a certain subtopic, all indicators in a subtopic are weighted equally despite the number of indicators (which means that different indicators may have different weights in the subindex depending on the number of them in the topic).
- The second rule for weighting the individual indicators in a subtopic is based on the correlation analysis. When indicators have a high and statistically significant correlation (judged by Pearson's coefficient of correlation, which is higher than 0.6), they are treated as one indicator (their weights are reduced to jointly equal the weight of other indicators).

Table 2 shows the results of the first step, which used the linear regression analysis to establish the weights of dimensions. After the adjustment, the coefficients of determination are not equal, but they are more balanced than in the case of equal weighting.

THE UNLIKELY STORY OF AMERICAN REGULATORY SOCIALISM

JAMES BROUGHEL*

JEL CLASSIFICATION: B14, D61, D71, I31, K23, L51

ABSTRACT: The conventional wisdom has it that US Democrats and those on the American left support incremental steps in the direction of socialism, if not an all-out endorsement of the concept. However, in at least one area—regulation—Republicans and the American political right have also, albeit unwittingly, spread the seeds of socialism not just in Washington, DC, but all across the world. This article reviews the history of federal regulation in the United States, and in particular the arcane, technical history of cost-benefit analysis (CBA), a tool that has become increasingly central in battles over regulation between the Left and the Right. Although right-wing political operatives latched on to CBA in the late 1970s and early 1980s, the tool has a long, complicated history, aspects of which could even be called socialist in nature.

INTRODUCTION

The conventional wisdom has it that US Democrats and those on the American left endorse a powerful central government, are skeptical of business, and, perhaps now more than ever, support incremental steps in the direction of socialism, if not an

*James Broughel (jbroughel@mercatus.gmu.edu) is a senior research fellow at the Mercatus Center at George Mason University and an adjunct professor of law at the Antonin Scalia Law School. The author is grateful to Kyle Precourt and an anonymous reviewer for helpful suggestions and comments.



all-out endorsement of the concept. But this conventional wisdom is misleading in the sense that the American political right and Republicans have also, albeit unwittingly, spread the seeds of socialism not just in Washington, DC, but all across the world. In at least one area—regulation—this unlikely turn of events seems to be precisely what has happened.

To understand why, one must review the history of federal regulation in the United States, and in particular the arcane, technical history of cost-benefit analysis (CBA), a tool that has become increasingly central in battles over regulation between the Left and the Right.¹ CBA's origins are in the United States, and although initially controversial, the tool came to be a widely accepted part of regulatory analysis, eventually adopted by European Union member states and countries all over the globe (Lianos, Fazekas, and Karliuk 2016).²

CBA was primarily advanced in the US federal government by the political right. Although the tool's roots in federal policy trace back as far as the 1930s, including early use by the Army Corps of Engineers (Tozzi 2011), CBA's place in government wasn't cemented until the 1980s and the Reagan Revolution. In one of his first acts as president, Ronald Reagan signed executive order 12291, which required that executive branch regulatory agencies prepare a cost-benefit analysis for their major regulations.³ The order also required that rules and their accompanying analysis undergo a review process overseen by the Office of Information and Regulatory Affairs (OIRA), which had recently been set up to manage paperwork burdens across the government.

¹ Throughout this article, I will generalize somewhat with respect to what constitutes a "left-wing" and a "right-wing" perspective. The political orientations of the economists and legal scholars discussed here are not monolithic. However, it is the belief of this author that dividing groups in this way helps to clarify some of the developments that have transpired over the past century with respect to cost-benefit analysis.

² According to Jacobs, Cordova and Associates, a consulting firm that specializes in regulatory impact analysis, over sixty countries have adopted regulatory impact analysis as a mandatory step in developing new laws. Cost-benefit analysis is a standard part of regulatory impact analysis. See "RIA Resources and News," Jacobs, Cordova & Associates, accessed October 11, 2020, <http://regulatoryreform.com/ria-community/>.

³ Exec. Order No. 12291, 46 Fed. Reg. 13193 (Feb. 17, 1981).

Reagan's executive order stirred controversy at first. Some on the left viewed it as a radical step aimed at deregulation.⁴ Many Democrats wanted the order repealed and OIRA review of regulations suspended. To them, cost-benefit analysis interfered with the discretion of publicly interested regulatory agencies, and OIRA unduly politicized rulemaking by acting as an access point for special interests and political interference from the president. Moreover, those who had pushed hardest for CBA in the late 1970s and early 1980s had come largely from the political right. In particular, the so-called law and economics movement, which consisted of many free-market leaning economists and legal scholars, promoted CBA for its ability to make policy more evidence based and efficient.⁵

However, when a Democrat, Bill Clinton, was eventually elected to the presidency more than a decade after 12291 was signed, he responded in a somewhat unexpected way. Although Clinton did repeal executive order 12291, he replaced it with an order of his own that left intact the core elements of Reagan's order.⁶ Cost-benefit analysis would still be required for the most significant federal regulations, and OIRA review would continue. Minor modifications were made beyond this, but they paled in comparison to the broader shifts in the federal administrative apparatus that Reagan's order helped usher in and which Clinton's order reaffirmed.

Despite this development, many on the left continued to resist the cost-benefit state, even while the analytical tool became institutionalized in American government and even started to be adopted by the fifty states and by other countries. Those on the left were critical, for example, of the CBA practice of assigning dollar values to societal benefits, most notably the practice of putting a dollar value on a human life or on aspects of the environment (Heinzerling and Ackerman 2002). They were also skeptical of discounting, a practice that seemed to treat benefits and costs, including human lives, as akin to money that can be invested in an account and earn interest.

⁴ Many still oppose OIRA review of regulations in its current form. See, for example, James Goodwin, "The Progressive Case against OIRA," Center for Progressive Reform, Accessed October 11, 2020, <https://progressivereform.org/our-work/regulatory-policy/progressive-case-against-oira/>. See, also, Steinzor (2012).

⁵ For a history and review of the law and economics perspective, see Graham (2008).

⁶ Exec. Order No. 12866, 58 Fed. Reg. 190 (1993).

Those on the left who opposed CBA lost these battles over discounting and the value of life, in academic debates as well as in policy settings, as these are now standard parts of cost-benefit analysis. Although the exact discount rate to use in analysis remains controversial, and there are still those scholars who argue that life is priceless or that its value is at least significantly higher than most current estimates used in CBA (Friedman 2020), by the time the Obama administration came into power in the late 2000s, many on the left had moved on from these early controversies, which largely centered around the ethics of cost-benefit analysis.

Instead, left-wing academics began to argue that the American left should embrace cost-benefit analysis, especially by emphasizing the benefits that regulations can bestow upon the public (Revesz and Livermore 2011). The Obama administration harnessed CBA to promote its aggressive regulatory program in a way that previous Democratic presidents had resisted. Harvard law professor and Obama OIRA administrator Cass Sunstein went so far as to dub Obama “the cost-benefit president.”⁷

By contrast, in recent years, some see former President Trump as having downplayed the significance of CBA, in stark contrast with the Obama years.⁸ The Trump administration even developed an entirely new scheme of regulatory accounting that emphasizes financial costs and cost savings, downplaying nonmarket benefits such as those environmental outcomes so cherished by the Obama administration (Sunstein 2020). In short, roles have reversed in recent years, with the American left emerging as the newest champions of CBA.

⁷ See “Farewell to the Chief: Our Columnists Assess Obama’s Presidency.” Bloomberg, Jan. 10, 2017, <https://www.bloomberg.com/opinion/articles/2017-01-10/farewell-to-the-chief-our-columnists-assess-obama-s-presidency>

⁸ For example, Professor Stuart Shapiro has claimed the Trump administration is waging a “war on analysis,” which has “spread to portions of the Republican establishment that have historically been among the advocates for an analytical approach to policy.” See Stuart Shapiro, “Trump Still Ignoring Facts, but Numbers Don’t Lie,” *The Hill*, Aug. 1, 2017, <https://thehill.com/blogs/pundits-blog/the-administration/344798-tell-trump-numbers-dont-lie-how-the-president-ignores>. See, also, Stuart Shapiro, “The War on Analysis under the Trump Administration,” *The Hill*, Aug. 13, 2019. Available at: <https://thehill.com/blogs/pundits-blog/the-administration/344798-tell-trump-numbers-dont-lie-how-the-president-ignores>.

THE DICTATORIAL ORIGINS OF COST-BENEFIT ANALYSIS

Nothing about the Left's eventual shift toward embracing cost-benefit analysis, nor the Right's eventual retreat from it, should be surprising. CBA's academic origins trace back long before right-wing political operatives latched on to the tool in the late 1970s and early 1980s. Aspects of these academic origins could even be called socialist in nature.

As discussed above, crude versions of CBA were used in the federal government as far back as the 1930s. However, CBA's academic foundations had yet to be fully developed at that point, making those early years a kind of analytical Wild West. That began to change around the middle of the twentieth century. One critical moment in CBA's history came in 1950, with the publication of the article "A Difficulty in the Concept of Social Welfare," which was written by a young, up-and-coming economist by the name of Kenneth Arrow (1950). Economists at that time were trying to answer a simple question: What should policy aim to do? Arrow, in a now famous article, was looking for a "social welfare function." He sought a decision rule that could be applied consistently to a broad range of social problems—a logical framework from which one could rank policies (or any other outcomes, for that matter) to determine which best promote societal well-being.

Arrow set certain ground rules in his endeavor. For example, he wanted the decision rule to be based on the preferences of the members of the community being governed (as opposed to being imposed arbitrarily). After establishing a further set of seemingly reasonable restrictions for the social welfare function, he reached the surprising conclusion that the only rule satisfying his criteria is to have the same person in society always decide for everyone. Any other attempts to turn individual preferences into a group decision-making formula will at some point lead to paradoxes, contradictions, or anomalies.

Yet Arrow was clever about how he structured his argument. Rather than prove that the only rational form of collective decision-making is to anoint a dictator, he proactively ruled out that possibility in the assumptions of his theorem. So, what might have been called a "dictatorship theorem" came instead to be known as

an “impossibility theorem,” on the grounds that it seemed to prove that generating a consistent, rational, and broadly applicable social welfare function from the ordinal preferences of the individuals comprising society is impossible.

Right-wing economists in particular interpreted the impossibility theorem as generally ruling out a social welfare function as the normative basis for CBA. Instead, they focused on a simpler welfare measure: economic efficiency. To paraphrase this line of thinking, social welfare is simply too nebulous, too difficult to measure, and too riddled with subjective value judgments. These right-leaning economists latched on to a notion of efficiency that had first been proposed in the late 1930s, known as Kaldor-Hicks efficiency. According to the Kaldor-Hicks criterion, a policy increases efficiency if those who benefit from the policy gain by enough to compensate the people who lose. In theory, everyone could be made at least as well off as (or better than) they were before the policy. The critical catch, however, is that the compensation need not actually happen. Thus, this “potential compensation test” makes no guarantee that a policy will increase present citizens’ welfare—only that it will increase aggregate wealth.

To those on the right, focusing on wealth seemed the most scientific way forward, by stripping out most value judgments from the analysis. But this was not the lesson that Arrow himself took from his own work. He was critical of the potential compensation test and of Kaldor-Hicks efficiency for failing to satisfy all of his criteria about what constitutes a rational decision rule (Arrow 1951, 1963).⁹

Arrow never said that constructing a social welfare function is impossible. On the contrary, Arrow based CBA on a mathematical social welfare function. Sometimes he used another name for it, such as a “criterion function” (Arrow and Kurz 1970), or a resource allocation problem that a “social planner” is tasked with solving for society (Arrow et al. 2014). But it was a social welfare function nonetheless. The specific equation he supported for this purpose was (perhaps not surprisingly given his theorem) a single individual’s utility function—an individual who looks a lot like a dictator.

Now few, if any, proponents of Arrow equate their support of his ideas with support for actual dictatorship. The “dictator” in question

⁹ A famous reason why can be found in Scitovszky (1941).

is a benevolent figure whose aim is maximizing the well-being of the members of the community he is charged with planning. In fact, sometimes the dictator is simply viewed as representing the collective welfare of the present generation of citizens. Moreover, the benevolent dictator's well-being increases by making the members of the community better off according to their own values (as measured by their willingness to pay for or accept various benefits and costs).

Still, "dictator" was Arrow's word, and he spent much of his career working out the intricacies of the dictator's welfare function, including detailing the resource allocation problem that the dictator is tasked with solving (Arrow and Debreu 1954). It paid off, too: Arrow won the Nobel Prize in economics in 1972, and the social welfare function he endorsed forms the normative foundation for CBA for many economists on the American left.¹⁰

TWO FRAMEWORKS, ONLY ONE OF WHICH IS COHERENT

It should be clear at this point that there is no consensus among economists as to what CBA measures (Broughel 2019). This is a point that economists choose not to advertise too often, but it is a fact nonetheless. On one side, there are those predominantly left-wing economists such as Arrow who want CBA to evaluate some measure of social welfare. For whatever reason, these economists tend to be highly mathematical, viewing the economy as essentially an engineering problem that requires solving.¹¹ On the other side there are those, often right-wing and, as it happens, often less mathematically inclined economists and law professors associated with the law and economics movement, who want CBA focused on efficiency and wealth maximization.

¹⁰ For a theoretical description of what this article refers to as the "left-wing" approach to cost-benefit analysis, see Drèze and Stern (1987).

¹¹ Tjalling Koopmans, a colleague of Arrow's at the Cowles Commission, was another important person in this movement. Koopmans codeveloped an economic growth model centered around the same social welfare function that came to underlie cost-benefit analysis. In this way, the left-wing approach to CBA has a connection to economic growth theory that is generally missing from the right-wing, or law and economics, perspective.

Confusing matters further is that if CBA is to measure economic efficiency, there are actually two kinds that economists are concerned with. One refers to an equilibrium situation whereby no one can be made better off without making someone else worse off. This concept, known as Pareto efficiency after the Italian economist Vilfredo Pareto, is well accepted in economics, irrespective of economists' political orientation. However, it is not very useful; there are a nearly infinite number of Pareto-efficient outcomes. How do policymakers know which one to strive for?

The second form of efficiency, alluded to already, emerged in the late 1930s and early 1940s based on the work of economists Nicholas Kaldor and John Hicks (Kaldor 1939; Hicks 1939). Efficiency in this sense refers to maximizing the dollar value of society's scarce resources. Wealth in the Kaldor-Hicks context includes just about anything people are willing to pay for. Thus, it accounts for benefits to human health and the environment, not just goods and services traded in markets.

An important difference between the two forms of efficiency is how they deal with issues of wealth redistribution. Pareto efficiency can be achieved in a competitive market even after substantial redistribution occurs, as the "second fundamental theorem of welfare economics" proves. Many left-leaning economists, including Arrow, see value in Pareto efficiency and incorporate it into their theoretical framework.¹² Indeed, if a market is more or less competitive, nearly any policy can be expected to produce an efficient result in the Pareto sense; the resulting market equilibrium after people adjust their behavior will eventually be a Pareto-efficient one.

