Levy Economics Institute of Bard College

Summary

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LETTER FROM THE PRESIDENT

To our readers:

This issue opens with our latest strategic analysis of the US economy, under the State of the US and World Economies program. Research Scholars Michalis Nikiforos, Gennaro Zezza, Greg Hannsgen, and I examine the impact of decades of income inequality on the American economy's capacity to recover and grow. We conclude that the Congressional Budget Office's projections require an expansion of net private borrowing that will fall disproportionately on lower- and middle-income Americans. Our findings identify income inequality as an eighth unsustainable process limiting the US recovery.

In the first of two public policy briefs under this program, Research Associate and Policy Fellow C. J. Polychroniou discusses the ongoing eurozone crisis as a symptom of failed neoliberal economics and the debilitating effects of austerity. In a second brief, Philip Pilkington takes up the question of Scottish independence, and discusses the monetary implications of a sovereign Scotland. In a working paper, Alberto Botta discusses the eurozone crisis with an analysis of the structural asymmetries that preceded the crisis and persist today. The program closes with a paper examining the political economy of shadow banking by Eloy Fisher and Javier López Bernardo.

In a public policy brief under the Monetary Policy and Financial Structure program, Senior Scholar Jan Kregel draws lessons from the late Distinguished Scholar Hyman P. Minsky's work on macroprudential regulation. In the first of four working papers under this program, Senior Scholar L. Randall Wray debunks the myth of central bank independence as both historically inaccurate and substantively undesirable. In a second paper, Wray analyzes the theoretical antecedents and contributors to Modern Money Theory. Drawing on Minsky's work, Eugenio Caverzasi updates the financial instability hypothesis so as to better account for the rise of financialization, and as a framework to explain the subprime mortgage crisis. Research Associate Éric Tymoigne explores the nature of money and offers an alternative to the standard functional approach. Rounding out the program, Research Associate Thorvald Grung Moe takes up the challenges shadow banking poses for central banks.

Senior Scholar Ajit Zacharias, Research Scholar Thomas Masterson, and Research Associate Emel Memiş analyze poverty in Turkey in a public policy brief under the Distribution of Income and Wealth program. Using the Levy Institute Measure of Time and Consumption Poverty, they find that the official estimates significantly underestimate the level of poverty in Turkey and propose policy strategies to address the underlying factors that contribute to poverty. In a policy note, Research Scholar Fernando Rios-Avila and Julie Hotchkiss examine wage stagnation in the United States. They find that wages should have increased given a more experienced and better-educated workforce but in fact remained flat. In working papers, Masterson examines the quality of match used in the estimation of the Levy Institute Measure of Time and Income Poverty for South Korea, and Rios-Avila reports on the statistical match between the 2011 population, time-use, and consumer finance surveys used as the basis for the Levy Institute Measure of Well-Being estimates for the United States.

In a working paper included under the Gender Equality and Economy program, Research Associate Lekha S. Chakraborty provides a discussion of gender-responsive budgeting. Next, Research Scholars Tamar Khitarishvili and Kijong Kim investigate the role of poverty status in determining the level of unpaid work (household production) in US households before, during, and after the Great Recession.

Six working papers are included under the Economic Policy for the 21st Century program. Fabrizio Patriarca and Claudio Sardoni present their argument that the endogenous rate of depreciation is a missing element in our understanding of capacity utilization and growth. Research Associate Martin Binder and Leonhard K. Lades examine some of the issues in libertarian paternalism, and argue for an "autonomy enhancing paternalism" as an alternative. Finally, Research Scholar Olivier Giovannoni contributes a series of four working papers on the functional distribution of the labor share of income. The papers explore the theoretical contributions to our understanding of the labor share; examine the empirical literature on the determinants of the labor share, emphasizing technological change, international trade, and financialization; present the first high-frequency measure of the labor share for the US economy as a whole; and introduce factor shares into some of the most common growth models as a means of gaining insight into the role of income distribution.

As always, I welcome your comments.

Dimitri B. Papadimitriou, *President*

Program: The State of the US and World Economies

Strategic Analysis

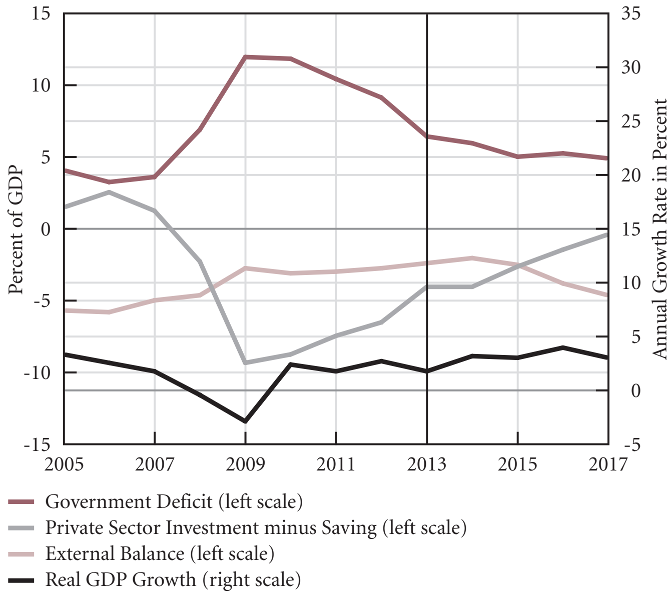
Is Rising Inequality a Hindrance to the US Economic Recovery?

DIMITRI B. PAPADIMITRIOU, MICHALIS NIKIFOROS, GENNARO ZEZZA, and GREG HANNSGEN
Strategic Analysis, April 2014

In the latest strategic analysis, Levy Institute President Dimitri B. Papadimitriou and Research Scholars Michalis Nikiforos, Gennaro Zezza, and Greg Hannsgen conclude that rising income inequality limits economic recovery in the United States. The analysis builds on Wynne Godley's 1999 analysis of US economic growth, in which he identified seven unsustainable processes. Godley argued that if fiscal policy is restrictive and the demand for net exports weak, then economic growth will depend on the private sector spending more than it makes. Clearly, higher debt-to-income ratios cannot be sustained over the medium or long run. The recessions of 2001 and 2007–8 confirmed Godley's observations, and today the US economy appears poised to deliver another confirmation of his analysis.

The authors find that the Congressional Budget Office's (CBO) most recent prediction of 3 percent to 3.5 percent growth for the US economy over the next three years relies on excessive private sector borrowing, leaving the economy at the mercy of the stock market. This trend, in combination with the ongoing inequality seen in the income distribution, yields an eighth unsustainable process, say the authors. A small number of high-income households have seen their share of wealth increase, while the majority of households have seen their income share decrease. The inequality in the income distribution thus leads households to debt-finance their consumption. Further, the authors argue that the changes in the distribution of income during the last three and half decades have reduced the ability of the US economy to recover. In the context of weak foreign demand, high income inequality, and constrained public spending, the United States faces either low growth rates or economic expansion based on a bubble, followed by another crisis. These two paths are deeply rooted in the structural characteristics of the economy, and, as an explanation of current macroeconomic conditions, go far beyond, for example, the zero bound of nominal interest rates.

Figure 1 **Baseline Scenario: US Main Sector Balances and Real GDP Growth, Actual and Projected, 2005–17**



Sources: BEA; authors' calculations

The authors next examine the medium-term outlook using the Levy Institute macro model. They begin with a baseline scenario (Figure 1) that simulates the projections contained in the CBO's *Budget and Economic Outlook 2014–2024*.