By contrast, the Kaldor-Hicks wealth-maximizing form of efficiency will often show that redistribution destroys some of society's overall wealth and is therefore inefficient. That is because in the process of redistributing, some wealth is typically lost, leading to a reduction in society's total. By and large, left-leaning economists such as Arrow tend to be skeptical of Kaldor-Hicks efficiency, in large part due to its utter indifference to the distribution of wealth. Right-leaning economists tend to view this indifference as a feature and not a bug, either because they tend to see issues of equity and

¹² As evidence, Arrow incorporated a Pareto criterion into his impossibility theorem.

distribution as unscientific, or simply because they view equity as something that should be considered separately from efficiency.¹³

This rather unusual state of affairs, whereby left-wing economists base CBA on a benevolent dictator's welfare function, and right-wing economists base CBA on Kaldor-Hicks efficiency and the potential compensation test, is essentially where things have stood for the better part of four decades. In a way, this was a serendipitous outcome. Somehow, despite not even agreeing on what CBA measures, economists settled on two analytical approaches that more or less align in their conclusions in most instances. This is a stunning result. Why not be happy, even grateful, for the current equilibrium?

The problem, in a nutshell, is that the efficiency perspective promoted largely by right-wing academics from the law and economics movement is incoherent. It is true, the two approaches frequently produce similar results, but neither approach actually satisfies the right-wing's policy objectives because neither approach measures Kaldor-Hicks efficiency. Right-wing economists are calling something efficiency that does not meet the definition of efficiency.

If CBA is to measure Kaldor-Hicks efficiency, then it must evaluate wealth in the aggregate, irrespective of its distribution. Specifically, "it treats a dollar as worth the same to everyone" (Posner 2000, 1154). However, modern cost-benefit analysis is not indifferent to distribution in this way.

The reason relates to the social discount rate mentioned earlier: a weight applied to lives and other benefits in the future to determine their present value. Right-wing economists tend to use the discount rate to account for the "opportunity cost of capital"—similar to how a banker uses a discount rate to account for the forgone rate of return cash would earn if left in an account instead of being spent.¹⁴

¹³ One example of this view comes from Posner (2000, 1154–55), which states: "it is possible to set distributive considerations to one side and use the Kaldor-Hicks approach with a good conscience." This is not meant to imply distributive considerations are unimportant, but rather "that distributive justice can be shown to be the proper business of some other branch of government or policy instrument (for example, redistributive taxation and spending)."

¹⁴ The right-wing approach to discounting is known as the "social opportunity cost" approach in the economics literature. The left-wing approach is known as the "social time preference" approach. In general, the right-wing method recommends higher

It turns out that the right-wing approach to discounting is wrong. CBA is more complicated than ordinary cash flow analysis due to its inclusion of nonmonetary benefits and costs, such as health or lives saved, which do not sit in investment or bank accounts like cash does. In CBA, a discount rate can only be used to account for the opportunity cost of capital under very specific conditions, which don't, as a general matter, hold. (These conditions include specific scenarios such as when all policy benefits are "just like cash" in that they can all be reinvested at the same rates of return forgone due to a policy's financial costs or when a project displaces investment only up until the date a consumption benefit is delivered but no further investment is displaced thereafter.)

The conditions that must be met for a discount rate to account for the opportunity cost of capital represent extremes that are unlikely to be satisfied except when analysis is purely financial. Social regulations—those affecting health, safety, or the environment—constitute precisely the situations when discounting in the manner right-wing economists do is incorrect, and, as it happens, social regulations are also those rules which are subjected to comprehensive CBA most often.¹⁵

Not only are right-wing economists not measuring efficiency, but discounting in the manner they do produces calculations with no clear meaning. Social discounting is not consistent with Kaldor-Hicks efficiency, because it by definition reintroduces issues of distribution into analysis by weighting consumption differently depending on who receives it (and when). This violates the standard that one dollar's worth of benefits be treated equally, irrespective of whose pocket it goes in. Thus, the American right pushed CBA into the US federal government without fully understanding the

social discount rates than the left-wing method. For a review of these approaches, see Spackman (2004) and Broughel (2020b). See also Cowen's (2007, 5) explanation of "right-wing" vs. "left-wing" approaches to discounting. Again, I am generalizing somewhat by referring to these groups in political terms. Nonetheless, this framing can be helpful in understanding the nature of these debates.

¹⁵ See, for example, the annual Office of Management and Budget *Report to Congress on the Benefits and Costs of Federal Regulations*. A disproportionate share of rules with monetized benefits and costs in these reports are social regulations. Reports are available at <https://www.whitehouse.gov/omb/information-regulatory-affairs/reports/#ORC>.

tool they were championing. Meanwhile, governments around the world quickly followed America's lead by adopting CBA in their own rulemaking procedures.

COST-BENEFIT ANALYSIS IS A DICTATORSHIP OF THE PRESENT

Unlike the right-wing framework, the left-wing framework is perfectly coherent, at least from a logical point of view. Theirs is the framework of Kenneth Arrow and his followers, where the aim of policymakers is to allocate resources across the economy in a manner consistent with a benevolent social planner's preferences. Left-wing economists also see the social discount rate differently. Rather than account for capital's opportunity cost, it simply reflects the dictator's time preference.¹⁶

This kind of top-down approach to resource allocation sounds a lot like socialism, wherein the government owns and controls the means of production in society. In this case, a single government planner is tasked with arranging all of the resources in society according to how the present generation of citizens values them most. This method may not meet the textbook definition of socialism, but it is similar in spirit and could easily be viewed as a modern variant. *This* is the tool that right-wing economists have championed since the early 1980s, have institutionalized in government, and which has now taken hold all over the world, since this is the only coherent rationale for CBA as it is presently conducted.

Because the Kaldor-Hicks approach to CBA is tied up in internal contradictions, right-wing economists unwittingly became advocates for a tool whose true foundations few of them would likely have supported had they fully understood them. Some left-wing economists almost certainly recognized the mistakes made by those on the right and must have been amused, particularly by the role that mathematics seems to have played in confusing their political adversaries. It is not surprising that those on the left would

¹⁶ In the left-wing approach to CBA, the opportunity cost of capital is usually either downplayed or ignored altogether, which is a reason for ongoing debate between the left-wing and right-wing approaches to discounting. See Broughel (2020b).

not make much effort to correct the law and economics scholars. After all, those on the right were promoting their method within government and the halls of academia—something unimaginable had the right-wing scholars fully understood CBA's foundations in Arrow's dictatorship theorem or the social welfare function he derived from it.

Careful observers may note that the method by which the social planner allocates resources in Arrow's framework is modeled after the market mechanism, which distributes resources according to how much individuals in society are willing to pay for them. Could Arrow's framework be considered promarket? After all, markets fail in many instances, so perhaps a benevolent social planner could improve upon market outcomes by correcting well-known problems such as externalities or a lack of competition.

There are important differences between Arrow's conception of what policy should aim to do and what the real-world market process is doing. The most notable difference is that the solution to the resource allocation problem Arrow was trying to solve is a static one—that is, it is an optimum from the perspective of the present moment in time only. In a famous paper, Arrow, along with coauthor Gérard Debreu, proved the existence of an optimal allocation of resources in the economy (Arrow and Debreu 1954). But in that framework, time matters only to the extent that present citizens might want to set up contracts for goods and services to be delivered in the future. There is no market that future citizens might participate in to advance their own agendas. The solution is an optimum from the standpoint of present citizens only, not future ones.¹⁷

This rather strange treatment of time extends to cost-benefit analysis. In a CBA, benefits and costs at future dates get counted, but these benefits and costs are converted into units of present utility through the practice of discounting (Broughel 2020a). In other words, future benefits and costs matter *only to the extent they*

¹⁷ In general equilibrium models of the Arrow-Debreu sort, time is often treated in a manner no different than location, with interest rates representing simple ratios of present and future prices (known as “own rates of return”), rather than a rate at which resources can be transformed into more resources in the future (Cowen 1983). In this sense, general equilibrium models often lack a compelling treatment of capital in addition to time.

impact present utility. It should not be surprising, therefore, that the social welfare function underlying the left-wing CBA framework, a social welfare function known as the discounted utility model, has been labeled a “dictatorship of the present” (Chichilnisky 1996).

Unlike CBA, the market process is not a dictatorship of the present. In real-world markets, entrepreneurs are solving two problems simultaneously. One is to put all of the resources in the right place *right now* (Arrow and Debreu’s concern), but the other is to accumulate as many resources as possible so that there will be more resources available to allocate *in the future*.

In a typical CBA, benefits are evaluated on the basis of what those who gain are willing to pay for them and costs are based on what those who lose would be willing to accept voluntarily for absorbing the loss. But no money changes hands between these groups when the policy is implemented. There is no requirement, for example, that society’s capital stock increase as a result of the policy; indeed the capital stock may well be reduced if present citizens are willing to forgo some investment in order to consume right away. It is therefore easy to imagine a set of policies that pass a cost-benefit test because they meet the approval of the current members of society but that gradually slow the growth rate of the economy.

Entrepreneurs in the market face a different, and dual, test: first, they seek to serve their customers in a manner consistent with those individuals’ own values; second, they try to do so in a manner that earns them a profit. A typical CBA focuses only on the first test, ensuring that policies are in line with the preferences of current citizens. But the second test, making a profit, is arguably the more important one. This is what helps ensure that the economy continues to grow, that more resources are available for future allocation, and that economic exchanges do not gradually destroy all of society’s wealth.

Without the profit requirement, there could be a situation where a series of policies or other actions all pass a cost-benefit test, because they increase welfare in the present, but nonetheless end up reducing welfare over time. What if everyone today wanted to throw a giant party with all of the wealth that our ancestors bestowed upon us as a bequest? It is easy to see why this might be in line with present preferences, but it is certainly not in the long-run interests of society.

Casting aside the profit and loss test may leave the present generation content. It is the well-being of people in the future that is in jeopardy when capital is relegated to the sidelines of policy analysis. The oft-overlooked external future benefits of wealth creation are perhaps the most underappreciated aspect of capitalism, and this is precisely the aspect of real-world markets with which modern CBA dispenses.

COST-BENEFIT ANALYSIS AT A CROSSROADS

Today, CBA stands at a crossroads. It is becoming ever more clear that, as presently conducted, CBA has virtually no connection to the efficiency-maximizing tool that the law and economics movement sold to the public in the early 1980s. It has become a convention among economists to speak about the outputs of CBA as if those outputs revealed something about economic efficiency. But when economists speak in this manner, they are speaking in error. In this way, the language of economists is actually an impediment to progress.

The outputs of CBA are not a statement about wealth, but rather about the utility of an amorphous agent in an economic model. The most charitable way to view this agent is perhaps as representing the collective well-being of present citizens—those whose preferences dictate policy for the time they are alive. But it's hard to see why either those on the left or the right should find this acceptable. The social welfare function underlying CBA is inconsistent with Kaldor-Hicks efficiency, presumably what right-wing economists want. And from a fairness standpoint, presumably the concern of those on the left, the welfare of future generations counts for nothing in this analysis except to the limited extent that it matters to people today.¹⁸

It is in this analytical void left by mainstream welfare economics that Austrian and public choice economists may have something to offer as a replacement. However, many free market economists have abandoned the cost-benefit enterprise. Some express doubt

¹⁸ In the language of economists, the representative agent might value leaving bequests to successors. This could increase the agent's utility today, but successors' utility does not enter into the social welfare function directly.

about the ability to measure cost objectively (e.g., Buchanan 1969; Rothbard 1997). Many express concern about asymmetry in analytical assumptions regarding agents in the market as compared to agents in the government. James Buchanan, for example, expressed deep skepticism of the “benevolent despot” figure that appears so prominently in public economics, and he warned of “political externalities” being bad or worse than market externalities when the assumption of total benevolence is relaxed (Buchanan 1962). Buchanan chastised those who view the role of economist as that of a social engineer tasked with allocating society’s scarce resources, and he argued for a more humble and democratic approach to policymaking (Buchanan 1964).

These concerns, raised in the Austrian and public choice literatures, certainly have some validity. These critiques help explain why cost-benefit has been known to be abused for political ends (Zycher 2018) and why regulatory analysis, of which CBA is a part, is sometimes cynically referred to as an “advocacy document” (Elliott 2014; Carrigan and Shapiro 2017). Although it is beyond the scope of this article to address each of these concerns about cost-benefit analysis, it can be said that Austrian economists have something to contribute to current debates surrounding cost-benefit analysis, in large part due to their somewhat unique treatment of the concept of efficiency. Austrian economists tend to view efficiency, and general equilibrium, as an endpoint that entrepreneurial discovery and voluntary, mutually advantageous exchanges move the economy toward (Kirzner 1997). Entrepreneurs identify discrepancies between market prices and resources’ opportunity costs, and these “market failures,” for lack of a better term, are corrected when entrepreneurs reallocate resources toward higher-valued uses, capturing a profit while doing so. In this way, the market is a process that moves the economy toward an efficient allocation,¹⁹ although the market process never actually achieves that end.

The law and economics scholars could learn from the Austrian notion of efficiency and perhaps shore up some of the inconsistencies

¹⁹ According to Buchanan (1964), “The motivation for individuals to engage in trade, the source of the propensity, is surely that of ‘efficiency,’ defined in the personal sense of moving from less preferred to more preferred positions, and doing so under mutually acceptable terms.”

in their own methods. A first step in this process is likely to involve measuring costs and benefits in dollars, rather than units of a dictator's utility as is the case now. From a technical point of view, it might not be hard to do this. Indeed, the Trump administration's recent experimentation with financial forms of analysis is a clear step in this direction (Broughel 2020a). Such analysis might better approximate economic efficiency than modern CBA, and by extension better account for the actual tradeoffs society confronts when enacting new policies.

None of this is meant to suggest that it would have been better had "the cost-benefit revolution" never happened. Even in its present problematic form, CBA at least forces regulators to have to explain their basic reasoning for programs and regulations that can cost billions of dollars. Analysis requires them to organize the relevant facts and evidence together and to go through an orderly decision-making process. This plausibly makes it more likely that policies achieve their desired outcomes and that some of the worst regulations may never see the light of day as a result of the added scrutiny. Moreover, the institutions that have been set up to produce and review CBA could potentially be reformed in the future to focus on more meaningful measures of welfare.

That said, it will become increasingly obvious to the public and to policymakers that the emperor, in this case CBA, has no clothes—and this will have serious implications for the credibility of economists, as well as the credibility of governments around the world that have chosen to adopt these methods without fully understanding them. Distrust of experts and of expert institutions seems to be at an all-time high. When it comes to cost-benefit analysis and the institutions that support it globally, that lack of trust is entirely deserved.

REFERENCES

- Arrow, Kenneth J. 1950. "A Difficulty in the Concept of Social Welfare." *Journal of Political Economy* 58, no. 4: 328–46.
- . 1951. "Little's Critique of Welfare Economics." *American Economic Review* 41, no. 5: 923–34.

- . 1963. *Social Choice and Individual Values*. 2d ed. New York: John Wiley and Sons.
- Arrow, Kenneth J., Maureen L. Cropper, Christian Gollier, Ben Groom, Geoffrey M. Heal, Richard G. Newell, William D. Nordhaus, Robert S. Pindyck, William A. Pizer, Paul R. Portney, Thomas Sterner, Richard S. J. Tol, Martin L. Weitzman. 2014. "Should Governments Use a Declining Discount Rate in Project Analysis?" *Review of Environmental Economics and Policy* 8, no. 2: 1–19.
- Arrow, Kenneth J., and Gerard Debreu. 1954. "Existence of an Equilibrium for a Competitive Economy." *Econometrica* 22, no. 3: 265–90.
- Arrow, Kenneth J., and Mordecai Kurz. 1970. *Public Investment, the Rate of Return, and Optimal Fiscal Policy*. New York: Resources for the Future Press.
- Broughel, James. 2019. "The Mighty Waves of Regulatory Reform: Regulatory Budgets and the Future of Cost-Benefit Analysis." *Business, Entrepreneurship, and Tax Law Review* 3, no. 2: 206–23.
- . 2020a. "Cost-Benefit Analysis as a Failure to Learn from the Past." *Journal of Private Enterprise* 35, no. 1: 105–13.
- . 2020b. "The Seen and the Unseen in Cost-Benefit Analysis." Unpublished manuscript, November 5, 2020. SSRN. <https://papers.ssrn.com/abstract=3585146>.
- Buchanan, James M. 1962. "Politics, Policy, and the Pigovian Margins." *Economica* 29, no. 113: 17–28.
- . 1964. "What Should Economists Do?" *Southern Economic Journal* 30, no. 3: 213–22.
- . 1969. *Cost and Choice: An Inquiry in Economic Theory*. Indianapolis, Ind.: Liberty Fund.
- Carrigan, Christopher, and Stuart Shapiro. 2017. "What's Wrong with the Back of the Envelope? A Call for Simple (and Timely) Benefit–Cost Analysis." *Regulation and Governance* 11, no. 2: 203–12.
- Chichilnisky, Graciela. 1996. "An Axiomatic Approach to Sustainable Development." *Social Choice and Welfare* 13, no. 2: 231–57.
- Cowen, Tyler. 1983. "The Rate of Return in General Equilibrium—a Critique." *Journal of Post Keynesian Economics* 5, no. 4: 608–17.

- . 2007. "Caring about the Distant Future: Why It Matters and What It Means." *University of Chicago Law Review* 74, no. 1: 5–40.
- Drèze, Jean, and Nicholas Stern. 1987. "The Theory of Cost-Benefit Analysis." In vol. 2 of *Handbook of Public Economics*, edited by Alan J. Auerbach and Martin Feldstein, 909–89. Amsterdam, North-Holland: Elsevier.
- Elliott, Donald. 2014. "Rationing Analysis of Job Losses and Gains: An Exercise in Domestic Comparative Law." In *Does Regulation Kill Jobs?*, edited by Cary Coglianese, Adam M. Finkel, and Christopher Carrigan, 256–71. Philadelphia: University of Pennsylvania Press.
- Friedman, Howard S. 2020. *Ultimate Price: The Value We Place on Life*. Oakland, Calif.: University of California Press.
- Graham, John. 2008. "Saving Lives through Administrative Law and Economics." *University of Pennsylvania Law Review* 157, no. 2: 395–540.
- Heinzerling, Lisa, and Frank Ackerman. 2002. "Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection." *University of Pennsylvania Law Review* 150, no. 5: 1553–84.
- Hicks, J. R. 1939. "The Foundations of Welfare Economics." *Economic Journal* 49, no. 196: 696–712.
- Kaldor, Nicholas. 1939. "Welfare Propositions of Economics and Interpersonal Comparisons of Utility." *Economic Journal* 49, no. 195: 549–52.
- Kirzner, Israel M. 1997. "Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach." *Journal of Economic Literature* 35, no. 1: 60–85.
- Lianos, I., M. Fazeakas, and M. Karliuk. 2016. "Cross-National Diffusion in Europe." In *Handbook of Regulatory Impact Assessment*, edited by C. Radaelli and C. Dunlop, 286–303. Cheltenham, U.K.: Edward Elgar.
- Posner, Richard A. 2000. "Cost-Benefit Analysis: Definition, Justification, and Comment on Conference Papers." *Journal of Legal Studies* 29, no. S2: 1153–77.
- Revesz, Richard L., and Michael A. Livermore. 2011. *Retaking Rationality: How Cost-Benefit Analysis Can Better Protect the Environment and Our Health*. Oxford and New York: Oxford University Press.
- Rothbard, Murray N. 1997. "Law, Property Rights, and Air Pollution." In *The Logic of Action Two: Applications and Criticism from the Austrian School*, 121–70. Cheltenham, U.K.: Edward Elgar.

- Scitovszky, T. de. 1941. "A Note on Welfare Propositions in Economics." *Review of Economic Studies* 9, no. 1: 77–88.
- Spackman, Michael. 2004. "Time Discounting and of the Cost of Capital in Government." *Fiscal Studies* 25, no. 4: 467–518.
- Steinzor, Rena. 2012. "The Case for Abolishing Centralized White House Regulatory Review." *Michigan Journal of Environmental and Administrative Law* 1, no. 1: 209–85.
- Sunstein, Cass R. 2020. "On Neglecting Regulatory Benefits." *Administrative Law Review* 72, no. 3: 445–59.
- Tozzi, Jim. 2011. "OIRA'S Formative Years: The Historical Record of Centralized Regulatory Review Preceding OIRA's Founding." *Administrative Law Review* 63: 37–69.
- Zycher, Benjamin. 2018. "The Social Cost of Carbon, Greenhouse Gas Policies, and Politicized Benefit/Cost Analysis." *Texas A&M Law Review* 6, no. 1: 59–76.

BOOK REVIEW

THE END OF THE ABE ADMINISTRATION—THE END OF ABENOMICS? BOOKS ON PAST AND PRESENT IN THE JAPANESE POLITICAL ECONOMY

JASON MORGAN*

PRIME MINISTER ABE SHINZŌ'S RESIGNATION AND THE END OF AN ERA IN JAPAN

On August 28, 2020, Japanese prime minister Abe Shinzō entered a Tokyo press conference and began speaking. Speculation had been building for weeks that Prime Minister Abe would step down. The rumor was that the health condition, ulcerative colitis, which had cut short his first stint as prime minister in 2007 had worsened again. This turned out to be true. Prime Minister Abe announced at the August press conference that he would be resigning upon the election of his successor, thus bringing to a close one of the most historically and economically momentous administrations in postwar Japanese history.

* Jason Morgan (jmorgan@reitaku-u.ac.jp) is associate professor at Reitaku University in Kashiwa, Japan.



Prime Minister Abe navigated, very capably in my view, a slew of challenges. There were history-interpretation standoffs with South Korea, for one thing. These were concluded, on paper at least, with the December, 2015 agreement between Abe and now-imprisoned former South Korean president Park Geun-hye, in which the Korean side promised to stop using the comfort women issue as a political weapon. Abe also had to find some way to work with a maverick American president, who upon entering office in early 2017 immediately withdrew from the Trans-Pacific Partnership on which Abe had expended enormous amounts of political capital, and who has continued to threaten to draw down the base system forming the bedrock of the Japan-US alliance.

Abe chose to prioritize security and stability in more than just his carefully cultivated partnerships with Park Geun-hye and Donald Trump, for example by formulating a “quad” approach to containing communist China by strengthening ties with the U.S., India, and Australia. Aggression against East and Southeast Asian states by the People’s Liberation Army Navy (PLAN) continues, to be sure. But Abe skillfully maximized his constrained capabilities despite the postwar “surrender constitution” of Japan, which technically forbids Japan from possessing any kind of military force. Frequent missile launches in Japan’s direction by North Korean dictator Kim Jong-un helped convince the Japanese people—laboring under what Japanese conservatives call “*heiwa-boke*” (or the false sense of security inculcated by the postwar reliance on the United States to deal with military matters)—that the time had come to re-acquire the ability to strike back, perhaps even preemptively, against a foreign aggressor. The removal of the hamstring on Japanese military action by revising the constitution and making Japan a fully sovereign nation again was, to my mind, the real priority of Abe’s two terms in office.

In September of 2020, Suga Yoshihide, Abe’s long-time deputy and the Chief Cabinet Secretary (*kanbō chōkan*) tasked with explaining the daily vicissitudes of government to an often-querulous press corps, garnered the votes to win the leadership position of the Liberal Democratic Party (LDP) and therefore, by default, the prime ministership of Japan (the LDP being the traditional ruling party during the postwar). It seemed as though Abe’s legacy was secure. Whatever remains undone by the Abe administration, such

as constitutional revision and securing the release of Japanese civilians kidnapped by North Korea and held as hostage by the Kim regime to this day, is sure to be kept at the top of the to-do list by the incoming Suga team.

There is one legacy, however, which appears on much shakier ground than it did just a couple of years ago. That legacy, many would argue, is the keystone of Abe's political career. It was his platform for re-election to the prime minister slot for the first time fourteen years ago, and its reputation has swayed the poll numbers for Abe and the LDP like virtually nothing else. The signature element of the Abe years is, without doubt, Abenomics. Will Abenomics survive Suga? Or, to put it differently, will Japan survive Abenomics?

THE CORONAVIRUS INTERRUPTION

This question may sound counter-intuitive, even melodramatic, given the Wuhan pandemic which has cut deep wounds into the Japanese economy. Surely, many will argue, Japan's biggest worry right now is not Abenomics, but the fallout from COVID-19. There is very good reason to think this way. Some of the numbers that I have seen these past months have caused me to go goggle-eyed over the statistics pages. Nissan Group reported a 29.6 percent drop in sales in the first quarter of 2020 over the same quarter of 2019. Japan Airlines (JAL) announced at the end of October, 2020, that it could lose as much as 270 billion yen for the year. In August of 2020, Japan's annualized GDP was reported to be a staggering *negative* 27.8 percent. In late October of 2020, the Bank of Japan's (BoJ) balance sheet was a record 690.36 trillion yen, more than 6.5 trillion USD at current exchange rates. This is all largely the result of externalities far beyond the control of Japanese policymakers.

It is worth pausing here to note, as an important aside, that some of the best writing on the coronavirus crisis has been in Japanese. Prolific author and former weekly newsmagazine editor Kadota Ryūshō's *Ekibyō* ("epidemic" or "pestilence") has emerged as the standard for long-form corona journalism. Produced with astonishing alacrity, *Ekibyō* is a blow-by-blow account of how the virus, and the (fake) news about the virus, spread out of China and then

blanketed the world. Kadota's book takes in Chinese and Japanese politics and media reports, regional and world politics, and private-sector responses in an all-inclusive, fact-heavy, yet highly readable account, almost like a Michael Crichton write-up of a fast-moving event with a myriad of angles. Former *New York Times* journalist Alex Berenson has garnered notoriety in the U.S. as a public-facing writer chronicling the pandemic in the broadsheet version of the *longue duree*, but Kadota quite frankly outranks Berenson by several orders of journalistic magnitude. It is a pity that *Ekibyō* is not available in English, as the bestseller would provide English-speaking readers with tremendous insight into how politicians and the media handled the crisis and how outside political actors and Japanese scientists and public health officials tried to move the virus-awareness needle in different directions for a variety of different reasons. The portrait that emerges of a political class caught flatfooted and scrambling to formulate a response to a blindsiding, black swan event has many parallels with what transpired in Europe and the United States.

In the swirling confusion of the Corona Year, there *has* been a little economic good news in Japan. Teleworking is catching on like wildfire, for example, and Prime Minister Suga is concomitantly pushing ahead with digitalization, an area in which Japan has lagged behind South Korea and the People's Republic of China. The Minister of Digital Transformation, Hirai Takuya, is charged with jump-starting Japan's digital renaissance, and there is a strong tailwind in the push toward online commerce and telecommuting during the COVID-19 pandemic. But the reality is that telework often means lost revenue elsewhere. Many of the train lines which shuttle the Tokyo workforce between the capital and the suburbs every day have stopped running trains into the wee hours, a cut in services which translates into a further hit to profits for many Tokyo-area businesses. Very few office workers are enjoying a nightcap at an *izakaya* anymore, and Tokyo governor Koike Yuriko's attempts to find a balance between keeping shops open and keeping the virus at bay have cast a pall over business overall. Many restaurants have closed, and theaters and other congregation-reliant industries are struggling to survive.

Despite, or because of, all of this economic carnage, Abenomics appears alive and well. The Bank of Japan is printing money like Bazooka wrappers. "Stimulus" is sloshing around everywhere. I

personally got a “stimulus” deposit from the central government earlier this year—great news, until I get the tax bill next March. This can’t go on forever, and so it won’t.

JAPAN’S POLITICAL ECONOMY PAST AND PRESENT

While the economic pain is visible to everyone and is certainly a political wrangling point, unlike in the United States there are very few libertarians in Japan who are raising their voices about the escalation of MMT measures to astronomical levels. In fact, many Japanese conservatives are calling the loudest for even more government intervention. Tamura Hideo, for example, a special reporter with the capitalism-friendly *Sankei Shimbun* newspaper and a former editor at the staid *Nihon Keizai Shimbun* who writes often for the conservative press, and Tanaka Hidetomi, a professor at Jobu University in Gunma who also writes on the political economy for right-of-center publications, have both encouraged the Bank of Japan to print even more money to bring Japan out of the COVID-19 crisis. In the October, 2020 edition of *Seiron*, a serious economics and politics journal with a wide readership in Japan, Prof. Tanaka even argued—provocatively in this plague year—that “fiscal austerity is itself the biggest disaster” (*zaisei kinshukushugi koso saidai no saigai*). (*Seiron*, 133–140) Low-tax free-marketers like my friend and colleague, historian and policy analyst Ezaki Michio, have also joined the fray, arguing that the best thing the Japanese government could do to improve the economic outlook would be to cut taxes. But Ezaki’s familiarity with American history and economics may be influencing his anti-interventionist views in a way that escapes nearly every other pundit or policymaker, for Ezaki remains a very lonely voice in a crowd of interventionists. Ironically, the party which has adopted the most stringent anti-tax-increase platform in recent years is the Japanese Communist Party, which is tacking to the hard *right* of the “conservative” establishment on this core fiscal issue.

Sniping over the tax rate notwithstanding, and granted that the Wuhan pandemic has badly damaged the Japanese economy, the fact is that government intervention did not start with the outbreak of the latest Chinese bug. Conservatives in Japan who argue for government intervention and economic relief from the political side are drawing

from a deep political-economic tradition here. As a grad-school classic by former University of Chicago historian Tetsuo Najita, *Ordinary Economies in Japan: A Historical Perspective, 1750–1950* (2009), explains, the Japanese economy is in many ways conceptually underlain by a notion of economics as mutual aid. The *kō*, or pre-modern communal societies designed to mitigate risk by promising to help any community member in need in a kind of localized insurance plan, are still exerting influence today. Bootstrap success story and hard-work champion Ninomiya Sontoku (1787–1856) espoused this ethos in an attempt to imbue the rapidly-developing Edo economy with a humane, ethical tenor. While the Japanese economy is, of course, infinitely more complex now than it was in the nineteenth century, and while modern Tokyoites are probably much closer in economic outlook and practice to consumers in other global big cities than to traditional communities in rural Japan, the conservative, and, indeed, default view of Japanese economic thinkers continues to be rooted in this mutual-aid ideal. The very word for “economics” in Japanese, *keizai*, is a contraction of *keisai sainin*, which means to govern a polity and rescue, or provide relief for, the people living there. Etymology is not destiny, but it is often at least a telling point of departure. Japanese moral philosopher Hiroike Chikurō’s concept of *dōkei ittai*, or the notion that economics and moral action are ultimately the same thing, exemplifies the tradition of economics as doing good. When Japanese conservatives speak about economics, it is likely that they are going to appeal to this kind of economic communalism, which is, after all, the traditional approach to how politics and economics ought to interact.