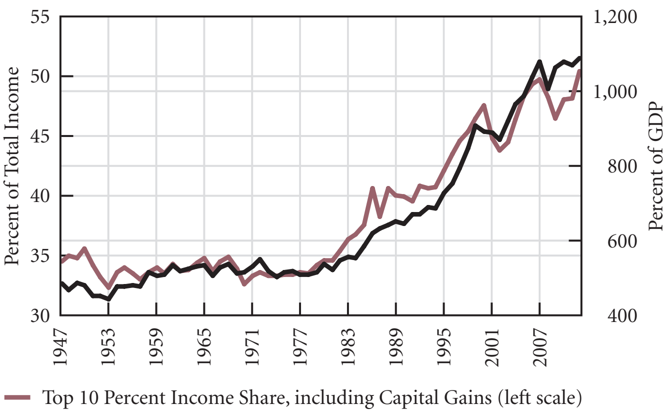
The CBO's projections for the period 2013–17 assume a declining federal budget deficit over 2013–15, followed by a small rise in the deficit in 2016 and 2017. Real GDP growth is expected to increase to 3.4 percent by 2016 and then fall to 2.7 percent in 2017. Using the Levy Institute macro model, the authors estimate the level of private sector spending needed to achieve the CBO's numbers. Their simulation reveals a sharp deterioration in net foreign borrowing converging to 4.5 percent of GDP by 2017, and net private sector lending must fall to nearly zero by 2017. In the baseline scenario, private sector debt stabilizes in 2014, increases slightly in 2015, and then increases rapidly in 2016 and 2017. This assumes that the fiscal policy of federal, state, and local governments remains unchanged; if government spending contracts further, higher private debt levels will be needed to reach the CBO's projections. Given these results, the authors underscore the need to address the problems of private and foreign sector deficits. In terms of unemployment projections, the Levy model results are in line with the CBO's projected 6 percent unemployment by 2017. However, there are other forces at work that are not included in the CBO projections.

The biggest obstacle to a sustainable recovery in the US economy is inequality in the distribution of income. Examining data originally tabulated by Thomas Piketty and Emmanuel Saez, the authors report a dramatic increase in the incomes of the wealthy beginning in the early 1980s. Income inequality since the 1980s has mirrored the levels of income inequality seen prior to 1929 and the Great Depression. Between 1980 and 2012 (in 2015 dollars), the top 1 and 10 percent increased their wealth by $2 trillion and $5 trillion, respectively (Figure 2). This represents a massive increase in liquidity that went into the financial markets. Between the postwar period and the 1970s, the share of financial assets of the top 10 percent of incomes as a percentage of GDP remained relatively steady.

Trends in consumption, which had been steady in the postwar period, eroded with the increasing income inequality. This period saw increased demand for liquidity to sustain consumption by the bottom 90 percent, which was supplied by the top 10 percent. A similar picture emerges from an examination of stocks rather than flows. The American middle class and lower-income households increased their debt to maintain consumption not covered by income. This increase in debt levels and the decline in incomes led to the crisis of 2007. To put this in perspective, between 1983 and 2010 the wealthiest decile captured 90 percent of the total wealth created during this period. The middle and bottom of the income distribution saw the opposite occur; for example, the bottom 40 percent saw a 270 percent decrease in average household wealth.

Using the stock-flow consistent Levy macro model, the authors turn to the task of examining the impact of income distribution trends on the macroeconomic performance of the US economy and how the CBO projections fare in comparison. The model shows that the increase in private sector indebtedness required to fulfill the CBO's projections will fall dispropor-

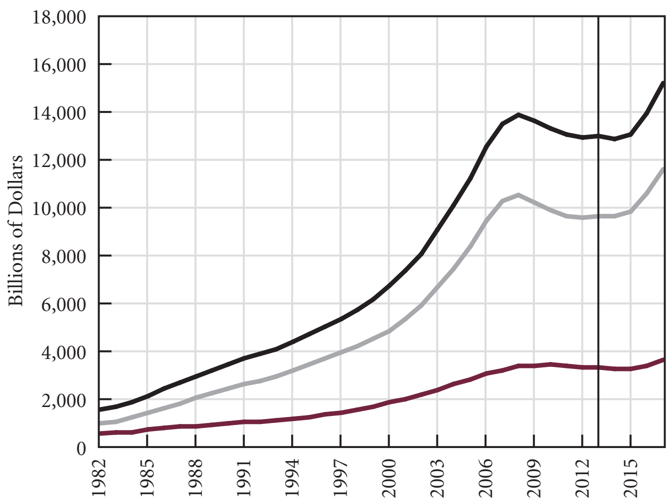
Figure 2 **Top 10 Percent Income Share and Total Financial Assets, 1947–2012**



Top 10 Percent Income Share, including Capital Gains (left scale)
Total Financial Assets (right scale)

Sources: Alvaredo et al. (2014); Federal Reserve; BEA; authors' calculations

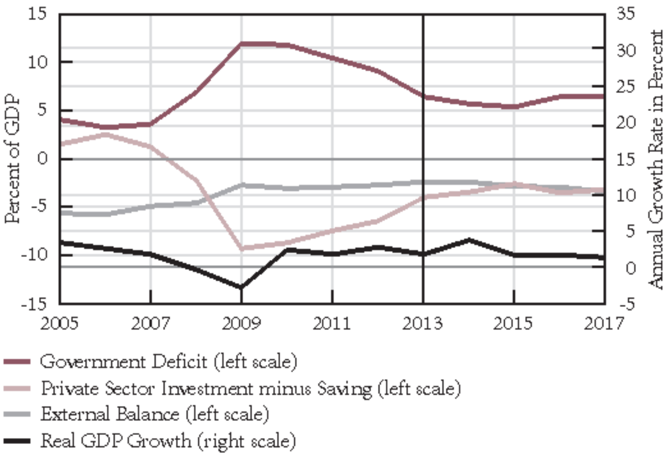
Figure 3 **Baseline Scenario: Decomposition of Household Debt, Actual and Projected, 1982–2017**



Total
Bottom 90 Percent
Top 10 Percent

Sources: Wolff et al. (2012); Federal Reserve; authors' calculations

Figure 4 Scenario 1: US Main Sector Balances and Real GDP Growth, Actual and Projected, 2005–17



Sources: BEA; authors' calculations

tionately on the middle class and the poor. If the income distribution remains at 2012 levels (and thus, so will disposable income ratios), the top 10 percent will see their debt decline by 2017 and the bottom 90 percent will see their debt-to-disposable-income ratios increase starting in 2015. These kinds of increases in private sector debt will strangle middle- and low-income households—a clearly unsustainable process.

In many respects, this would repeat dynamics played out in earlier decades. The debt taken on by middle- and low-income households during the 1990s and 2000s sustained aggregate demand and consumption during the precrisis period (Figure 3). Without this debt, the US economy would have suffered dramatically. If the current income distribution continues, the US faces secular stagnation or another round of debt-financed consumption, leading to greater financial instability. The authors close with a simulation of the impact of continued deleveraging along its postcrisis trend by the bottom 90 percent while the top 10 percent retains its debt-to-disposable-income ratio (Figure 4). They find that following a brief, small increase in growth in 2014, the growth rate reaches 1.7 percent by the end of the simulation period, and unemployment reaches 7.6 percent. In terms of the three balances, the private sector financial balance increases as a whole, while slower growth boosts the current account deficit and the government deficit.

Growth, employment, and incomes will suffer needlessly if the US government maintains a restrictive fiscal stance. A boom could spur growth but at the risk of financial and economic crisis. Income inequality poses a measurable threat to the current recovery, the authors conclude, and if it is not addressed, the United States will suffer persistently low growth and high unemployment.

www.levyinstitute.org/pubs/sa_4_14.pdf

Dead Economic Dogmas Trump Recovery: The Continuing Crisis in the Eurozone Periphery

C. J. POLYCHRONIOU

Public Policy Brief No. 133, 2014

Research Associate and Policy Fellow C. J. Polychroniou pushes back against the optimistic claims of eurozone officials that countries in the periphery are on the path to recovery. He argues that the facts point to no such recovery (if anything, the contrary), and that the efforts of officials to advance this falsely rosy view are mere cover for the harsh agenda of the eurozone leadership. Austerity policies have not created stability; rather, they have made matters much worse, as is evident in high unemployment, increased national debt, and falling national output. Policy failure has undermined public trust in parliamentary democracy and given new life to some of the old demons of Europe that the euro project was intended to exorcise.

Unemployment is arguably the most important issue facing European Union (EU) policymakers. Their approach has been to justify high unemployment as a "natural" part of the process instead of taking steps to reduce the human and economic losses it continues to create. Polychroniou argues for a humanistic economic paradigm that would treat unemployment as a threat to public health and well-being. That there has been no serious discussion of an employer-of-last-resort (ELR) program is an indication of how far the leadership has moved away from the social contract of the postwar period. Employment guarantees, the author argues, are urgently needed to reduce current unemployment levels and to counter the low growth rates that are projected for the next several years. In place of measures to directly address the problem, the EU has implemented a neoliberal agenda that is aligned with a neoclassical understanding of the economy.