Because there is such a different set of assumptions in Japan about what economics is, it is imperative that those outside of Japan who want to understand the Japanese political economy go deeper than the occasional headlines about Abenomics. Indeed, non-specialists inside and outside of Japan are often surprised to find that there has been such a rich tradition here of economic thought. While there are excellent studies of Japan’s political-economic past—one hefty but outstanding volume on deep Japanese political-economic history is *Land, Power, and the Sacred: The Estate System in Medieval Japan*, edited by Janet R. Goodwin and Joan R. Piggott (2018)—there are, surprisingly, very few on the historiography of economic thinking in Japan over the past hundred years. The best I have read so far

is a volume I discovered only very recently: Aiko Ikeo's *A History of Economic Science in Japan: The Internationalization of Economics in the Twentieth Century* (2014), part of the series of Routledge Studies in the History of Economics. Ikeo is an economist and economic historian herself who has written a book on Ninomiya Sontoku, and many other books and scholarly essays besides. In *A History of Economic Science in Japan*, Ikeo reveals, for instance, the connections between Ninomiya and the "forgotten economist Tameyuki Amano's microeconomics." (Ikeo 2014, xvii, 167–89) Ikeo's book provides precisely the kind of context that one needs in order to begin to comprehend what is going on with the Japanese economy.

Ikeo also richly contextualizes Japanese economics in an international setting, as the book's title promises. Ikeo's big contribution is to show that Japanese economists were not pursuing *Japanese* economics after the floodgates to Western thought were opened at the end of the nineteenth century, but were rather fully aware of economic thought from elsewhere in the world and pursued the same debates within Japan as were being undertaken everywhere else—especially on general equilibrium theory, one of Ikeo's foci. There are therefore many layers to the political economy debate here, which Ikeo brings out in *A History of Economic Science in Japan*.

There is much else to learn from Ikeo's delightful book. Japanese economists "Yukio Mimura, Shizuo Kakutani and Hukukane Nikaido" were enamored of John von Neumann's economic theories, for example—Mimura studied under von Neumann at the University of Berlin, and Kakutani studied under von Neumann at Princeton. (Ikeo 2014, 132–33) Ikeo also writes that Finance Minister Takahashi Korekiyo (1854–1936) adopted a deficit financing approach to an overvalued yen in 1932, "*four years prior to the publication of [John Maynard] Keynes's General Theory (1936).*" (Ikeo 2014, 191–92; emphasis in original) Ikeo explains how Japan influenced Western economists and economic historians such as Martin Bronfenbrenner—who was part of the spate of post-World War II economic missions to Japan and who later did research at Kobe University (1963–1964) and Kyoto University (1980) (Ikeo 2014, 229)—and Jerome B. Cohen, who pioneered research on Takahashi as "the 'Japanese Keynes'" (predating a similar tack taken by Japanese political economist Ouchi Tsutomu in his 1967 book *The Way to Fascism*). (Ikeo 2014, 192) Ikeo pinpoints Imperial

University of Tokyo economist Yamazaki Kakujirō (1868–1945) as the first Japanese scholar to make reference to Keynes in an academic work. The context was Indian, imperial, and American currency policy and the backdrop was Keynes's 1913 book *Indian Currency and Finance*. (Ikeo 2014, 195) Cohen, for his part, was "a vanguard member of the US Tax Reform Mission led by Carl Shoup in 1949," Ikeo writes, and Bronfenbrenner was one of the key figures of the Carl Shoup entourage. For more than a century, "Japanese" economics has been inherently, inescapably internationalized.

Most famous of all the economic practitioners who came to Japan in the postwar is undoubtedly the Detroit banker Joseph Dodge, dispatched by President Harry Truman in 1949 to help rescue a Japanese economy battered by inflation, currency restrictions, and price controls. The "Dodge Line" (actually adopted in December of 1948) which Dodge recommended be imposed on Japan is credited with stanching inflation and shoring up the Japanese economy, allowing in particular for orderly ex-im activities going forward thanks to Dodge's prescribed 360-yen-to-the-dollar exchange rate. (Ikeo 2014, 218–26) This rate held until President Richard M. Nixon unilaterally axed gold-exchange support for the USD in 1971, after which the yen appreciated quickly, precipitating further American intervention with the Plaza Accords of 1985 and the Louvre Accords of 1987. Government intervention works best when a given populace is prostrate and utterly defeated—a truism which ought to make Americans break out in a cold sweat when the U.S. Congress starts talking about adding more regulatory festooning to Dodd-Frank.

GETTING DOWN TO DETAILS ABOUT THE POLITICAL ECONOMY OF JAPAN

While Ikeo's book is a very helpful corrective to a blind spot that many in Anglophone countries have toward Japanese economic history, Takatoshi Ito and Takeo Hoshi's *The Japanese Economy*, second ed. (2020) is a much more pertinent, data-driven look at the Japanese political economy past and present. If readers buy just one book under review in this essay, the Ito and Hoshi volume should be it. *The Japanese Economy* is a college textbook, first written by Ito in 1992 and recently issued with major revisions by Ito and Hoshi. It comes, therefore, *caveat emptor*, with an eye-smarting

college-textbook price. But it is worth it. *The Japanese Economy* is a non-ideological, detail-rich introduction to the Japanese economy in history and in current practice, and is a must-read for anyone who is interested in grounding discussions about Japan's economy in more than the usual platitudes about high savings rates (those ended a long time ago) and expensive property values (dead with the bubble bursting, and anyway a product of postwar meddling by the GHQ than of anything inherent to the Japanese economy).¹ Ito is a professor in the School of International and Public Affairs at Columbia University in New York and has been a Senior Advisor in the Research Department at the International Monetary Fund and a Deputy Vice-Minister for International Affairs in the Ministry of Finance in Japan. Hoshi is an economics professor at Tokyo University. So, their textbook presents what is very much the establishment view of Japanese political economics. They also present Abenomics in a rather favorable light, which puts their position even more firmly in the Japanese mainstream.

The strongest feature of the Ito and Hoshi textbook is its historical contextualization of economics. The bubble economy, for example, mentioned above, is often discussed today as a singular event, but the history of the bubble economy is much more complex than the catchy moniker might lead one to believe. In explicating the notorious bubble, Ito and Hoshi go back and recover the changes in Japan's political economy over the 1960s and 70s, the revisions to regulations and policies which enabled a speculative bubble to form in the first place, the constraints on the central financial organs of the government which prompted the reactions (for good or ill) of the authorities as alarms began to sound about overheated prices and sloppy securitizing of debt, and the slow-motion breakdown of the optimism regime as the effects of the (popped) bubble propagated through the wider Japanese economy, structurally and down to the level of individuals' savings accounts and pocketbooks. Important to remember—and Ito and Hoshi do a particularly good job in tracking this history—is that the bubble formed and popped

¹ This is a virtually unknown fact about Japanese real estate prices—that they are largely a product of regulatory overreach rather than real supply and demand. See “K.K. Choei v. Kuroki: 65 Saihan minshu 2269 (Sup. Ct. July 15, 2011)” in Ramseyer (2019), 171–85.

while the yen was doing battle with other currencies on the world market in the shadow of the “exorbitant privilege” (as 1960s French Minister of Finance Valéry Giscard d’Estaing put it) enjoyed by the reserve U.S. dollar.

Ito and Hoshi also remind us that the bubble began a long season of seeming economic bad luck, it also capped off an extraordinary run of good luck. Nixon’s torpedoing of the Japanese yen on August 15, 1971 (not coincidentally the anniversary of Japan’s surrender in World War II) by removing the exorbitantly privileged dollar from the gold standard, the Plaza Accords presided over by Ronald Reagan’s Treasury secretary James A. Baker, III, and Reagan’s need to sacrifice the Japanese economy for the sake of his own political legacy were all exerting pressure on Japan’s political economy (including in the form of the nettlesome *gaiatsu*, “foreign pressure,” which Japanese bureaucrats find convenient for taking the blame for painful reforms the bureaucrats wanted to adopt anyway). But the momentum was with the bulls. Despite every headwind working against Japan, the country came back roaring from postwar price and currency controls and presented serious challenges to American industries from the late 1960s until the bubble burst on the last day of 1989. From the Dodge Line starting line to the popping of the real estate-driven bubble, Japan had been on one of the longest winning streaks in modern economic history. That, too, is very important to bear in mind.

RECOVERING THE POWER OF PERSONAL DECISION-MAKING IN THE “LOST DECADES”

One major drawback to the Ito and Hoshi book is that they understand the political side of the political economy of Japan in the way made popular by Chalmers Johnson, Ezra Vogel, and Karel von Wolferen. Chalmers Johnson wrote *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925–1975* (1982) to explain his idea of the “developmental state,” or the Druckerian political-science notion that “engineers” and bureaucrats worked to guide capital investment in Japan largely independently of influence by elected officials. Ezra Vogel’s *Japan as Number One: Lessons for America* (1979) was an earlier attempt to argue that Japan was a socially-conscious technocracy, a managerial-capitalist state which did not pit government against

industry, as in the West, but which pursued a model of pragmatic flexibility in pursuit of what was once called “development.”² After Johnson and Vogel set the stage for a depoliticized look at the Japanese political economy, Karel von Wolferen repackaged the idea for a popular audience with his 1989 book *The Enigma of Japanese Power*. All of these works assume a faceless, even hollow, power center in Japan, a kind of mechanical whirring of the political-economic machine which is kept bureaucratically humming by a core cadre of Tokyo University graduates acting more or less independently of elected government until achieving coveted *amakudari* golden-parachuter status and feathering their nests for a comfortable retirement.

However, as Harvard Law professor and Japanese political economy expert J. Mark Ramseyer has demonstrated, this view of the Japanese political economy is false. Ramseyer’s analysis of judges’ decision-making in a variety of cases, and of bureaucratic measures adopted during various elected administrations, proves that judges and other bureaucrats are very much aware of what the political class expects and often pay a heavy career price (missed promotions, posting to backwater assignments) for defying what the elected officials want. In fact, the outdated and incorrect view of the Japanese economy as an epiphenomenon of the bureaucratic soothsaying emanating from the central Tokyo governmental strongholds of Kasumigaseki and Nagatachō is overturned by the rest of Ito and Hoshi’s excellent book. For example, their section on “The Two Lost Decades,” that period of time (now shading past three decades by many measures) when the Japanese economy stayed down for the count following the bursting of the bubble as the Nineties dawned, is the tale of individuals making key decisions, often from the prime minister’s office or with the prime minister’s approval, in an attempt to revive the Japanese economy with even more government intervention. (Good luck with that.) There are real, fallible people making decisions in positions of

² “Development” has been the OK Corral for many an academic shootout in Asian studies. Some people think development is Western-centric, and that it is therefore racist to assume that all countries pursue a certain developmental path. Others once saw “development” as an ideological counterweight to Marxism. Hardly anyone uses the term unqualifiedly in the American academy anymore. And yet, it is clear that Japan is very different today than in late 1945. It has, whatever the connotation, developed.

power in Japan, and those decisions have consequences all the way down the political-economic line, from power center to private pocketbooks. Ramseyer's analysis is, tacitly at least, vindicated by the evidence presented in the Ito and Hoshi book.

One good example of how personal decision-making can affect a national economy comes when Ito and Hoshi describe the career of Koizumi Jun'ichirō, the colorful prime minister during the early and mid 2000s who continued the privatization trend started by 1980s prime minister Nakasone Yasuhiro (the other half of the famous duo with Ronald Reagan known affectionately, due to their calling one another by their first names, as "Ron-Yasu"). The Bank of Japan ended, about eight months before Koizumi took office in April of 2001, the zero-interest-rate policy (ZIRP) which it had deployed since February of 1999 to combat low growth. When this didn't work, the BoJ initiated quantitative easing, continuing that until 2003. (Ito and Hoshi 2020, 541) Koizumi was thus faced with a central bank which had effectively exhausted its politically available options for electro-shocking the Japanese economy back to health. He therefore tried new ideas. Koizumi's biggest coup was in privatizing the post office, which also doubles as a bank in Japan and which managed an enormous sum in savings accounts, insurance accounts, and other assets before Koizumi broke it up into smaller units. The Japan Post Bank, one of the spinoffs of the Japanese post office following Koizumi's reforms, continues to hold some 3.5 trillion yen in assets. Koizumi's privatization reforms helped pull Japan out of the slump, and for the first time since the banking crisis of 1997–98—which was partly the result of domestic financial trouble and partly the result of the cratering of financial positions in South Korea, Thailand, and Indonesia following the 1997 Asian Currency Crisis—under Koizumi's tenure the Japanese economy nosed up and appeared to be shaking off the lost-decade blues.

ABENOMICS AS A SOLUTION TO JAPAN'S POLITICAL-ECONOMIC STRUCTURAL PROBLEMS

But Japan was not in the clear just yet. There remained some structural and political obstacles to complete recovery from the bubble years. The Asian currency crisis was beyond Japan's control, of course, but the domestic banking trouble was almost entirely

self-inflicted. In 1995 the Ministry of Finance (MOF) in Japan began to consider adopting a hard line against non-performing loans (NPLs) left on the books after the collapse of bubble-era real estate prices in 1990 and after. Cracking down on NPLs was always a common-sense move. Banks and other financial institutions had been “evergreening” these portfolios, shifting capital around and taking out tangential loans in order to keep the payments on the NPLs current, and the MOF rightly began to see this business as a waste of time and money (and also potentially as fraud). However, the MOF was short-staffed and lacked resolute leadership in elected offices, and so the problem was not confronted directly. (Ito and Hoshi 2020, 534) Entire firms, known as “zombie firms,” lingered on as the NPLs did, producing nothing and yet limping under the cover of governmental indecision. Koizumi’s administration twisted the bureaucracy to crack down on both zombie firms and NPLs in 2003, and many researchers see this as the moment when the tide began to turn in Japan’s favor once again. (Ito and Hoshi 2020, 539) Koizumi’s liberalizing efforts had begun to pay off in earnest by the mid 2000s and Japan looked poised to move beyond the collapse of the bubble.

And then Bear Stearns collapsed, followed by Lehman Brothers. The “Lehman shock” (as it is known in Japan) continues to be a singed-fingers memory for many here and warns against a too-close financial relationship, where it can be at all avoided, with any outside power. I was in Japan when the Bear Stearns and Lehman news broke, and I remember feeling an odd sense of disconnect between what I was seeing happen in America and the relative calm on the western side of the Pacific. Japan was initially spared a direct hit from the New York financial blow-up and no major Japanese institutions went under as had happened in the U.S. and many other countries. However, as Jacques Derrida might have said had he pursued a career in political economy, “There is no outside-of-the-globalism.” A shrinking American market and an appreciating yen took their toll on the Japanese economy by 2009. (Ito and Hoshi 2020, 545) Lehman was apparently here to stay. The next two years were tough and the suppliers for Japan’s export industries, especially automobile makers, were especially hard hit as the world shuddered through a sharp downturn in economic activity.

Things had just begun to look up slightly after the Lehman Shock when the Fukushima disaster hit in 2011. Virtually overnight, all of Japan's nuclear plants were taken offline and the Japanese ex-im balance was thrown badly off by the need to import tanker after tanker of petroleum products in order to keep oil- and gas-fired power plants running. And Japan was just emerging from *that* economic hit—tourism was booming and the highly-anticipated Summer Olympics were just around the corner as late as the fall of 2019—when the coronavirus knocked all the pieces back to the table again. This is a country that just hasn't been able to catch a lucky break with the disaster gods since a sudden storm blew Mongolian, Chinese, and Korean invaders back to sea in 1279. Japan has been busy recently weathering 2008, 2011, and 2019–20, and the Two Lost Decades are, it would seem, not over yet.