Creating "confidence" has become the neoliberal strategy to restore growth to the bailed-out—and, as a result, horribly indebted—countries of the eurozone. "Psychological" factors, it is argued, will restore the economy, and the actions required to instill this confidence include austerity, growing exports, labor market liberalization, privatization, and the like. Greece, the austerity "guinea pig," has labored for nearly four years under the yoke of confidence-building austerity but has yet to see the promise of these policies fulfilled. The arguments against austerity are relatively easy to make, Polychroniou observes, as there is little empirical evidence to support it.

The neoliberal worldview is one of privatization, deregulation, and restructuring government to serve capital accumulation, especially financial capital, at the expense of society. The ideas entered the mainstream during the stagflation years of the 1970s and were further advanced in the '80s, displacing "Fordist" and "Keynesian" notions of capitalist political economy, with the support of academics and politicians. Organized labor was crushed during the class wars under Ronald Reagan and Margaret Thatcher, and rising inequality, poverty, and a substantially eroded social contract were the result. Structural reforms are but the latest incarnation of an ideologically driven agenda to promote profits for the few by "obstacles" such as labor protections and government services. To be clear, the argument for structural reform is not based on measurable data but solely on arguments that reflect an obvious class bias. Workers, for example, were to be treated as market commodities, receiving low wages and diminished security while executives received absurdly high levels of compensation.

The next recovery fairy tale advanced by EU officials is how export-led growth is the primary engine of growth. Europe should, they argue, strive to become a collection of German economic clones. While there have been increases in exports in several countries, Polychroniou cautions that the rise in exports in Spain and Portugal has occurred in tandem with declines in domestic consumption. Ireland has also seen increased exports, but this has not led to proportionate job creation, as the link between exports and job creation in Ireland is weak. Finally, Greek exports, riding a wave of demand for oil-related products, have climbed, but they have yet to provide the promised benefits to the domestic economy. The strategy of export-led growth assumes that eurozone countries can all create current account surpluses, but this would require trading partners outside the eurozone to run deficits.

Polychroniou concludes that the policies implemented to date have eroded the social and political fabric of Europe solely to benefit the interests of finance capital and big business. This is no accident but rather the intended outcome of an ideologically driven agenda. The living standard of average Europeans is footing the bill for policies that have failed to bring about growth, stability, or jobs—but that continue to provide profits for the few.
www.levyinstitute.org/pubs/ppb_133.pdf

A Sustainable Monetary Framework for an Independent Scotland

PHILIP PILKINGTON
Public Policy Brief No. 134, 2014

Independence would give rise to several macroeconomic challenges that Scotland will have to negotiate skillfully if it hopes to prosper. Among these challenges is the need for a currency—its own or someone else's. In this brief, Philip Pilkington, Kingston University, provides a robust and sustainable monetary framework for the short and the long term. He presents a broad view of Scotland's macroeconomic structure and discusses the issues a newly independent Scotland is likely to face, emphasizing how its choice of currency regime may help or hinder it. He highlights the role of oil and gas revenues in the country's fiscal history and future, draws lessons from the euro project, and evaluates the Scottish government's Fiscal Commission Working Group (FCWG) report.

The author begins by reviewing the Scottish economy, both historically and using a sectoral balances approach. He notes that highly volatile oil and gas revenues have provided an enormous share of Scotland's revenues, which has created a dangerous degree of fiscal dependence. The focus of the analysis is to identify economic vulnerabilities that could lead to instability, if Scotland becomes independent without implementing a sufficiently robust macroeconomic strategy. Using the sectoral balances approach developed by the late Levy Institute Distinguished Scholar Wynne Godley, Pilkington analyzes the Scottish economy to describe its composition and to detect unsustainable processes that could threaten it.

The sectoral balances show a healthy and well-balanced economy. However, when oil and gas revenues are removed, the sectoral balances reveal economic weaknesses (e.g., negative current account, government deficits, and private sector savings that show a pronounced tendency to become negative). Thus, fiscal independence without retaining oil and gas revenues would leave Scotland vulnerable to a sovereign debt or currency crisis. Further, volatility in oil and gas revenues could lead to short-term imbalances in the Scottish economy, a fact not adequately embraced by the FCWG report. Pilkington notes that as Scotland's GDP continues to grow, oil prices will have to keep pace if these sales are to provide the same relative contribution to the trade surplus and the government budget. Given these dynamics, the author turns to a review of the FCWG's 2013 report.

The central finding of the report is that Scotland should retain the sterling after it becomes independent of the UK. The key arguments supporting this conclusion are the promotion of trade within the UK bloc, potential trade disruptions caused by fluctuations in a Scottish sovereign currency, consistency with the criteria for an optimal currency area, close alignment of their respective business cycles, and a change in currency would create uncertainty for debtors and creditors. He examines each of these arguments and then turns to a discussion of the lessons for Scotland that can be gleaned from the euro crisis.

He notes that divergence of business cycles leading to wide differences in budget deficits left the peripheral countries far more vulnerable to shocks than those at the center of the eurozone. Pilkington observes that the response to the crisis would have been quite different if all of Europe had experienced the same shock and consequence. Thus, a currency union only makes sense among countries with closely aligned business cycles. The FCWG report addresses this concern but fails to account for the sensitivity of the Scottish government budget to oil and gas revenues, which could lead to divergence in budget balances and political tensions. In terms of a sovereign currency, the author explores the proposal that Scotland peg its new currency to the sterling, but he finds this option complicated on several levels.

Pilkington concludes with a proposal to create a monetary system to support an independent Scotland in a two-phase transition plan. The first phase would ensure that Scotland serviced its sterling-denominated debts by issuing tax-backed bonds. This would allow the country to maintain the sterling without the political or economic risks associated with a currency union. The second phase is a transition to a Scottish sovereign currency. Pilkington concludes that it is in Scotland's interest to establish its own currency; however, it could maintain currency union while establishing its own currency gradually, so as to minimize exchange rate uncertainty and ensure acceptance of the Scottish currency as a means of payment.
www.levyinstitute.org/pubs/ppb_134.pdf

Structural Asymmetries at the Roots of the Eurozone Crisis: What's New for Industrial Policy in the EU?

ALBERTO BOTTA
Working Paper No. 794, March 2014

Alberto Botta, Mediterranean University of Reggio Calabria, offers an analysis of the productive and technological asymmetries between the central and peripheral eurozone economies, and presents policy suggestions to promote more balanced development (i.e., convergence) in the eurozone. Central to his proposal is the creation of a regionally focused development strategy that addresses the structural changes in the peripheral countries. His recommendations include a range of public policy and public finance vehicles to promote both short-run stabilization and long-run development goals for Europe.

Botta's analysis begins with a description of the structural asymmetries across the eurozone national economies. He presents a synthetic productive structure similarity index as a means to compare the productive structures with those found in Germany, then analyzes the center-periphery dichotomy by looking at the diversification of their productive and export sectors. He discusses the implications of the divergence in development paths between the center and the periphery, focusing on the cumulative nature of development as a process of innovation. Botta observes that this divergent development process could result in peripheral countries becoming permanently mired in a low-growth, low-technology trap.

The author explains that the run-up to the global financial crisis gave rise to a degree of convergence, as many countries in the periphery expanded rapidly. However, the crisis and the austerity policies that followed revealed deep asymmetries between the center and the periphery. Countries such as Greece and Portugal, Botta reports, are characterized by poorly diversified production and export structures, with a large share of their economies concentrated in low-tech, labor-intensive, resource-intensive industries—sectors that hold relatively little opportunity for product or process innovation.

To reverse this divergent development pattern, Botta presents a series of policy recommendations based on the disparities identified in his analysis. He argues that an effective European Union (EU) industrial policy must have a regional focus and target structural changes in peripheral countries to promote convergence between the center and the periphery, and thus avoid re-creating past external account imbalances. He argues that any credible policy solution must include three strategic approaches: a euro-funded industrial policy, public-private research centers, and public support in the form of incentives or subsidies for innovative firms.

Specifically, Botta recommends several industrial policy initiatives: public subsidies and incentives to encourage firms to develop or adopt innovative technologies; public financing of research and development; promoting linkages between universities, firms, and regional research centers; policies to promote specific sectors (e.g., "green" industries); and public procurement policies to foster demand for domestic goods. These policies require that the EU adopt a far more interventionist stance regarding development. Likewise, Botta argues for a greater commitment of public funds, perhaps through such channels as the European Investment Bank, to pursue both short-term stabilization and the long-term prosperity of all eurozone member-states.

Drawing from the work of John Maynard Keynes, Botta suggests that an EU plan to promote investment in the productive capacity of the peripheral countries should apply the idea of a comprehensive socialization of investment and incorporate Keynes's ideas regarding the aims of public intervention (i.e., undertake those actions that individuals do not, and exercise coordination and judgment to ensure that investment flows to where it is most needed). Promoting balanced development, Botta concludes, is necessary to ensure the health of the periphery and the future of the eurozone as a whole.

www.levyinstitute.org/pubs/wp_794.pdf

The Political Economy of Shadow Banking: Debt, Finance, and Distributive Politics under a Kalecki-Goodwin-Minsky SFC Framework

ELOY FISHER and JAVIER LÓPEZ BERNARDO

Working Paper No. 801, May 2014

Eloy Fisher, The New School, and Javier López Bernardo, University of Kingston, examine the political economy and evolution of shadow banking during the past 100 years. Building on the insights of economists such as Karl Marx, Michal Kalecki, and the late Levy Institute Distinguished Scholar Hyman P. Minsky, the authors argue that the dynamics of shadow banking are driven by a distributive contest between workers and firms. They present a stock-flow consistent political economy model of shadow banking focused on the operation of money market mutual funds (MMMFs). They begin with an overview of the relevant literature, explore the emergence and development of shadow banking, and then present their model and results.

Fisher and Bernardo observe that it is extraordinarily difficult to measure the unregulated activity of shadow banking, but some analysts have estimated that by 2011 shadow banking represented some $65 trillion worldwide. They examine this system using an approach that emphasizes the connections between agents, sources, and the targets of funding. They also focus on the political economy of capital and labor that stands behind a complex web of financial intermediaries, investment banks, and special-purpose vehicles to price funding and economic and political risk. They argue that the assets held by financial intermediaries form a link between firms and workers through government policy. Building on this perspective, the authors contend that the rise of the shadow banking system is not the result of advances in securitization and risk management; rather, the shadow banking system arose from the tensions inherent in democratic capitalism.

The authors recall that Karl Marx wrote about quasi-banking activities conducted by highly leveraged financial institutions that were in many ways analogous to today's shadow banks; notably, the Crédit Mobelier and its close ties to the government of Napoleon III. Marx's view was that industrial capitalism required a banking sector with ties to the state as a means to finance industrial development. Minsky reached similar conclusions, acknowledging that capitalism is unavoidably a financial system. Modern shadow banking emerged in 1982 with the elimination of interest caps, which permitted financial institutions to sell liabilities on a global scale. The United States provided a safe asset in which to park cash resources, and government deficits backstopped this financial system. Under money manager capitalism, the concentration of capital grew in companies that enjoyed strong government support. As industry and labor weakened in the United States, and with the rise of a global dollar market, the elimination of interest rate caps on deposits moved the world toward money manager capitalism. The US government was still needed to ensure the safety of the dollar, but global finance now provided financial products to meet growing demand—a demand that outstripped the capacity of the traditional banking sector. The authors examine the emergence and operation of MMMFs as an illustration of how shadow banking sits at the intersection of politics and economics.

MMMFs are backed by high-quality debt, and thus rely on the health of blue-chip companies and the government. MMMFs remain viable so long as the market continues to provide liquidity for well-regarded assets, governments fulfill and backstop market operations, and risk is reasonably priced. The institutions and the interests they represent are critical to the operation of these shadow financial markets, especially the MMMFs.

The authors distinguish between the operation of financial and political mechanisms within the shadow banking system. They argue that government balances the interests of labor and capital, with a bias toward guaranteeing capital accumulation by firms over the longer term. The authors next present a stock-flow consistent model in an effort to capture the conflict between wages and profit over production as argued by Kalecki's political business cycle and Goodwin's profit rate / investment dynamics. At a broader level, the financial sector drives the cyclical dynamics of this political economy as argued by Marx and Minsky. Their model incorporates financial intermediaries, productive units, and government. Their preliminary results show that distributive dynamics indeed drive and "nest" the dynamics of shadow banking. They conclude that the complex role of shadow banking belies any simple regulatory solution. A reform agenda most encompass both the economic and the political roots of shadow banking.

www.levyinstitute.org/pubs/wp_801.pdf

Program: Monetary Policy and Financial Structure

Minsky and Dynamic Macroprudential Regulation

JAN KREGEL

Public Policy Brief No. 131, 2014

The most recent financial crisis reignited debate on the perennial question of what constitutes sufficient prudential regulation of the financial system. This debate has also been accompanied by renewed interest in the work of Hyman P. Minsky; specifically, his financial instability hypothesis (FIH). As Senior Scholar Jan Kregel explains in this public policy brief, Minsky's work as a consultant to government agencies in the 1960s provides valuable insights into his work, and the goals of financial regulation, and was in large part the basis of the FIH that he developed later.

Kregel begins with a concise overview of the evolution of Minsky's approach to prudential regulation and discusses the implications of his work for current regulatory policy. He notes that Minsky's approach stands in contrast to current regulatory efforts in two important ways. First, Minsky argued that there must be an underlying theory upon which regulations are based. And, second, he stressed the need to assess the economic and institutional impacts of regulation on the financial system, including monetary measures. Minsky also proposed a dynamic approach to the examination structure, reflecting his ideas on macroprudential regulation. Kregel contrasts Minsky's approach with bank examination and supervision policies that focus on idiosyncratic features of individual institutions—a microprudential approach.

Despite the lessons of past decades—most notably, post-2008—policymakers have put forward proposals for macroprudential regulation that contain many of the same shortcomings that Minsky described for the "micro" regulation of the 1960s. Regulations, Kregel notes, continue to be formulated without a theoretical foundation; specifically, they lack any theory of endogenous financial instability, relying instead on the spurious notion that self-correcting markets experience crisis as a result of exogenous shocks or bad actors. Including an element of cyclicality and recognizing that instability can occur are not, Kregel argues, adequate substitutes for a coherent and explicit theory of systemic crises. We require a theory to guide regulation of the financial system, not continued focus on individual institutions. Continuing on this easy but mistaken path only leads to policies that attempt to prevent the last crisis rather than understand the emerging sources of instability in the current financial system. Minsky offered such an approach in the 1960s, and elaborated on it in the decades that followed.

Minsky's proposed bank examination procedures would have applied a "cash-flow-based" approach that treated bank liquidity not as "an innate attribute of an asset" but in the context of the balance sheet of the institution, the markets for the assets it holds, and the unstable, cyclical nature of the economy and financial markets. His approach incorporated the emergence of large banks and their connections with the fringe activities of the financial markets as well as the continuing evolution of financial practices.

This is central to Minsky's approach to regulation and supervision: oversight must respond to the dynamism of financial activities, including economic conditions and monetary policies, and not rely on a static notion of markets and their participants. Thus, the lesson Kregel draws from Minsky's proposals is that financial regulatory reform is not only a question of trying to set the rules correctly but also of the need to take a radically different approach to reform. Both Glass-Steagall and Dodd-Frank failed to embrace a framework that reflects the practical reality of financial institutions adapting, innovating, and, if left unchecked, creating the seeds of the next crisis. Minsky saw that financial regulations and examination procedures quickly become obsolete when they fail to keep step with the real world. Regulatory reform, Kregel concludes, is best understood as an ongoing dialogue between our goals for the financial system and the financial system as it actually operates.
www.levyinstitute.org/pubs/ppb_131.pdf

Central Bank Independence: Myth and Misunderstanding

L. RANDALL WRAY
Working Paper No. 791, March 2014

Senior Scholar L. Randall Wray debunks the myth of central bank independence and argues that the Federal Reserve should not be "independent" in the sense in which the term is usually applied to a central bank. The Fed, he reminds us, is a creation of Congress. While the Fed is insulated from day-to-day interference, it is still a creature of the legislative branch, and, after over a century of operation, remains somewhat unsettled in terms of its governance. Wray also notes that the Fed is in practice closely linked to the Treasury and, as such, operational independence is impossible. Finally, he takes up the issues of the Fed's response to the global financial crisis, in terms of transparency, accountability, and democratic governance.