It was to end the lost decades by shoring up Japan structurally that Prime Minister Abe launched Abenomics. Ito and Hoshi explain that Abenomics consists of three arrows: "bold monetary policy," "flexible fiscal policy," and "growth strategy to promote private investment." (Ito and Hoshi 2020, 70) The first arrow, "bold monetary policy," was essentially *carte blanche* to the Abe-appointed governor of the Bank of Japan, Kuroda Haruhiko, to print yen and laden the BoJ's balance sheets with bond purchases. The second arrow, "flexible fiscal policy," comprises the apparently contradictory goals of carrying out fiscal stimulus while also eliminating the deficit and raising the consumption tax (10 percent as of October of 2019, and about as popular as one would expect). The third arrow, "growth strategy to promote private investment," has the most potential to effect real and positive change, but entrepreneurship remains anemic in Japan and the reflex to inject governmental control into emerging industries remains strong. Ito and Hoshi adopt on the whole a supportive view of Abenomics, albeit while admitting its shortcomings. (Ito and Hoshi 2020, 70) For Ito and Hoshi, "The Lost Two Decades finally ended with an economic policy package that was introduced in 2013," that is, as Abe took office following his second election to the prime minister position in December of 2012. Two very prestigious Japanese economists thus credit Abe Shinzō with turning the Japanese economic ship around and putting the country back on the path to economic growth. (Ito and Hoshi 2020, 562–63)

TAKING ABENOMICS DOWN A FEW (TOO MANY?) NOTCHES

A more pessimistic view of Abenomics is provided by veteran journalist and reporter on Japan's capital markets, *Bloomberg* and *Asia Times* contributor William Pesek. Pesek's 2014 book, *Japanization: What the World Can Learn from Japan's Lost Decades* (2014), is a bracing critique of, well, of Japan entire. Someone must have cut Pesek off in line for ramen noodles one day, because Pesek certainly doesn't seem to like anything about Japan very much.

Pesek says that the word "Japanization," which he defines as "that specter of chronic malaise, deflation, crushing debt, and political paralysis," is what "drove central bankers from Ben Bernanke in the United States to Mario Draghi in Europe to flood markets with liquidity as never before in an all-out effort to avert their own lost decades" after financial crises which took place after Japan's bubble burst after the last day of 1989. (Pesek 2014, ix) And Pesek is decidedly unimpressed by Abenomics, "largely the same old mix of fiscal and monetary excess that left Japan with a public debt it may never be able to pay off, zero interest rates indefinitely, and little to show for it [...] a brilliant marketing campaign in search of a product." (xii) Pesek tells a familiar tale of "'Japan's iron triangle' of politicians, bureaucrats, and big business," a closed-off crony network of shortsighted, often irrationally nationalistic bigwigs controlling the Japanese political economy. (7–8) Indeed, Pesek blames cronyism for much of what he claims has been the flawed response by the Japanese government to the Fukushima disaster (95–123), arguing that "the government is TEPCO," or Tokyo Electric Power Company, the operator of the Fukushima Daiichi plant and largely seen in Japan as a well-connected bungler indifferent to the lives of civilians. (123)

A critique of Abenomics is certainly fair game. I, too, question much, if not all, of the economic assumptions underpinning Abe's broad intervention in the Japanese political economy. However, Pesek trades in so many clichés about Japan—overdetermining, by a long shot, cultural adages about "losing face" and Japan's being a retrogressive patriarchy (try telling that to Koike Yuriko, who runs the biggest city in the world)—that his book, while illuminating about capital flows around the Tokyo Stock Exchange and through

the Bank of Japan, can safely be skipped by those looking for an in-depth analysis of the way that economics and politics interact in Japan. Pesek rarely goes more than skin-deep, and the Anglophone “experts” he cites about Japan produce commentary about this country which, to this long-time resident and many others, appears to have been written by someone who has never even been here. The day is now far spent when one can call in from pasture Columbia University professor, and ringleader of Japan-bashing in the English-speaking world, Carol Gluck to offer analysis on Japan’s political economy.

Japanization could be read, perhaps uncharitably, as an essentialized exercise in economic Orientalism. On closer inspection one finds that there is no “Japanization,” really. As Ikeo’s book on the history of “Japanese” economics shows, after the beginning of the twentieth century there has been very little which one might point to as being uniquely Japanese about economics here. Since, and long before, the bubble burst, there has been a series of decisions made by mainly Keynesian-minded (and some other Marxist-minded) politicians and bureaucrats. Some of those decisions worked a lot less well than did others, and in order to understand the Japanese political economy one must, counterintuitively, stop looking for cultural colorings (the Pesek method) and instead dig deep in the details, à la Ito and Hoshi. Give *Japanization* a French leave.

THE CHALLENGE OF CHINA

The notion of Japanization itself is also now, arguably, a moot point given the Wuhan virus, which hit right after the Ito and Hoshi book came to market. The horrors flowing from China have exposed a whole new set of risks for Japan. The way forward for Abenomics under the new Suga administration seems, at this writing, fraught, for Abenomics presumes, tacitly, a globalized East Asia, and that looks increasingly difficult to maintain given the disaster which Chinese authorities visited upon the entire planet in 2020. Even before the Chinese crisis there were deep furrows in the Japanese economic road ahead: for example, the Japanese government has experimented with negative interest rates and will surely have to raise taxes even higher in the coming years to keep up with pension payments for an increasing number of retirees relying on the tax receipts of a

decreasing number of workers. (Ito and Hoshi 2020, 255–67) But after COVID, “China” has taken center stage. Ito and Hoshi spend very little time discussing the People’s Republic of China (PRC), but that country is at the center of debates in Japan now about economics, politics, and even military spending and territorial defense.

Especially salient in economic debates in Japan these past few months has been “decoupling,” the felt need to route supply chains around the PRC and to move the Japanese economy to a position of greater self-reliance. Some more extreme pundits in the United States have seen in this decoupling a return to the autarky which wartime Japan practiced under the Greater East Asia Co-Prosperity Sphere. (See Jeremy A. Yellen’s volume on this subject, *The Greater East Asia Co-Prosperity Sphere: When Total Empire Met Total War* [2019].) The mood in Japan is decidedly against what the pro-business group Keidanren (Japan Business Federation) advocates, namely an expansion of dealings with the PRC and its market share of 1.4 billion consumers. Keidanren has powerful allies in politics and the path to decoupling, full or partial, is not clear. One of Suga’s rivals during the competition to fill Abe’s seat was Nikai Toshihiro, a veteran LDP insider and currently General Secretary of the party. Nikai is one of the leaders of the pro-PRC wing of the LDP, and may have been the instigator behind then-PM Abe’s politically disastrous decision to invite PRC dictator Xi Jinping as “state guest” to Japan just before the Wuhan virus erupted in late 2019. However, while Nikai and other senior politicians are as pro-China as they can politically get away with, their position is decidedly unpopular among the general public, especially with Chinese aggression into waters around the Senkaku Islands (part of Okinawa Prefecture) and against other Asian neighbors, including Vietnam, the Philippines, Indonesia, and India. Decoupling may not be the most bottom-line-logical approach to dealing with the PRC, but the sense in Japan among the straphangers and mall shoppers is that the “China risk” is too great not to attempt to mitigate in any way possible. Japan is near to China on the map, and that’s about it.

This is all a sharp departure from the Koizumi and Abe visions for the Japanese economy. Koizumi starred in a “*Yokoso*” (“welcome”) tourism-promotion ad campaign inviting new and repeat visitors to the Land of the Rising Sun, and Abe oversaw a skyrocketing growth in inbound arrivals building on Koizumi’s earlier efforts. Japan had

been setting record numbers for tourist visits prior to the pandemic, and the entire country was looking forward to the 2020 Olympics and to recouping the enormous investments in infrastructure and advertising made for the Games. Those hopes are dashed, perhaps forever. The Olympics have been pushed back to 2021, and may end up being cancelled. To make it a double blow, the streets of Kyoto, Tokyo, and other tourist destinations, once thronged with sightseers even in non-Olympic years, are eerily subdued. The counterweight to having exported manufacturing jobs to Southeast Asia was supposed to have been to bring in tourists by the millions to keep the shopkeepers in the black. That strategy has failed spectacularly, at least for the foreseeable future.

RE-FOCUSING ON THE HOME FRONT

There are other cracks in the Abenomics regime beyond the plummeting tourist figures. Abenomics tried to bring women into the workforce in greater numbers to alleviate the demographic pressures of an aging population and low birthrate, but there are natural limits to this approach. Women's lib never really caught on in Japan. Women here prefer to raise children at home—it is a choice, not some form of feudal oppression. Telework and maternity-friendly corporate culture are both catching on quickly in Japan, but there is only so much that can be done by a government to coax a group of people into a paycheck gig when that group isn't really interested in the offer to begin with. Abenomics did not adequately address, in my view, these and other more structural problems in the Japanese economy, and instead tried to use taxation, quantitative easing, and other not-very-stimulating stimulus measures as quick fixes. Increased mobilization of capital and reliance on foreign visitors did not, and could not, make up for what is a more troublesome trend: the extreme urbanization of Japan. The countryside is emptying at an alarming rate as more and more people flock to the major metropolis areas in the Kantō and Kansai regions. This, more than anything else, I see as the Achilles' heel of the Japanese political economy today. There are too many people in Tokyo. This is having deleterious effects on the city, and on the rest of Japan.

It is on this note, about Japan's urbanization and what it means domestically for the Japanese economy and for Japanese politics,

that another book shows particular analytic strength. *Japan's Lost Decade: Lessons for Asian Economies*, a volume edited by Naoyuki Yoshino and Farhad Taghizadeh-Hesary, is a highly recommended revisionist policy and economic study of what has been ailing Japan, coupled with a series of welcome suggestions as to what can be done next to “spark joy” (as Marie Kondo might put it) for Japanese economic well-being. Yoshino is the dean of the Asian Development Bank and professor emeritus at Keio University and Taghizadeh-Hesary is Yoshino's junior colleague at both institutions. The editors' view on the Japanese economy is therefore informed. It is also very clear: “The empirical analysis of [*Japan's Lost Decade: Lessons for Asian Economies*] challenges the beliefs of some economists, such as Paul Krugman [...], that the Japanese economy is in a liquidity trap.” Krugman, whom QJAE readers will surely regret having heard of as much as I do, has made a sub-reputation for himself by repeating, again and again, that Japan is mired in a liquidity trap, a Keynesian prediction that ZIRPs and certain other invasive governmental monetary policies will lead to a preference for cash to debt. Not so, say Yoshino and Taghizadeh-Hesary. Krugman has whiffed again: “Japan's economic stagnation stems from a vertical investment saving curve rather than a liquidity trap, and [...] monetary policy is ineffective for escalating [Japan's] economic growth. [...] The Japanese economy faces structural problems rather than a temporary downturn.” (Yoshino and Taghizadeh-Hesary 2017, vii)

In eight equation-dense chapters Yoshino, Taghizadeh-Hesary, and the other volume contributors bypass Krugman's Druidic intoning about liquidity traps and examine the deep-rooted reasons for Japan's economic doldrums, covering much of the same ground as Ito and Hoshi but with an added emphasis on “monetary transfers from central to local governments”. (4–5) As Yoshino and Taghizadeh-Hesary write, “about 16% of total government spending is allocated to local governments, making it the second-largest government expense after social security. (4) The aging population, the rush of hinterland Japanese to Tokyo, Osaka, and other major cities, and other demographic and structural changes mean that “Japan has reached the limits of conventional macro-economic policies.” (165) There is really nothing, in terms of fiscal policy, that a central bank or government can do to keep an entire

nation from crowding into a handful of zip codes. Something else will have to be tried.

A novel solution recommended by the editors of *Japan's Lost Decade* to help rebalance this metropole-countryside skewing is "Hometown Investment Trusts," or HITs, which reaches back into Japanese history (although the authors do not make this explicit) to establish person-to-person trust as the basis for credit and lending to entrepreneurs outside of Japan's sprawling megalopolises. Under the HIT method, "lenders are from the same 'hometown' as the borrowers, or they may share a similar interest." (25) The authors worry that Basel III capital requirements are further restricting capital flows to the Japanese outlying regions (26), and HITs are ways, the authors argue, to overcome such restraints and revitalize Japan's withering provinces. Much more than any central government intervention, HITs seem, to this reviewer, to hold the most promise for Japan's economic future. The Japanese countryside is emptying out, but there is no need to think that this is an inevitable, irreversible trend. This is not Japanization, this is just civilizational anomie. It happens to the best of us. HITs could very well be a way to reinvigorate vast non-Tokyo, non-Osaka, non-Yokohama swaths of Japan, which would bolster local tax receipts, lessen the transfer burden on the Bank of Japan and the Ministry of Finance, and, possibly, also provide a lift to the birthrate, as wide-open spaces tend to be conducive to growing families. Kids have always loved meadows and parks more than concrete and cinder block—the Japanese countryside may just be the answer to many of the structural distortions and dysfunctions which continue to plague Japan in the third lost decade.

JAPAN'S POLITICAL ECONOMY: THE ROAD AHEAD

As Japan's new prime minister Suga Yoshihide settles into office he is faced with a host of challenges, from holdover effects from three or so lost decades to Chinese aggression and a world economy which has had its legs cut out from under it by the Wuhan bug. Public debt is ballooning in virtually every developed economy, and Japan is one of the most indebted nations per capita on the planet. Prime Minister Suga is largely seen as the man who will pick up the standard of Abenomics and carry it to victory against

Japan's lost decades, but the reality is that that battle seems already to have been fought, and lost, long ago. The rebuilding of Japan will probably have to be done internally, without relying on quick fixes from the globalist near abroad.

Anglophone readers who want to gain a better understanding of how we got to where we are in Japan, what we see when we look out at the current political-economic situation, and what solutions suggest themselves to us as we ponder the future, will surely want to read some of the volumes introduced above. I also encourage Austrians not to lose sight of Japan in the glare of the news about China. Japan remains a reliable, politically stable, free, open, and democratic trading partner. Japanese industries have fallen behind in technological innovation since the heydays of the 1980s, and silicon chip manufacture, once one of Japan's strong suits, has shifted largely to Taiwan, the PRC, and elsewhere. But Japan is much more than silicon chips. Uniqlo, for example (under the Fast Retailing banner), has become a staple of the clothing business throughout Asia, Europe, and North America. There are many more good surprises like this in store.

REFERENCES

- Goodwin, Janet R., and Joah R. Piggott, eds. 2018. *Land, Power, and the Sacred: The Estate System in Medieval Japan*. Honolulu: University of Hawai'i Press.
- Ikeo, Aiko. 2014. *A History of Economic Science in Japan: The Internationalization of Economics in the Twentieth Century*. London: Routledge.
- Ito, Takatoshi, and Takeo Hoshi. 2020. *The Japanese Economy*. 2d ed. Cambridge, Mass.: MIT Press.
- Johnson, Chalmers. 1982. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925–1975*. Stanford, Calif.: Stanford University Press.
- Najita, Tetsuo. 2009. *Ordinary Economies in Japan: A Historical Perspective, 1750–1950*. Berkeley: University of California Press.
- Pesek, William. 2014. *Japanization: What the World Can Learn from Japan's Lost Decades*. Singapore: Bloomberg Press.
- Ramseyer, J. Mark. 2019. *Japanese Law from an American Perspective*. Tokyo: Yuhikaku.

Tsutomu, Ouchi. 1967. *The Way to Fascism*. Tokyo: Chuo Koronsha.

Vogel, Ezra. 1979. *Japan as Number One: Lessons for America*. Cambridge: Harvard University Press.

Wolferen, Karel von. 1989. *The Enigma of Japanese Power*. London: Macmillan.

Yellen, Jeremy A. 2019. *The Greater East Asia Co-Prosperity Sphere: When Total Empire Met Total War*. Ithaca, NY: Cornell University Press.

Yoshino, Naoyuki, and Farhad Taghizadeh-Hesary, eds. 2017. *Japan's Lost Decade: Lessons for Asian Economies*. Tokyo: Asian Development Bank Institute.