Wray first discusses the Fed's history, drawing on the work of Bernard Shull, one of the foremost authorities on the history of the Fed and a frequent contributor to the Levy Institute's publications. One of many independent federal agencies, the Fed differs in that it is self-financing and relies on the proposition that it is best able to perform when it is independent of congressional or executive influence. Under the Glass-Owen bill establishing the Federal Reserve System in 1913, the Fed was structured with a system of checks and balances intended to create internal governance. However, these checks and balances proved to be paralyzing and impeded cooperation on monetary policy, notably, following World War I and during the Great Depression. Title II of the Banking Act of 1935 was passed in part to make the Fed more responsive in the areas of national economic and monetary policies. Later, the Fed's close cooperation with the Treasury during World War II was seen as an obstacle to central bank independence, which was buttressed by the 1951 Accord. In the 1960s and '70s, Congress took steps to direct the Fed's activity and governance, including defining the Fed's dual (or quadruple) mandate. The Dodd-Frank legislation, which reined in some of the Fed's crisis responses, is but the most recent act of Congress that has shaped the scope of the Fed's power. Wray observes that despite the frequent involvement of Congress, the Fed exercises considerable discretion in its selection of the tools and targets it uses to implement its mission.

In practice, the close operational relationship between the Fed and the Treasury means that the central bank's "independent" interest rate-setting conflicts with its "independence" from fiscal operations, inasmuch as the Fed must provide the reserves banks require when the Treasury moves bond sale proceeds to its account at the Fed to make payments. In the end, Treasury deficit spending results in higher private bank deposits and greater Treasury holdings. Wray observes that there are a number of ways that the Fed and the Treasury could accomplish their respective mandates, and that their operational relationship has been an evolving one.

Drawing on Modern Money Theory (MMT), Wray next examines central bank and treasury operations through the lens of a consolidated government balance sheet, or single sovereign government. He finds that the legal "operational independence" of the Fed is limited in practice because the actual procedures in place ensure that the central bank works closely with the Treasury in its execution of fiscal policy. For example, could the Fed prevent the Treasury from spending up to an amount authorized by Congress? If not, Wray notes, the case for a consolidated approach is that much stronger. Wray reviews the process and concludes that there is not, under current operating procedures, any way for the Fed to prevent the Treasury from spending budgeted amounts, or even potentially in excess of budgeted amounts. Overall, the Fed's independence is limited to its insulation from political pressure, especially in the area of political meddling in its deliberations on rate setting.

Wray concludes with a brief summary of the MMT perspective on Fed independence. He explains that the separation of the various functions into individual institutions, such as the Fed and Treasury, obscures the reality of sovereign finance and leads many to imagine that the sovereign currency issuer behaves like a household (i.e., user of a currency). This perspective is flatly wrong. Within this context, claims of the Fed's independence are overstated both because of its operational ties to the Treasury and because it is a "creature of Congress." On balance, Wray concludes, we would be better served by abandoning the myth of central bank independence.
www.levyinstitute.org/pubs/wp_791.pdf

From the State Theory of Money to Modern Money Theory: An Alternative to Economic Orthodoxy

L. RANDALL WRAY
Working Paper No. 792, March 2014

Senior Scholar L. Randall Wray explores the intellectual history of the state, or chartalist, approach to money. This history forms the foundation of Modern Money Theory (MMT), in which the state imposes a liability in the form of a generalized, social, legal unit of account (i.e., a money) to represent this obligation. The state both levies liabilities and defines how these liabilities can be satisfied (the state prices liabilities). MMT thus links obligatory payments, such as taxes, to the money of account as well as the currency. This approach leads to a revised and more accurate understanding of money and sovereign finance, and therefore the policy choices a sovereign currency–issuing state faces.

Wray begins with a brief survey of the work of Georg Friedrich Knapp, who developed the state theory of money. Knapp's fundamental insight was his recognition that it is the state that defines conversion rates (e.g., some amount of gold equal to some amount of silver), and thus the units of account are always nominal and not in reality "metallic." Money is therefore always a chartal form of payment defined by state policy. Knapp also explored the creation of money, in the form of notes, by banks. These notes need not be convertible to specie to have value, as they can be used within the private pay community of the issuing bank. These private notes become public money when they are accepted by the state as a form of payment.

A. Mitchell Innes argued that credit and debt relations have their origins in tribal wergild designed to prevent blood feuds, highlighting the role of "authorities" in the origin and evolution of money. Here again, the state's creation of obligations predates and indeed does not require markets as such. Wray observes that Innes's contributions integrated the state theory of money with the credit theory of money, a theme that Joseph Schumpeter would also take up in his work. Innes focused on credit and the clearing system, and saw the settlement process as central to the emergence of markets, with the exchange of goods playing a secondary role. Innes's insights, Wray argues, provide a more useful view of how capitalist economies actually function.

John Maynard Keynes's *Treatise on Money* was influenced by the work of Knapp and Innes. Keynes argued that states determine what serves as money and that this practice was at least 4,000 years old, and would thus include so-called commodity-based money systems. The state can define money as commodity money, fiat money, or managed money, according to Keynes. Money is thus a creation of the state, which defines its nominal value. The idea that the value of money is regulated by some underlying commodity is a relic of the idea of money having some inherent value.

Hyman P. Minsky borrowed from Schumpeter the idea of profit-seeking innovations, and included this in his view of banking and money creation, building on Schumpeter's idea of dynamic and innovative banks that expand credit to finance profitable innovation. Banks thus create money on one another's balance sheets, resulting in a pyramid of liabilities (convertible on demand to central bank liabilities), with the central bank at the top of this structure. Minsky also recognized that taxes give value to the money issued by government, and that even though taxes are paid by drawing down bank deposits, banks can only make these payments to government using central bank money (i.e., by losing reserves).

Abba Lerner also took a primarily chartalist approach to the origins of money, broadly echoing the perspectives of Innes and Keynes in the state's role in money. Lerner's argument that "money is a creature of the state" leads one logically to his "functional finance" approach to state budgets. As money originates to serve a social purpose, "sound finance" can likewise be rejected in favor of the government's goals. Geoffrey Ingham's work examined the ontology of money and focused on the main functions of money. He rejects the orthodox approach to money in favor of a view of money's value as always abstract and nominal. He also suggests that to understand the historical distinctiveness of capitalism requires putting aside the problematic distinction between credit and money.

Wray concludes with a discussion of the policy implications of MMT. Among these implications, the limit on private or government debt is the willingness of buyers to purchase this debt, not tax revenues, borrowing, or "printing money." Functional finance offers us an alternative to economically illusory, politically imposed government budget constraints. Ultimately, inflation is the main concern, says Wray, as the state faces no risk of default or insolvency if it controls its currency.
www.levyinstitute.org/pubs/wp_792.pdf

Minsky and the Subprime Mortgage Crisis: The Financial Instability Hypothesis in the Era of Financialization

eugenio caverzasi

Working Paper No. 796, April 2014

Eugenio Caverzasi, University of Ancona, develops a structural explanation of the subprime mortgage crisis that struck the US economy in 2007. His analysis begins with a review of the dynamics of private sector debt and draws on the work of Hyman P. Minsky and Jan Toporowski. He argues that Minsky's financial instability hypothesis (FIH), and, more generally, Minsky's financial Keynesianism, can be combined with Toporowski's theory of capital market inflation (CMI) to explain how the crisis arose endogenously from the US economic system. His analysis also draws on Josef Steindl's work on enforced indebtedness as it relates to the work of Minsky and Toporowski. Rejecting explanations of the crisis that rely on exogenous forces (so-called "black swans"), Caverzasi's structural interpretation describes and analyzes the forces within the US economy that drove it toward an increasingly unsustainable financial position, making the crisis inevitable. The author begins with a review of the contributions of Minsky and Toporowski, and offers a synthesis of the FIH and CMI as the basis of his structural analysis. He then analyzes the precursors and events of the financial crisis using this framework.