BOOK REVIEW

TAX TYRANNY

PASCAL SALIN

CHELTENHAM, UK: EDWARD ELGAR, 2020, 224 PP.

JÖRG GUIDO HÜLSMANN*

Pascal Salin is one of the most important Continental European economists. Throughout his career, he has developed and defended the principles of a free society against the encroachments of the state. He started off as a Friedmanite in the 1960s and then turned ever more Austrian through his personal encounters with Friedrich von Hayek in the 1970s, which led him to discover and appreciate the works of Ludwig von Mises, Murray Rothbard, and Israel Kirzner. He is the author of about two dozen books. His main research fields have been competition, international monetary economics, international trade, macroeconomics, and public economics. He has also become well known as a champion of Austro-libertarianism, especially through his treatise *Libéralisme* (2000).

Even though Professor Salin is very prolific, most of his writings have been published in his native French. The book under review is therefore very welcome, being the first English edition of a text

* Jörg Guido Hülsmann (guido.hulsmann@univ-angers.fr) is Professor of Economics at the University of Angers.



that has been published in several French editions starting in 1985. It was first published under the title *L'arbitraire fiscale* and then, in 2014, under the current title, *La tyrannie fiscale*. It has also been translated into Italian and other languages. The book has 206 pages, is organised into 12 chapters, and comes with a 7-page index.

Tax Tyranny is an essay on the principles of taxation. It is written in a non-technical way and accessible to a broad readership. It serves very well as an introductory text for undergraduates, most notably in macroeconomics or public economics, but it also carries a lot of original food for thought that deserve the attention of scholars and tax practitioners. The central thesis is that there are no rational grounds for taxation and taxation can therefore never be justified. By its very nature, the tax state can never be a just state. When it taxes its citizens, it is willy-nilly arbitrary and tyrannical.

Professor Salin starts off highlighting the destructive nature of taxes and then walks through the various arguments designed to present proportional taxation ("flat tax") and even more so progressive taxation of incomes and savings as a matter of distributive justice. Because these justifications do not withstand scrutiny, chapter 2 carries the title "The myth of progressive taxation." Salin argues that the principle of equality before the law is irreconcilable with proportional and progressive taxation. The core of his argument is that it is impossible to objectively assess the real income and real wealth of each citizen. Incomes and wealth have various personal dimensions which cannot be readily translated into monetary terms. As a consequence, when the state sets out to tax the citizens by relying only on their monetary income, respectively on the monetary expression of their wealth, it deals with the citizens not on equal terms, but creates privileges for some and disadvantages for others. This leads him to a radical conclusion: "The choice of income or wealth as a tax base does not correspond to any criterion of rationality or justice. It is as arbitrary as would be a modulation of the tax according to the age or the color of the skin of a taxpayer." (p. 35) Proportional and progressive taxes are arbitrary by their very nature. They *cannot* be based on an equal treatment of the citizens. The taxing state is a tyrannical state. Its deeds are not based on reason and justice. "The reality is very different: Just as a robber has interest in attacking the one who has money rather than the one who has no money, the state takes the money where it is." (ibid.)

In chapters 3 through 5, Salin then zooms in on the over-taxation of savings, which are subject to multiple and overlapping layers of taxes: “[...] the one who saves may have to pay the income tax for his current savings, the wealth tax for the accumulation of the same savings, and the income tax for future yields of these savings. [...] Thus, the extraordinarily arbitrary character of the income tax is due to the fact that certain resources are taxed once, others twice, and some not at all.” (p. 52)

Let us also quote the following passage from the brilliant chapter 4, where he deals with inheritance taxes:

“We may also eliminate immediately the statist argument that inheritance is not ‘fair’ because it has not been ‘earned’. Such an accusation is indeed funny coming from people whose resources are obtained by coercion and whose main objective is usually to increase the share of the incomes of citizens that does not depend on the services that they have provided to others. Why would it be ‘fair’ to receive a non-earned income when it comes from the state and not when it comes from one’s parents?” (p. 67)

The macroeconomic impact of the over-taxation of savings is discussed in chapter 6. Pascal Salin argues that an economy starved of savings suffers from low or negative growth rates. As a consequence, political leaders are tempted to replace savings by cheap credit out of the printing press, which in turn makes the economy prone to economic crises. In chapter 7, he presents a general conception for tax reform, very much in line with the idea of a pure consumption tax according to Irving and Herbert Fisher (1942).

Chapter 8 deals with the problem of the incidence of taxation. Salin here makes the standard point that the persons who pay a tax are not necessarily the ones who bear it, that is, it is not necessarily their revenue that diminishes as a consequence of the tax. But he adds a few important considerations. He argues that firms do not bear the incidence of taxation for the simple reason that firms are legal and administrative abstractions (see pp. 83f, 120). Firms are nothing but contracts between human beings, and any taxes that have to be paid by a firm therefore ultimately fall on the individual human beings that are contractually related to that firm, be it as employees, suppliers, directors, or customers. Moreover, it is impossible to determine *a priori* which one of these parties

will effectively bear how much of the tax. The incidence of taxes on profits and of corporate taxes depends on the subjective appreciation of all parties concerned and on other concrete circumstances prevailing in the institutional environment.

The true significance of the amount of taxes paid by firms, therefore, is that the incidence of that exact same amount is blurred. Pascal Salin stresses the implication: "This figure [the amount of taxes paid by firms] is first and foremost an indication of the arbitrariness of taxes! The usual claims about the fair and efficient aspects of taxation appear particularly questionable when one understands that *we do not know who actually pays* [bears] *such an important part of taxes.*" (p. 124) A few pages later, he elaborates on the political significance of this fact: "Precisely because one does not know, no pressure group fights against this category of levies apart from the organisation of entrepreneurs." (p. 126) But the representatives of such organizations are poorly interested in taking up the fight against the taxes paid by firms because the incidence on themselves is not clear and likely to be small. "Thus who is likely to promote and to make people accept the idea that all levies on firms should be suppressed? [...] *Levying taxes on firms, i.e. on taxpayers who do not have voting rights, is certainly ideal!* It is therefore not surprising that taxation is arbitrary, irrational, and unfair." (p. 126)

In the last four chapters, Professor Salin criticises the most important justifications of taxes. In chapter 9, he argues that the state is a bad insurer and therefore unfit to set up and run state-sponsored insurance plans, most notably public health insurance and public pension schemes. Similarly, there is no reason to entrust the state with the mission to take care of the young, the elderly, and the handicapped. In his words:

"It is [...] undeniable that the exercise of solidarity is present in every society and that it is the result of a sense of benevolence characteristic of the human mind. [...] but it is necessary to challenge the claims of statesmen [...] to use the alibi of solidarity to justify actions that should be covered by insurance and, on the other hand, to monopolize the exercise of solidarity, all the more so since they give to this term an indefinitely expandable content. They make solidarity mandatory (therefore amoral), unconditional (therefore immoral), and funded by coercion (therefore unfair)." (p. 135)

In chapter 10, Professor Salin deals with another fashionable idea, according to which taxation should be “harmonised” internationally in order to create a “level playing field” for market competition. This idea has played an important role in the political integration of the European Union and also in the context of NAFTA and other trade agreements. Salin delivers a short and elegant explanation why the whole idea is ill-founded: it ignores the economic principle of comparative advantage. “Even if the real costs of production are higher for all products in one country than in another, trade is possible and profitable, as there are differences in *relative costs*.” (p. 147) He concludes: “If ever the differences in the tax rates could explain differences in absolute prices of goods [...] they would strictly have no influence on *relative prices* between goods. Therefore, in accordance with the general principle of specialization, they would not affect the trade between both countries. For this simple reason, the harmonization of tax rates is therefore unnecessary.” (ibid.) Pascal Salin therefore recommends we forget the idea of harmonizing tax rates. The proper focus should be on tax competition.

In chapter 11, he then proceeds to dissect the most important economic justifications of the state, most notably, the theory of public goods. In the final chapter 12, he applies similar scrutiny to the idea that taxation could be based on consent rather than on coercion. He refutes the idea that democracy could be a substitute for individual consent, as well as the idea of a social contract. In fact, in his eyes, none of the typical justifications of the state holds water. And he stressed the inescapable conclusion: “Any tax is arbitrary, all taxation is based on the use of coercion.” (p. 183) When it comes to tax reform, the best that can be achieved short of abolishing the state, is apply a series of second-best remedies. “Limiting arbitrariness, getting closer to the wishes of the taxpayers, such is the minimum program which can be proposed.” (ibid.)

The preceding selection of highlights from *Tax Tyranny* should not be misinterpreted as some sort of an executive summary. The book is much richer and warrants attentive study by all students and professionals. As a token of our own attentive reading, let us single out a few shortcomings of this otherwise excellent piece of work.

The most annoying deficiencies concern two editorial matters: endnotes (rather than footnotes) and the quality of the translation.

Pascal Salin is a very elegant and clear writer in his native French. Regrettably, the English rendition is often wooden and occasionally suffers from with oddities and inaccuracies. For example, while on p. 47, the text contains the correct phrase of the “correspondence between capital and income,” at other places it features the patently wrong phrase of an “equivalence between income and capital” (pp. 46, 54 *et passim*). On page 121, the sentence “However, the existence of these burdens does not affect employees [...]” is incomprehensible and should in fact read “However, the existence of these burdens does not *only* affect employees [...]”

Tax Tyranny is an essay and not meant to be a thoroughgoing treatise with full documentation. Still it would have been appropriate at several places to quote Amilcare Puviani’s (1903) theory of fiscal illusions, and it would have been nice to find a reference to Friedrich von Wieser (1893 [1889], Bk. VI, ch. IV), who justified the progressive income tax with the help of marginal value theory, an approach that Salin criticizes very pertinently (see pp. 20–23). Moreover, Professor Salin occasionally quotes Murray Rothbard’s *Power and Market* which, while much larger in scope, covers the same ground as *Tax Tyranny*. It therefore would have been very helpful if Salin had taken the pains to discuss Rothbard’s (1977 [1970], 108ff) arguments against the very possibility of a pure consumption tax, as well as Rothbard’s related case against the very possibility and desirability of taxing consumption more than savings (*ibid.*, pp. 99f *et passim*).

REFERENCES

- Fisher, Irving and Herbert W Fisher. 1942. *Constructive Income Taxation*. New York: Harper.
- Puviani, Amilcare. 1903. *Teoria dell'Illusione finanziaria*. Milan: Remo Sandron Editore.
- Rothbard, Murray N. 1977 [1970]. *Power and Market*. Kansas: Sheed Andrews and McMeel.
- Wieser, Friedrich von. 1893 [1889]. *Natural Value*. London: Macmillan.

BOOK REVIEW

AUSTRIAN ECONOMICS IN CONTEMPORARY BUSINESS APPLICATIONS

HUNTER HASTINGS, ED.

AUBURN, ALA.: MISES INSTITUTE, 2020, 68 PP.

FERNANDO A. MONTEIRO C. D'ANDREA*

The six-chapter book *Austrian Economics in Contemporary Business Applications* promises to follow Mises's and Rothbard's lead and translate sound economic ideas for laymen. The book is, up to this point, the highest scholarly achievement of the "Economics for Business" project of the Mises Institute, launched in 2019.

It also aims to communicate opportunities of research and consulting to the Austrian audience. The contributors, all business school professors, show how Austrian ideas—value subjectivity, consumer sovereignty, capital allocation, entrepreneurship, etc.—can be useful "to practical management problems" in teaching and consulting (Hastings 2020, p. 4). The book suggests that Austrians should strive not only for a new science of managing business, but for a new science of business itself. This science would go beyond

* Fernando D'Andrea (dodandrea@gmail.com) is a Ph.D. student in entrepreneurship at Oklahoma State University.



the management aspect, incorporating entrepreneurship (see Mises 1998). It would take an individualistic perspective and explicit include entrepreneurs and consumers.

The book starts with Steven E. Phelan's chapter, which uses subjectivism to deal with the problem of how to properly assess a new project's potential financial returns. Using a consulting example, he argues that, for correctly assessing the possibility of investing in a new project, quantitative analysis and judgment should be used together. As a consequence, "business technocrats (aka MBA students)" (p. 14) must learn from Austrian economics, especially in what concerns the (un)certainty of the assumptions made in the management models. Business people need to be better at dealing with unstructured problems, and this gains relevance with the advancement of artificial intelligence. Dr. Phelan shows that Austrians are not against quantitative data—they view it and its treatment as necessary, but not sufficient, tool to support decision making under uncertainty.

In chapter two, Matthew McCaffrey exemplifies the utility of the Austrian approach by showing how students learn and apply fundamental concepts while thinking about investments and new ventures. He reminds us about the Austrian emphasis in realism and claims that it leads Austrians to be more capable of providing tools to businesspeople. Starting from a common planning approach—modeling a business idea on a spreadsheet by guessing different values to the foreseeable costs—Dr. McCaffrey presents and discusses Austrian concepts such as economic calculation, prices, value imputation, time preference, and governmental intervention. He summarizes: "project investment appraisal is simply economic calculation on a small, practical scale" (p. 19). By using that tool, students can better understand the contributions of each part of the capital to the value proposition. They learn that prices are not arbitrary and that they need to deal with those prices to better understand the possibilities of action. They also learn to consider uncertainty both in the future input prices and in the final good prices. At the policy level, students understand that supposedly well intended actions—such as increases in the minimum wage—can quickly destroy the economic feasibility of a venture. As Dr. McCaffrey puts: "It's one thing to be shown a supply and demand graph and told that minimum wage increases

can destroy the viability of a business: it's quite another to see the NPV of a business disappear at the press of a button, simply by increasing the minimum wage by a dollar or two." (p. 25). That experience surely substitutes for many classroom hours on the economics of supply and demand.

In Chapter 3, Peter G. Klein—the Austrian economist with the largest influence in management literature—contributes the book's most academic chapter. He affirms that only Austrians consider the entrepreneur in economic theorizing and mentions precursors in the tradition such as Cantillon, Schumpeter, Mises, Rothbard, Kirzner, and Salerno. He presents the opportunity-based view (Kirzner 1973) and his own approach to entrepreneurship: the judgment-based view (Foss and Klein 2012). In his view, entrepreneurship is an economic function and occurs all over the economy, not only in new ventures. The entrepreneur is the agent that organizes production processes, deploying resources and exercising judgment in search for money profit under Knightian uncertainty. Dr. Klein outlines his own theory of the firm as the "entrepreneur plus the alienable assets she owns and controls" (p. 32) and mentions how entrepreneurs necessarily exercise derived judgment in pre-existing firms.

Vishal K. Gupta authored chapter 4. He presents theoretical connections between mainstream management literature and the Austrians. Dr. Gupta calls special attention to the dynamism of the market process and the consequent essential role of the entrepreneur in the constantly disequibrated world seen in Lachmann. In Dr. Gupta's thinking, all entrepreneurs inherently understand Lachmann's points, and this should lead to a more central role for dynamism and entrepreneurship in management research and teaching.