Caverzasi identifies a number of tensions between the CMI and the FIH. He notes that Toporowski, in relation to Steindl's analysis, shows that the financialization of the economy had the direct impact of increasing firms' savings. Linking this finding to Minsky's FIH and, specifically, the subprime crisis poses the main theoretical challenge of the paper (i.e., reconciling Minsky's theoretical framework with Toporowski's CMI). He finds in Toporowski's analysis of bank behavior a bridge between the CMI and the FIH; specifically, the role of banks as the endogenous destabilizers of the economy. Once banks shifted their business focus as described in the CMI, their destabilizing influence was felt in new business areas such as securitization and real estate. As Minsky himself described capitalism as a dynamic and evolving system, Caverzasi updates the FIH to account more precisely for the role of the mortgage market. The purchase of a home is treated as an "investment decision" in place of the productive financial assets around which Minsky crafted the FIH. Seen in this light, the euphoric expectations of banks and households led to Ponzi finance and the now-famous subprime mortgage crisis.

Asset inflation made loans more readily available to households, which drove up their debt and reduced their savings, while growth in the value of capital assets made firms less dependent on bank loans and allowed them to increase their savings. Banks responded by shifting their activities from firms to households, which further contributed to the rise of household

debt. Households engaged in debt-financed consumption and the purchase of assets, both of which depressed household savings. This process laid the foundation for the crisis that followed. Banks played a role but should not be seen as the scapegoat for the crisis. Caverzasi's reading of Minsky is that he often used the term "banks" as shorthand for the broader financial system. The author cautions against focusing regulatory reforms solely on banks, as this would ignore many of the mechanisms that contribute to the financial fragility of capitalism. The combination of profit-seeking banks, radical uncertainty, unregulated financial markets, and endogenous money that creates the financial system is inherently prone to instability (all of which Minsky described), as seen during the recent crisis. The FIH, Caverzasi concludes, continues to provide a powerful framework for understanding and combatting financial instability.
www.levyinstitute.org/pubs/wp_796.pdf

Monetary Mechanics: A Financial View

ÉRIC TYMOIGNE
Working Paper No. 799, May 2014

Research Associate Éric Tymoigne offers a framework for analyzing monetary systems, drawing on the work of economists such as Henry Dunning MacLeod, John Maynard Keynes, A. Mitchell Innes, and Georg Friedrich Knapp. The form money takes, observes Tymoigne, is unimportant compared to its adherence to a specific set of financial characteristics, which ensures a stable nominal value (parity) within the context of the proper financial environment. The author's framework provides researches with the means to analyze how the fair value of a monetary instrument changes, and how that value differs from changes in the value of the unit of account. It also provides a guide to understanding the history of money and why monetary instruments are held. He begins with a discussion of the functional approach to the analysis of money, the most widely adopted approach today.

One omission from the functional analysis of money is that, while it defines money in terms of something used as a means of exchange, it offers little guidance as to what money "is." This can lead to any number of mistakes in the analysis of money. It is therefore critical to have a framework to rigorously identify and analyze monetary instruments. Tymoigne applies financial concepts to categorize different types of financial instruments and to define what "payment' means within the context of each. A stable nominal value is crucial to creating a means to make reliable payments, and thus create a functioning financial system while promoting liquidity and solvency. These characteristics do not, however, solve the problem of creating stable purchasing power. Perfect liquidity has been achieved, but thus far, the quest for stability of value remains unfulfilled, a fact that strongly influences the views on money held by academics and politicians alike.

Tymoigne's alternative framework shows that any modeling must take into account the financial implications of economic decisions. Monetary instruments are specific financial instruments and all financial instruments are contractual bets about the future that involve two parties: a debtor and a creditor. Thus, both sides of the monetary framework must be modeled if we are to have a consistent analysis of monetary affairs. The clear implication is that the accounting framework of any model must be clearly and explicitly defined. Further, models must contain a sufficient number of debtors to create demand for monetary instruments; absent the inclusion of the state in the model, those indebted to a bank demand bank promises. Further, money cannot be modeled as a commodity and must be analyzed in terms of the financial dynamics at play; specifically, in terms of fair value and purchasing power. Describing money solely in terms of, for example, its use as a means of payment is superficial and potentially misleading.

Tymoigne next provides an analysis of the definition of money and its historical evolution. He observes that the establishment of liquid financial instruments did not come into being overnight and fully formed. Rather, it was a process that occurred over a long period with many missteps taken along the way, due to mistaken notions about the nature of money.

Drawing on the first two sections of the paper, the author then goes on to argue that the primary functions of monetary instruments are not the reason why they are held. He also explains why financial instruments issued by governments are more widely accepted than other financial instruments. The credibility of the issuer, and the relevant political and economic context, is critical in this respect, as was amply demonstrated in many financial crises. One can understand why commodities such as gold were confused with money, as the value of metal-based money was to some degree justified in

periods of great upheaval. However, these periods of upheaval were in no small measure a result of misunderstanding the nature of money.
www.levyinstitute.org/pubs/wp_799.pdf

Shadow Banking: Policy Challenges for Central Banks

THORVALD GRUNG MOE
Working Paper No. 802, May 2014

Research Associate Thorvald Grung Moe examines the implications of the expanded role central banks played during the financial crisis. He notes that central banks added to their tool kits and extended liquidity to nonbanks and key financial markets—effectively becoming "market makers of last resort." Moe discusses the implications of backstopping systemically important financial markets and, importantly, the shadow banking system that is embedded in these key markets. The paper presents a redefinition of shadow banking, a brief survey of the history of shadow banking, the challenges of endogenous finance, collateral pressures and dilemmas associated with shadow banking, and the policy challenges that lie ahead.

The functions performed by shadow banking have been a part of the financial system for a very long time. Henry Thornton observed similar dynamics in the 18th and 19th centuries, noting, as did Hyman P. Minsky, how the demand for more cash than is available creates demand for its creation by banks. Ben Bernanke recently compared the global financial crisis in 2007–8 to the Panic of 1907 and the role of financial innovations and lightly regulated financial entities in that crisis. The fire sales of 2008 resembled the liquidation of trusts in 1907.

Shadow banking departs from traditional banking in the degree to which the private creation of money creates rapid expansions and even more drastic contractions. The nature of these new financial dynamics, their risks, and the tools required to respond to these risks are only beginning to be studied—this new financial landscape will require a revision of both theory and policy. Specifically, models of the interactions between the financial and the real sectors and the role of credit should be an urgent priority for both academics and policymakers. Fortunately, there is a rich tradition of scholarship on financial instability. The financial crisis has led to greater interest in this work, and to a greater willingness to counter the procyclical excesses of the financial system.

As both a creator and a user of collateral, shadow banking is a network of collateral transactions that makes up the financial system. The magnitude of the demand for collateral is unknown, but estimates place it between $2 trillion and $6 trillion dollars. New regulations will only add to this demand. Moe discusses the potential threats to the financial system, including the expected spike in demand for high-quality liquid assets and the implications of this for the system. He observes that the new collateral-intensive financial system raises political questions about how to manage the potential systemic risks created by shadow banks.

The author notes that the financial crisis transformed central banks' liquidity policies as the result of the perceived need to take extraordinary steps to counter what many saw as a worldwide systemic crisis. Central banks relaxed collateral requirements in order to accommodate the liquidity needs of banks. The implication is that, in a crisis, banks, knowing that they need not hold high-quality liquid assets, may hold inferior collateral, as central banks have shown that they will stick to their collateral rules. If central banks hold fast to their collateral rules, some banks may fail in a crisis.

Moe argues that we must find a better balance between the growth of finance, secured and unsecured funding, and central bank liquidity facilities. Limiting the growth of shadow banking is integral to this process. Some have argued that central banks should take on the role of market maker of last resort, but this path is fraught with unknowns. Others argue that it is not the role of central banks to determine the size of the financial sector or which markets to support. Relaxing collateral standards exposes taxpayers to risks. A better policy, Moe argues, is to add conditions to liquidity support. Central bank support for core funding markets would be contingent on their solidity. Credit creation should reflect the needs of the real economy, and countercyclical and concrete proposals are needed to limit credit growth in the shadow banking system. Support for core financial markets must only proceed in the presence of structural reform. It would be more than ironic if central banks refused to extend bailouts to too-big-to-fail institutions only to bail out core funding markets.
www.levyinstitute.org/pubs/wp_802.pdf

Program: The Distribution of Income and Wealth

How Poor Is Turkey? And What Can Be Done About It?