Mark D. Packard is responsible for Chapter 5. He starts by suggesting that positivism is a problem in the social sciences and that there is "desperate need" for the Austrians' insights. Dr. Packard encourages Austrians interested in academia to enter the profession in management because this is open to non-orthodox ideas, and because Austrians better understand entrepreneurship and the whole market process. He adds to the classic management scheme—formed by marketing, people, operations and finance—the value for the consumer that is at the core of all unhampered market

activities. The entrepreneur is needed to organize production and to connect consumers to whatever fulfills their needs via the organization of firms. Dr. Packard discusses the theory of organizations, but strangely does not mention Foss and Klein (2012) and Bylund (2016) who offer economic explanations for that function. He mentions strategic management (from an Austrian perspective, a responsibility of the entrepreneur) and how its origins in industrial organization make its tools unfit for supporting managerial analysis and action in a dynamic world. His insights on Human Resources and Organizational behavior are very interesting. Using thymology to contrast the current applied psychology approach can be fruitful and would expand the Austrians' relevance in the social sciences as Rothbard (1951) suggested. Dr. Packard discusses consumer behavior and how it became positivistic. He suggests the adoption of a subjectivist view based on the insight that value lies in the consumer, a field that Austrians are starting to explore (Hastings, D'Andrea, and Bylund 2019; Packard 2016). He also points to future developments in finance and accounting and suggests an important research agenda: how stock traders can (not) be understood in light of the entrepreneurship literature.

In the last chapter, Per Bylund, the one most acquainted with talking to the layman in his *entrepreneur.com* pieces, suggests a metaphor for an entrepreneurial business: an island of specialization in the market ocean. He aims at correcting an error in business by substituting the very common war metaphors. Dr. Bylund argues that the use of the wrong metaphor leads to a poor understanding of the market as a zero-sum game, not a mutually beneficial arrangement, as it is in reality. He reminds us that, instead of conquering territory and becoming a king, the entrepreneur must serve consumers, the market kings. Entrepreneurs do that by facilitating value using their firms. There is no territory to be conquered, there are people to be pleased. Dr. Bylund presents the market as a process of collaboration and continuous specialization in which people become more productive when they engage in innovation and exchange. Entrepreneurs create new production processes, 'islands', via firms. To have a chance of success, entrepreneurs need to try to imagine what the future will look like, and try to create possible solutions that consumers will be willing to exchange for money. The firm should then be a reflection of the entrepreneur's

imagination of what needs to be done and how to serve consumers in the future. This insight has direct implications for the discussion of the role of high-level managers in large firms. The ‘entrepreneurial spirit’ must come from somewhere. Where does it come from in those corporations? It also makes us question how those same large firms come to be. Since it is difficult for the entrepreneur to maintain control, would these firms exist if not for governmental intervention? (Thornton [2018] provides some insights.) Dr. Bylund summarizes the metaphor: the firm is the island where innovation happens and it can, even in the most dreadful ocean conditions, survive if it has a good team and preparation. In short, if it continues evolving, it can survive market storms, but if innovation stops, it will be drowned by the ocean. The island metaphor is indeed much more powerful and accurate than the common war one.

The book covers a lot in Austrian thinking and suggests directions for scholars and practitioners to build upon. It is a valuable initial effort. However, several important issues are missing. Possibly the most important flaw is that it takes too long to deal with the most important root of everything in the market: the consumer. The two first chapters touch indirectly on the topic, but the very first direct treatment is on page 22. This unfortunately resembles mainstream business academia, where the firm comes first and usually the consumer is disregarded.

The book also falls short in that it should, more often and more directly, offer more connections between the current management paradigms and the new directions that the Austrian way of thinking has to offer. While chapters 1 and 2 recognize the validity of mainstream management tools and add Austrian flavors, some criticisms to mainstream management seem misplaced. For instance, saying that commonly used frameworks such as the “Five Forces” are totally without validity seems incorrect. Those mainstream management tools are imperfect and must be understood and used properly. This is not to say that they are useless. Adding Austrian insights to currently used tools and methods is a good way to talk to business people that already understand and use them. Discarding those tools is not a good strategy. The academic literature is notably distant from practice—managers hardly listen to academics and quite often the opposite is also true. Adding the Austrians’ touch to mainstream tools and creating new ones can fill that gap.

Another noticeable missing subject is “brand”, mentioned only once. Given the increased speeds of market dynamism, the role of brands will increase substantially. Exploring that from the Austrian perspective remains to be done.

Lastly, the title suggests a much more applied approach, directed to businessmen, not to (potential) scholars. While the two first chapters explicitly try to follow that path, chapters 3, 4 and 5 are academic and will be a poor fit to a non-academic audience. They are focused on Austrians interested in business studies, not in business people interested in understanding more about the economy to improve their businesses. Chapter 6 tends more toward a layman audience, but it mostly addresses scholars, asking them to change the metaphors they use to talk about markets. The definition of the target audience is a problem of the book that should be addressed in the future.

In general, *Austrian Economics in Contemporary Business Applications* provides interesting pathways to Austrians interested in academia. However, it mostly fails to do what the title suggests: talk to the business professionals and make them understand the benefits of adopting an Austrian perspective. The book does not cover everything, but is a good first approach in the direction of approximating Austrian ideas to business people. Next efforts should turn the focus more explicitly to entrepreneurs and businessmen and less to academics. The laymen, far more than the scholars, will directly and quickly benefit from the insights that the Austrian School has to offer.

REFERENCES

- Bylund, Per L. 2016. *The Problem of Production: A New Theory of the Firm*. Abingdon, UK: Routledge.
- Foss, Nicolai J., and Peter G. Klein. 2012. *Organizing Entrepreneurial Judgment: A New Approach to the Firm*. Cambridge: Cambridge University Press.
- Hastings, Hunter, ed. 2020. *Austrian Economics In Contemporary Business Applications*. Auburn, Ala.: Mises Institute.
- Hastings, Hunter, Fernando A. Monteiro C. D’Andrea, and Per L. Bylund. 2019. “Towards A Value-Dominant Logic For Marketing.” *MISES: Interdisciplinary Journal of Philosophy, Law and Economics*, forthcoming.

- Kirzner, Israel M. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- Mises, Ludwig von. 1998. *Human Action, Scholar's Edition*. Auburn, Ala.: Mises Institute.
- Packard, Mark D. 2016. *Consumer Sovereignty and Entrepreneurship*. Columbia, Missouri: University of Missouri. Retrieved from <https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/56551/research.pdf>.
- Rothbard, Murray N. 1951. "Praxeology: Reply to Mr. Schuller." *American Economic Review* 41, no. 5: 943–46.
- Thornton, Mark. 2018. *The Skyscraper Curse: And How Austrian Economists Predicted Every Major Economic Crisis of the Last Century*. Auburn, Ala.: Mises Institute.

BOOK REVIEW

RE-READING ECONOMICS IN LITERATURE: A CAPITALIST CRITICAL PERSPECTIVE

MATT SPIVEY

LANHAM, MARYLAND: LEXINGTON BOOKS, 2021. 133 PP.

DAVID GORDON*

Matt Spivey asks an important question. Literary critics often use economics to interpret the texts they consider, but often they have mistaken ideas about economics. They oppose the free market and are frequently Marxists. Spivey, an English professor at Arizona Christian University who specializes in American literature, asks, why not instead use correct economics instead? And by “correct” economics, he means Austrian economics. In carrying out his project, Spivey continues the pioneering work of Paul Cantor and Stephen Cox, eds., *Literature and the Economics of Liberty*, and it comes as no surprise that Cantor calls Spivey’s book “a welcome breath of fresh air in its field.”¹

* David Gordon (dgordon@mises.org) is a senior fellow at the Mises Institute and editor of the *Journal of Libertarian Studies*.

¹ See my review of Cantor and Cox at <https://mises.org/library/literature-and-economics-liberty-spontaneous-order-culture-paul-cantor-and-stephen-cox>.



Spivey has set himself a hard task, in that four of the five books he discusses are written from perspectives opposed to the free market, and he often has to show how insights in the books undermine themes the authors suggest. The first book he considers, though, the *Narrative of Frederick Douglass* ([1845] 2014) was written by a committed supporter of individual enterprise. “He was against collectivist economic systems and viewed any attempt at eradicating or revolutionizing the fundamentals of capitalism as completely unrealistic... he knew America was different from anywhere else in the world for its singular freedom.” (p. 39)

Austrian economists stress the entrepreneurial aspect of human action. Individuals must seize chances of gain through their appraisal of their situation, and here Douglass was a master and not a slave. Douglas constantly sought to increase his knowledge and skills. He did not allow his starting point in slavery to get the better of him. “Douglass, though enduring a horrific existence of enslavement, remains an acting individual whose life choices, though severely limited due to his abhorrent circumstances, are still varied and available.” (p. 37) Spivey calls Douglass’s enterprising efforts an attempt to build up his “human capital,” and though this, as Peter Klein (2014) explains, is a term Austrian economists prefer to avoid, one can see what Spivey means.

Spivey draws a brilliant analogy between Austrian business cycle theory and Jay Gatsby’s courtship of Daisy Buchanan in F. Scott Fitzgerald’s *The Great Gatsby* ([1925] 2020). According to the Austrian account, the cycle begins with an expansion of bank credit, driving the money rate of interest below the natural rate, determined by time preference. This leads to malinvestments that cannot be sustained. The depression that follows purges these mistakes from the economy. In like fashion, Gatsby tried to impress Daisy through his lavish parties, paid for by forged bonds acquired through crime:

But it is Gatsby’s business connections that serve the defining role of illicit money in the novel, whereby we gather by several clues... that Gatsby has made at least some of his vast fortune peddling forged or illegitimate bonds. The model fits with the real real-world economic function of bonds, as the government has always been a primary promoter of bonds issues.” (p. 56)

Though at first impressed with Gatsby's ill-gotten wealth, Daisy in the end rejects him, and Spivey compares her rejection to the collapse of unsustainable investments.

Defenders of the free market might be expected to find John Steinbeck's *The Grapes of Wrath* ([1939] 2006) a challenge to their beliefs. Capitalism may benefit many people, but weren't the Okies, driven from their farms during the 1930s, an exception? Spivey proves equal to the challenge. To a large extent, the Okies's problems stemmed from government intervention. Spivey makes effective use of Murray Rothbard's demonstration that Herbert Hoover was a fervent interventionist, and his ill-advised farm policies, continued by Franklin Roosevelt, led the Okies and others to disaster. The Joads, the main Okie family in Steinbeck's novel,

are not victims of greedy corporate financiers; rather they are pawns in the struggle between authority and autonomy. The government wants power to organize its citizenry; businesses want the independence to trade goods and services as they see fit for the success of their industry. The Joads and the millions like them are—unfortunately and incorrectly—left pointing fingers at enemies they can see instead of the ones they can't. (p. 77)

Spivey also challenges the picture of black life in 1940s Chicago which Richard Wright ([1940] 2005) offers in *Native Son*. Wright, a member of the Communist Party when he wrote his novel, portrays Bigger Thomas, the protagonist, as doomed to destruction owing to capitalist exploitation and racism. Spivey disagrees. He quotes Mises: "The environment determines the situation but not the response. To the same situation different modes of reacting are thinkable and feasible. Which one the actors choose depends on their individuality." (p. 96) Applying Mises's point to Bigger, Spivey says,

How do we view Bigger when we can see that charges of racism in housing, business, employment, and other elements of [the] community are often inaccurate matters of perception and should rather be viewed as logical consequences of human interaction? How much should we sympathize with Bigger if we can see that difficulties were not unique to blacks alone, but also existed for whites with a similar cultural background, and that success was not unique to whites alone, but also existed for many blacks? These queries offer an interpretation of Bigger Thomas that reduces social sympathy and emphasizes personal responsibility. (p. 96)

Critics of the free market have a vast array of complaints against it, and in Kurt Vonnegut's *Player Piano* ([1952] 2006), the field of battle turns to automation. Writing in 1952, Vonnegut feared that new technology would destroy jobs and impoverish large numbers of people. Spivey once more brings to bear the conclusions of sound economics. Mises

explains that technological improvements are not designed and implemented as a means to reduce labor, but rather to increase production. If there were no potential for production efficiency, then technology would not be adopted.... With more supply at hand, more consumption and, ultimately, more leisure time are possible, in turn opening up new kinds of demand, new kinds of production, and new kinds of employment.... Understanding this relationship, Mises writes, "explodes all talk about 'technological unemployment.'" (pp. 105–06)

Spivey says that Vonnegut's emphasis on the level of employment is misplaced. "The goal of an individual business, on a micro-economic level, or of a national economy, on a macro scale, is not to create jobs. The goal of all economic endeavors is [to] create wealth, that is, subjective value, for all involved---owners, employees, consumers, investors, and anyone else directly or indirectly affiliated. Jobs are not ends." (p. 106)

An objection may have occurred to some readers. Is Spivey using the novels just as props that permit him to present correct economic analysis? Not at all. As suggested earlier, he uses the novels themselves to elicit points that, often against the authors' intentions, bring out themes valuable from an Austrian point of view. Although Vonnegut, for example, is a bitter critic of the effects of automation, Bud Calhoun, a character in *Player Piano*,

acknowledges that one of his creations is an improvement over his own human labor. "Does [the job] a whole lot better than Ah did it."... Ultimately, it must be admitted that "machines were doing America's work far better than American ever done it. There were better goods for more people at less cost, and who could deny that that was magnificent and gratifying?" (p. 108)

Spivey has overturned a type of literary criticism dominated by Marxism, and that is a magnificent achievement.

REFERENCES

- Cantor, Paul A., and Stephen Cox, eds. 2009. *Literature and the Economics of Liberty: Spontaneous Order in Culture*. Auburn, Ala.: Mises Institute.
- Douglass, Frederick. [1845] 2014. *Narrative of Frederick Douglass*. New York: Millennium Publications.
- Fitzgerald, F. Scott. [1925] 2020. *The Great Gatsby*. New York: Scribner.
- Gordon, David. 2009. "Review of *Literature and the Economics of Liberty: Spontaneous Order in Culture*, by Paul A. Cantor and Stephen Cox." *Mises Review* 15, no. 3. Available at <https://mises.org/library/literature-and-economics-liberty-spontaneous-order-culture-paul-cantor-and-stephen-cox>.
- Klein, Peter. 2014. "A Note on Human Capital." *Mises Wire*, May 6. Available at <https://mises.org/wire/note-human-capital>.
- Steinbeck, John. [1939] 2006. *The Grapes of Wrath*. London: Penguin.
- Vonnegut, Kurt. [1952] 2006. *Player Piano*. New York: Dial Press.
- Wright, Richard. [1940] 2005. *Native Son*. New York: Harper.

BOOK REVIEW

RADICAL UNCERTAINTY: DECISION-MAKING BEYOND THE NUMBERS

JOHN KAY AND MERVYN KING

NEW YORK: NORTON, 2020. XVI + 528 PP.

DAVID GORDON*

Kay and King are not Austrians, but in this important book, they lend aid and comfort to several key points of Austrian economics. Kay teaches economics at Oxford, and King, who was formerly Governor of the Bank of England, teaches at NYU. (King in an earlier book, *The End of Alchemy*, which I had occasion to review, warns against the dangers of fractional reserve banking, in a way that will delight admirers of Murray Rothbard.)

Austrians hold that the dynamics of the market depend on profit-seeking entrepreneurs, whose judgments of appraisal are of necessity subjective, irreducible to monetary calculation. As Joseph Salerno (1990) explains,

Mises presents a penetrating critique of the Walrasian view that, in the plans of producers, prices substitute for knowledge of the economic

* David Gordon (dgordon@mises.org) is a senior fellow at the Mises Institute and editor of the *Journal of Libertarian Studies*.



data or, rather, for entrepreneurial understanding and appraisal of future variations of these data. Mises's critique is grounded on the incontrovertible fact that 'The prices of the market are historical facts expressive of a state of affairs that prevailed at a definite instant of irreversible historical time.' As such, realized prices can never serve as an unambiguous guide to production; which is always aimed at supplying a market of the more or less remote future involving a different configuration of the economic data.