AJIT ZACHARIAS, THOMAS MASTERSON, and EMEL MEMIŞ
Public Policy Brief No. 132, 2014

Working in collaboration with the United Nations Development Programme–Turkey, Senior Scholar Ajit Zacharias, Research Scholar Thomas Masterson, and Research Associate Emel Memiş applied the Levy Institute Measure of Time and Consumption Poverty (LIMTCP) to more accurately measure the level of poverty in Turkey. Standard measures of poverty use income alone to measure deprivation and ignore the role of household production, and the time it requires, in helping households achieve a minimum standard of living. In order to better assess Turkey's policy agenda and the conditions facing low-income families, the authors developed LIMTCP to account for both consumption expenditures and the household production time required. Their results show that Turkish households face a triple burden of jobless growth, rising female labor force participation, and a deficit in social care services. Their analysis begins with a brief overview of their methodology.

While the authors' model builds on earlier frameworks that incorporate time constraints, they explicitly take into account intrahousehold disparities in time allocation and do not rely on the standard neoclassical theory of time allocation. Time deficits are calculated using a fixed total number of hours available for any individual. They deduct the number of hours required for personal maintenance and household production, as well as the actual number of hours spent on income generation. This calculation provides an estimate of individual time deficits, which can be summed to yield household deficits. A household is designated as time-poor if at least one person in the household has a time deficit. The household time deficit is then monetized and used to determine if the time deficits are poverty inducing.

Using this method, the authors find that the LIMTCP poverty rate for Turkey is 35 percent, compared to the official poverty rate of 24 percent. The gap represents 1.8 million households, or 7.6 million people, misclassified as nonpoor. These households are referred to as the hidden poor. The authors examine the demographic groups included in the hidden poor, and find that time deficits resulting from working long hours are the leading cause of time poverty. Employed women have the highest time-poverty rates. Within the group of male and female workers who work between 36 and 50 hours per week—the largest concentration of workers—the rate of time poverty was more than six times as high for women as for men. This is due to stark gender differences in the hours of household production per week. On average, employed women engage in 31 hours of household production per week, compared to seven hours for employed men. In addition, 42 percent of employed women in Turkey are unpaid family workers, and 90 percent of these women live in rural areas. Overall, 59 percent of employed women were found to be time poor, while the rate for employed men was 34 percent. Given this higher rate, it follows that dual-earner households have a much higher rate of time poverty than male-breadwinner households (85 percent versus 44 percent) and also a higher rate of hidden poverty. In fact, dual-earner households had the highest rate of poverty rates when time deficits were included.

The brief also contains a simulation of the impact of expanded employment on the status of the consumption poor and the unemployed. The results of the simulation are largely driven by the composition of the job recipients, most of whom are women. This reflects the fact that most consumption-poor men are already employed. The benefit of added employment for women is limited by the earnings penalty. The population of women who were assigned jobs had markedly lower education and were thus assigned lower-paying jobs that reflected their education level; wages were further depressed by the gender bias in the jobs held by the women in the donor group. The authors find that added employment helps only 17 percent of women escape consumption poverty but that impoverishing time deficits resulted from employment for many women. The longer work hours, on the job and at home, kept 60 percent of working women in poverty. Likewise, additional jobs did little for the hardcore poor households, as all of the adults in such households are already employed.

Based on these findings, the authors conclude that merely increasing employment is not enough. Addressing poverty in Turkey is a more complex problem, and requires policy

changes on many fronts simultaneously. The authors' recommendations include such things as improving working conditions, linking education programs with employment programs, ending job segregation (so-called "women's jobs), and supporting women's entrepreneurial efforts. Further, the Turkish government should enforce the legal maximum workweek of 45 hours, increase the minimum wage, increase social care (notably, child care and early-education services), and increase public provisioning to promote equal opportunity.
www.levyinstitute.org/pubs/ppb_132.pdf

A Decade of Flat Wages?

FERNANDO RIOS-AVILA and JULIE L. HOTCHKISS
Policy Note 2014/4, June 2014

The increase in real wages seen between 2002 and 2013 was due to increases in the age (experience) and education levels of workers rather than a general increase in wages. In this policy note, Research Scholar Fernando Rios-Avila and Julie L. Hotchkiss, Federal Reserve Bank of Atlanta, show how demographic changes have masked stagnant and declining wages. Their findings reveal US labor and wage trends that help to explain rising income inequality, lower consumer spending, and the overall lack of real income growth for many American households.

The authors explain that US real wages stagnated between 1973 and the early 1990s, when low unemployment, an increase in the minimum wage, and higher labor productivity boosted wages. This led to a 12.4 percent cumulative increase in real wages between the 1990s and 2002. However, following the weak recovery from the 2001 recession, there was virtually no improvement in real wages between 2002 and 2013, despite improvements in labor productivity. Many older workers responded to financial setbacks from the two recessions by delaying retirement, which meant that workers who were older, better educated, and more experienced (and therefore relatively higher paid) propped up average real wages. What appears to have been a decade of flat wages is revealed as a decade of declining real wages when one accounts for the age and education of workers. Stated another way, during a decade in which real wages appeared to be flat, workers with more experience and/or education saw small gains in wages that masked a general decline in average real wages. Ninety percent of the real growth in wages between 1994 and 2013 was due to changes in the demographics of the labor force. There was also a shift toward higher-wage occupations and industries, but these changes were not the driving force behind the declines in real wages. The authors explain some of the trends in wages by age, sex, race, and education.

After roughly a decade of wage growth (8.2 percent for men and 8.7 percent for women), beginning in 2002 men's wages declined at nearly twice the rate of women's wages, 7 percent and 4.5 percent, respectively. Men's wages grew slightly slower than women's and then declined more sharply in the decade ending in 2013. This had the effect of closing the wage gap, but it can only be seen as an accomplishment in the sense that inequality was reduced by one ship sinking faster than another—hardly a victory for pay equity. In terms of race, similar patterns were seen between white and nonwhite workers: nonwhite wages increased following the recession (mostly due to increased education), while wages for white workers' wages were flat. This likewise closed the gap in wages by about 2 percent between 1994 and 2013.

Educational attainment played an important role in masking the decline in real wages over the period. Between 1994 and 2002, all workers saw real wage increases, with greater increases going to workers with the highest levels of education. However, all workers earned lower real wages in 2013 compared to 2002. Workers with a college or graduate degree saw the largest gains in wages and were less susceptible to wage declines. Experience (or age) appears to have had little effect on wage growth for the least-educated workers. The rate at which workers' wages increased over time did not contribute to wage growth as it had in the past. Controlling for age, wage growth among those with a graduate degree fell to the levels of a worker with a college degree, and high school graduates saw their wage growth fall to the levels typically experienced by workers without a high school diploma. Thus, the link between experience and wage growth has been eroded, and while education provides a measure of wage security, it does not translate into a guarantee of wage growth over time.

These findings are consistent with work by Lawrence Mishel in which he observed the shift in national income, despite consistent worker productivity gains, away from labor and toward capital, contributing to rising income inequality.

Instead of an expected increase in real wages, given the age/experience of the workforce, increased education, and increased labor productivity, real wages were flat overall, and in fact declined for many. Were it not for the more experienced and better-educated workforce, wages would have declined outright. The sources of this decline include lower rates of GDP growth. The authors suggest that if age/experience and education have propped up real wages, then real wages are likely to suffer as baby boomers retire. This may be offset if the labor supply slows. The improvements in the gender and wage gaps are hardly good news for average wages: the gap is smaller because the (lower) wages paid to women and nonwhites are declining less quickly than the wages of male or white workers. The United States thus faces yet another challenge in restoring growth to the economy and real wage growth for all American workers.
www.levyinstitute.org/pubs/pn_14_4.pdf

Quality of Statistical Match and Employment Simulations Used in the Estimation of the Levy Institute Measure of Time and Income Poverty (LIMTIP) for South Korea, 2009

THOMAS MASTERSON
Working Paper No. 793, March 2014

Director of Applied Micromodeling and Research Scholar Thomas Masterson presents an evaluation of the quality of the statistical match for the Levy Institute Measure of Time and Income Poverty (LIMTIP). The statistical match was carried out to create a synthetic dataset used to assess the potential impact of poverty-reduction strategies based on increased employment in terms of income, time allocation, and use of child care. The results of this procedure were central to the analysis presented in the research project report *The Measurement of Time and Income Poverty in Korea* and Public Policy Brief No. 136, *Can Child-care Subsidies Reduce Poverty?*, both issued in August 2014. This paper provides an overview of the methodology and a technical assessment of the quality of the statistical match.