Mises's argument depends on the distinction, made famous by Frank Knight, between risk and uncertainty. In a situation of risk, the actor knows the possible outcomes and can apply the probability calculus to them. In a situation of uncertainty, he cannot so, either because he cannot use the probability calculus or because he does not know all the possible outcomes. He must rely on his judgment about the particular case. Mises calls this the distinction between class and case probability. He says in *Human Action* about case probability:

Case probability means: We know, with regard to a particular event, some of the factors which determine its outcome; but there are other determining factors about which we know nothing. Case probability has nothing in common with class probability but the incompleteness of our knowledge. In every other regard the two are entirely different. (Mises [1949] 1998, 110)

Mainstream neoclassicals do not accept this distinction. Milton Friedman says,

[I]n his seminal work, Frank Knight drew a sharp distinction between risk, as referring to events subject to a known or knowable probability distribution, and uncertainty, as referring to events for which it was not possible to specify numerical probabilities. I've not referred to this distinction because I do not believe it is valid.... We may treat people as if they assigned numerical probabilities to every conceivable event. (p. 74, quoting Friedman.)

If Friedman is correct, a key tenet of Austrian economics is wrong; entrepreneurial appraisal must exit the scene.

Mises acknowledges that you can say things like, "I think there is a 50 percent chance the Republicans will win the coming election." But this is just an expression of how confident you feel about this, and it is meaningless to use probability calculus here. He says,

On the eve of the 1944 presidential election people could have said:... (c) I estimate Roosevelt's chances as 9 to 1.... This is a proposition about the expected outcome couched in arithmetical terms. It certainly does not mean that out of ten cases of the same type nine are favorable for Roosevelt and one unfavorable. It cannot have any reference to class probability. But what else can it mean? It is a metaphorical expression.... For the comparison is based on a conception which is in itself faulty in the very frame of the calculus of probability, namely the gambler's fallacy. In asserting that Roosevelt's chances are 9:1, the idea is that Roosevelt is in regard to the impending election in the position of a man who owns 90 per cent of all tickets of a lottery in regard to the first prize. It is implied that this ratio 9:1 tells us something substantial about the outcome of the unique case in which we are interested. There is no need to repeat that this is a mistaken idea. (Mises [1949] 1998, 113–15)

Knight has an amusing comment on this issue. He says,

The saying often quoted from Lord Kelvin... that where you cannot measure, your knowledge is meagre and unsatisfactory; as applied in mental and social science is misleading and pernicious.... the Kelvin dictum very largely means in practice, if you cannot measure, measure anyhow!" (p. 86)

Friedman has an answer to this objection. It does not matter, he says, whether people actually do assign probabilities to every conceivable event. This is just an assumption economists make, and what counts for a good theory is not the realism of its assumptions. Rather, a good theory is one that generates good predictions.

Kay and King reject this view, and here they again render Austrian economics a service, though, to reiterate, they themselves aren't Austrians. The method of Austrian praxeology is deductive, and unless your premises are true, you have no guarantee that the conclusions you deduce from them are also true. Thus, Austrians must reject Friedman's position.

Kay and King reject Friedman's methodology because there is almost never clear evidence that the predictions of a theory are false. You can always adjust something in the theory to make it come out true, and that is what all-too-many economists do:

Friedman's article [on methodology] appeared in a brief period of intellectual history in which a version of Popperian falsificationism—the idea that a hypothesis acquires scientific status only if there is a possibility

that it might be refuted was in fashion.... The decisive rejection of this falsificationist view is encapsulated in what philosophers know today as the Duhem-Quine hypothesis: such refutation is rarely definitive, because any test requires a range of auxiliary assumptions, and it is always possible to argue that these assumptions have not been fulfilled. (pp. 259–60)

There is an additional point that strengthens the argument against Friedman. It isn't clear that his claim about probability estimates generates any predictions at all. If you make a series of bets that don't conform to the principles he sets forward, he can show through what is called a "Dutch-book" argument that you will lose money. But that is hardly a prediction that anyone will in fact make a series of bets of this kind.

Kay and King suggest that, in fact, most people won't make bets in the circumstances that Friedman assumes.

In a world of radical uncertainty, most people do not choose among lotteries, far less enter them, and for good reasons.... They shun randomness. They are reluctant to make commitments in situations they do not understand, especially when other people may have a better understanding of them.... Of course, there are people who will take a bet on anything, but that is a mark of weirdness, not rationality. (p. 84)

Friedman's rejection of the risk-uncertainty distinction is part of a general effort of the Chicago School to judge the free market by external standards of "efficiency," here again a point of divergence from the Austrian School. (By "Chicago School", I refer to the period that began with Friedman's dominance Knight and Henry Simons did not share Friedman's views) The authors give another example of this Chicago tendency. Herbert Simon criticizes the neoclassical view that people try to maximize their expected utility on the ground that often, what is "good enough" suffices. If, for example, you are selling your house and you get an offer that seems satisfactory, you may take it. You won't keep investigating to see if you can get a better offer. Simon called this "bounded rationality" or "satisficing."

Simon's point does not faze the Chicago economists. They argue that if you accept the offer, you are still maximizing, if account is taken of the search and transactions costs of looking for something better. Thus, they transform what Simon argues into its exact

opposite. “Simon is reported to have joked that he should take legal action against his successors who misused his terminology and neglected his insights.” (p. 151)

Austrian School economists also reject the use of the conditions for general equilibrium as a standard to judge the free market, and here once more Kay and King agree. They tell us that Kenneth Arrow and Gerard Debreu, who first proved that competitive prices can under certain conditions result in a general equilibrium, realize that their model is unrealistic:

Arrow and Debreu recognized that they were describing an imaginary world akin to that of *Through the Looking-Glass*. And they interpreted that world as a rhetorical device, like those literary fictions, illustrative of propositions which might—or might not—be true in any real world. (p. 344)

Kay and King have written an impressive and erudite book that ranges over many disciplines. It is often repetitious; though the book is about radical uncertainty, readers will rarely be uncertain what the authors are going to say. The book is filled with anecdotes, and I’ll close with one that illustrates the authors’ criticism of the neoclassicals:

The new macroeconomic theorists followed a different approach.... Ronald Coase attributed a satirical description of it to the English economist Ely Devons: “If economists wished to study the horse, they wouldn’t go and look at horses. They’d sit in their studies and say to themselves, ‘What would I do if I were a horse?’”

REFERENCES

- Mises, Ludwig von. [1949] 1998. *Human Action: A Treatise on Economics*. Scholar’s Edition. Auburn, Ala.: Mises Institute.
- Salerno, Joseph T. 1990. “Ludwig von Mises as Social Rationalist.” *Review of Austrian Economics* 4: 26–54.

BOOK REVIEW

THE ESSENTIAL AUSTRIAN ECONOMICS

CHRISTOPHER J. COYNE AND PETER J. BOETTKE

VANCOUVER: FRASER INSTITUTE, 2020. 68 PP.

DAVID GORDON*

Christopher Coyne and Peter Boettke, both professors of economics at George Mason University, say, “The purpose of this book is to present an overview of the key tenets of Austrian economics. In order to do so we draw upon and synthesize the insights from the aforementioned thinkers to present and discuss a set of eight topics that capture the core elements of Austrian economics.” By the “aforementioned thinkers,” they mean Menger, Böhm-Bawerk, Wieser, Mises, Hayek, Kirzner, Rothbard, and Lachmann. They succeed very well in explaining the topics they cover in a way students will find easy to follow. Naturally enough, there are points of detail which other Austrians might address differently, and I shall mention a few of these in what follows. (The most questionable statement in the book, oddly enough, does not concern economics at all. In their chapter “Spontaneous Order,” they say, “language emerges as people interact with one another and attempt to communicate.”[p.

* David Gordon (dgordon@mises.org) is a senior fellow at the Mises Institute and editor of the *Journal of Libertarian Studies*.



34]. Chomsky would reject that, and the view is quite controversial.) But the main problem with the book lies elsewhere, and this I shall address after a summary of the book.

Before they cover their eight topics, they briefly explain the marginal revolution.

The marginal revolution was a paradigm shift from the established labour theory of value to the marginal utility theory of value. The labour theory of value held that the value of a commodity is a function of the labour required to produce the item. The marginal revolutionists, in contrast, argued that value is not based on the amount of labour expended, but rather reflects how useful people perceive the commodity to be in satisfying their ends. (p. 1)

The new theory was able to solve the “diamond-water” paradox. Further, by proving that there are universally true economic laws, Menger refuted the German Historical School.

The first of their eight topics is “Methodological Principles.” They explain in exemplary fashion the principle of methodological individualism: “Groups and organizations, which consist of people, do not engage in choice and do not have purposes and plans absent the individuals that constitute the group.” (p. 5). It is precisely the purposes and plans of individuals which lie at the heart of Austrian economics, and, contrary to Alfred Marshall, the subjective nature of value determines not only the demand side of price, but costs as well.

As they note in “Economic Calculation,” the allocation in a developed economy of production goods to alternative uses requires market prices, and Mises used this fact to prove the impossibility of socialism. “Mises argued that without property rights in the means of production, which the socialists wanted to abolish, there could be no economic calculation because there would be no money prices.” (p. 13) The attempts by Lange and Lerner to incorporate some element of market pricing into socialism did not succeed. “The market socialists, Hayek argued, were preoccupied with a static notion of equilibrium where all relevant economic knowledge was given, known, and frozen.” (p. 15)

Coyne and Boettke turn to another fundamental Austrian insight, one very much related to economic calculation. Capital is not a

homogeneous “blob,” but consists of a wide variety of goods, organized in stages of production. As Menger argued,

the value of capital goods is not inherent in the goods themselves, but instead is derived from the lower-order goods in the structure of production. Raw materials do not have inherent objective value, but instead derive their value from what they contribute to the production of other, value-added capital goods in the structure of production. These lower-order goods likewise derive their value from their contribution to the production of the final consumer good. What ultimately drives this process is the expected value of the final consumer goods (the first-order goods) as determined by consumers. On the market, these subjective valuations are captured in the market prices of capital goods....” (pp. 18-19)

The chapter relies heavily on the insights of Lachmann, fortunately from his earlier work and not from his later “kaleidic” speculations.

The next chapter, “The Market Process,” is Kirznerian in emphasis. Like Kirzner, the authors stress that the market allows individuals to coordinate their plans. “Markets are valuable because in order to accomplish our various goals we typically need to coordinate with others who are also pursuing their own goals.” (p. 24) Is this true, I wonder? We can imagine, at each moment, an equilibrium that would be reached if all data were then frozen, but does it follow that individuals are endeavoring to reach this equilibrium? But this is not the place to pursue this difficult topic. They rightly note the importance of property rights that make possible the price system by which persons can adjust to changing circumstances. Entrepreneurs are central to their market process, and their account of this vital function follows Kirzner in his emphasis on “sheer ignorance.” I am pleased to see, though, that they note the importance of loss as well as profit in their account of the entrepreneur: “The lure of profit provides an incentive for risk taking because a successful first mover can earn a significant profit by being the initial producer of a good valued by consumers. At the same time, the potential for loss makes entrepreneurs careful when making investment decisions.” (p. 28)

Hayek moves to the center of attention in “Spontaneous Order.” Here the key idea is that

The systematic development of thinking about spontaneous order was achieved during the eighteenth century by scholars of the Scottish Enlightenment. Thinkers like Adam Ferguson, David Hume, and Adam Smith appreciated the idea that mechanisms existed to solve complicated problems and generate complex orders absent design or control by an individual or group of individuals. Moreover, given the nuance and complexity of these orders they could not be designed using human reason because they extended beyond what the human mind could grasp."

They highlight Hayek on the limits of human reason, and in doing so, they go astray in a way I shall later address.

They return in my view to a state of grace with "Interventionism." They take up Mises's famous example of price controls for milk. Price ceilings are introduced to make milk available more cheaply to the poor. They fail to achieve their purpose, since they lead milk sellers to withdraw milk from the market. The interventionists now face a choice: they can either end the controls, returning to free market pricing, or they can institute new controls that attempt to remedy the problems of the initial set. If they do the latter, the new controls will in turn fail. If the process of intervention proceeds long enough, the result will be the end of the market system altogether.

The authors continue with another excellent chapter, "Business Cycles." Expansion of bank credit lowers the monetary rate of interest below the "natural rate," determined by consumers' time preference. This leads to malinvestments that prove unsustainable when the credit expansion stops, and the liquidation of these projects constitutes the depression phase of the cycle. As the authors say, "In addition to discussing the policy response to a bust once it occurs, Austrian economists have also explored ways of avoiding the onset of a bust in the first place." (p. 47) But one could wish that when they present the various proposals for a monetary constitution, they had been more explicit about Rothbard's proposal for a gold standard without fractional reserve banking. They say,

A monetary constitution can take a variety of forms in practice and might include such things as a rule limiting the amount of credit created within a particular time frame, the backing of credit by hard money to limit the ability of banks to print money, or monetary competition which would limit money creation by replacing a centralized monopoly supplier of money with competition among banks. (p. 48)

They conclude the chapter with an arresting remark: “The *General Theory* was published in 1936 and Hayek decided not to respond directly. In making this decision, Hayek committed what many defenders of the free market system consider to be one of the major tactical errors of this century.” (p. 48)

The book’s final topic is “Planning and the Power Problem,” Coyne and Boettke explain Hayek’s argument in *The Road to Serfdom* that the attempt to impose comprehensive economic planning is liable to result in an end to liberty.

As Hayek pointed out in his 1944 book, *The Road to Serfdom*, economic planning by government policymakers necessarily violates the rule of law because planners must have discretion to address unforeseeable situations that cannot be anticipated *ex ante*.... Given what planning entails, successful seekers of government office will be those who are comfortable designing plans based on their preferences and imposing their vision on others who would have pursued different activities if left to their own, voluntary choices. Hayek argued that the very desire of planners to organize life according to a single, overarching plan emerges from the desire for power to control and shape the world according to the planner’s vision. (pp. 51–52)

Although the various topics are for the most part handled well, there is, as I suggested at the start, a fundamental problem with the book. The authors do not have a clear sense of economics as a separate body of *a priori* truths about human action, and it is significant that the word “praxeology” nowhere appears in the text. True enough, they say

The theorems of economics—that is, the concepts of marginal utility and opportunity cost, and the principle of demand and supply—are all derived from reflection upon purposefulness in human action. Economic theory does not represent a set of testable hypotheses, but rather a set of conceptual tools that aid us in reading and understanding the complexities of the empirical world. (p. 6)

But they mix together praxeological theorems with other things. It is true, as they say, that we can understand a postman’s activity in stuffing pieces of paper into boxes by reference to “ideal types,” but, as Mises explicitly said, ideal types are not part of economic theory. Hayek’s speculations on the limits of human reasoning are

worth attention, but once more they are not part of praxeology. The notion that under economic planning “the worst get on top” is very plausible, but again the psychological and historical insights need to validate this stand outside of praxeology.

The authors’ failure to delimit praxeology as a separate field leads to a related problem. They rightly say, “The Weberian doctrine of *Wertfreiheit*—‘value freedom’—was adopted by Mises as a foundational principle of what it meant to do economic science.” (p. 9) But the book abounds in value judgments. They say, for example, and I entirely agree, that “The appropriate response to a bust is to allow entrepreneurs, through the operation of the market process, to reallocate and regroup scarce resources in the capital structure.” (p. 47) This is clearly a value judgment, and the way in which one can use praxeological knowledge to attain various policy goals needs more clarification than we find here. But all in all, *The Essential Austrian Economics* is useful and helpful, if not altogether essential.