The datasets used for the statistically matched synthetic data set are the Korean Welfare Panel Study (KWPS)—which contains good information on demographics, income, transfers, and so on—and the Korean Time Use Survey (KTUS), which contains nationally representative time-use data. Thresholds for time spent on household production are constructed in order to create the time-poverty estimates. These thresholds are the average time spent on household production by household, differentiated by the number of children and adults in each household. Next, the time-use match required for estimating the LIMTIP for Korea necessitates the identification of those individuals from households in poverty, which is done using the KWPS data and probit estimation. Probit estimates are then produced for all of the reference group categories for the required household production. The results are used to predict presence of the household in the poverty band for all of the households in both the time-use and welfare data.

Masterson then reviews the alignment of the time-use and welfare panel surveys. The datasets are not as well aligned as expected, nor are they as well aligned as other statistical matches carried out for previous LIMTIP estimates. The quality of the match is also somewhat lower than in other time-use matches. However, the quality of the match within population subgroups shows generally good results. Likewise, the ratios of the mean weekly household production hours in the matched file to those in the KTUS strata variables are also quite close to one. Despite some limitations, the overall quality of the match is found to be quite good.

Masterson next discusses the labor market simulations, which assess the first-order impacts of income poverty reduction policies via jobs policies. Of particular interest is the use of public subsidies for child care to promote female labor force participation. These subsidies are accounted for in the simulation in a three-step procedure: the hours worked and earnings of job recipients are estimated; the hours of household production are revised in light of the added job assignment; and the new total hours of household production, including child care, are estimated for the job recipients.

The job assignment scenario is based on the premise that all eligible and income-qualified unemployed adults receive a job. This simulation assigns job recipients an industry, occupation, and employment type. Once this simulation is completed, the LIMTIP measure is recalculated. Assessing the quality of the simulation is difficult, as it is a counterfactual distribution of earnings, time use, and child-care hours contracted. The assessment relies on comparing donor and recipient pools at the level of subgroups for each stage of the

simulation process. Overall, the author concludes that the simulation provides a reasonable approximation of the impact on individual adjusted income-poor households of receiving a job assignment. It is important to note that the results may overestimate the income benefits, as it does not account for the loss of means-tested transfers. Nonetheless, these results enhance our understanding of some of the consequences of expanded employment, and its possible implications—for example, for contracted child care—in Korea.
www.levyinstitute.org/pubs/wp_793.pdf

Quality of Match for Statistical Matches Using the American Time Use Survey 2010, the Survey of Consumer Finances 2010, and the Annual Social and Economic Supplement 2011

FERNANDO RIOS-AVILA
Working Paper No. 798, May 2014

Research Scholar Fernando Rios-Avila describes the quality of the statistical match between the March 2011 supplement to the Current Population Survey and the 2011 American Time Use Survey and Survey of Consumer Finances. These matched datasets are used as the basis of the 2010 Levy Institute Measure of Well-Being (LIMEW) estimates for the United States. The LIMEW is an alternative measure of economic well-being that is more comprehensive than standard income-based measures. Rios-Avila provides an assessment of the alignment of the datasets, describes various aspects of the quality of the match, and provides an overall assessment of the quality of the match and its limitations.

Rios-Avila describes each of the datasets that will be used to create the synthetic dataset and then transfer the time-use data from the donor to the recipient dataset. The Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS) 2011 is the base dataset, and is a rich source of demographic, social, and economic data. It is combined with the American Time Use Survey (ATUS) 2010 (time-use data) and wealth data from the Survey of Consumer Finance (SCF) 2010 (household finance data). The match of the ATUS and ASEC datasets is accomplished using five strata variables (sex, parental status, labor force status, marital status, and spouse's labor force status). Given that the source datasets were created in 2010 and 2011, they are expected to be well aligned. The author finds that while there are some differences in the distributions between surveys, these differences are small, and are unlikely to negatively impact the quality of the match. The match of the SCF and ASEC is undertaken using the strata variables of income category, homeownership, family type, race, and age of the head of household. As with the previous match, these data were collected during roughly the same time period and, therefore, should be well aligned. On balance, the author finds no alignment issues that are likely to compromise the overall quality of the statistical match.

The ATUS and ASEC match performs as expected, with 95.2 percent matched in the first round and all but 0.2 percent unmatched after the seventh round. The author notes that, with some exceptions, the ratios of mean weekly hours of household production, and subcategories, differ by 2 percent or less across all of the strata variables, indicating a good-quality match. While several cells show large relative imbalances, their absolute values are small and they occur infrequently (less than 2 percent of the cells), and thus they pose little threat to the overall quality of the match. The author also examines the quality of the match beyond the framework of the strata variables by examining the ratios of household production and its components across education, household income level, and age group. Age groups contain the largest imbalances and care activities show the largest imbalances across age groups. He also compares the two surveys in terms of household net worth across race, homeownership, and age. He finds differences in some outlier groups that could affect the analysis of specific subgroups but no differences that would significantly affect the overall results. The imputed and donor distributions remain highly comparable in the aggregate.

However, analyzing the results across the strata variables shows relatively large imbalances, some as high as 20 percent, for a small subset of strata variables. This is not unexpected, as larger imbalances tend to be found in narrower groupings. Household mortgage debt is one variable that shows imbalances between the two surveys. This may be a result of differences in the data collected for the SCF versus the ASEC. The author cautions that while statistical inferences for the aggregate population should be robust, inferences regarding specific populations and analyses using more than one variable should be undertaken with care.
www.levyinstitute.org/pubs/wp_798.pdf

Program: Gender Equality and the Economy

Gender-responsive Budgeting as Fiscal Innovation: Evidence from India on "Processes"

LEKHA S. CHAKRABORTY

Working Paper No. 797, April 2014

Research Associate Lekha S. Chakraborty examines an emerging innovation in public finance: gender-responsive budgeting (GRB). She discusses the manner in which GRB can be used in budget processes, funding mechanisms, and institutions to analyze and address gender disparities. She explains that GRB contributes to the budget process by examining policy choices in terms of their gender impacts using benefit incidence analysis. The paper focuses on four components of GRB within the context of India: knowledge processes and networking, institutional mechanisms, learning processes and building capacity, and public accountability and benefit incidence. The author notes that implementation of GRB by India's Ministry of Finance has been promoted by UN Women and the Ministry of Women and Child Development in collaboration with India's National Institute of Public Finance and Policy (NIPFP) as a means to promote transparency and accountability. Chakraborty argues that GRB is a powerful but as yet not universally adopted means to analyze the impacts of budget choices on gender development, particularly in terms of equity and efficiency.

Chakraborty notes that GRB applies to the entire budget process. It is not a process for earmarking funds for gender development. Rather, it is an approach that identifies the gender-differential impacts of budget decisions, and can be used to align gender policy commitments with the incidence of benefits resulting from spending decisions. This approach raises a number of important questions, however. Can we, for example, identify the differences in how specific budget items affect women? Does economic growth necessarily lead to reducing gender inequality? Can we reliably separate the incidence of benefits experienced by women and men from public expenditures? Does the type of spending affect the benefits that accrue to men and women (e.g., infrastructure versus education or health care)? Have women's contributions to the economy been accounted for properly (e.g., unpaid care work)? These and other questions often fall outside the traditional budget process but can be dealt with holistically as part of the GRB framework.

The development of GRB as a policy analytical framework began in India in 2000–1. The NIPFP played a pivotal role in the development of methods to link fiscal policy to gender development. It also promoted the adoption of GRB by institutions, built capacity to apply GRB, and highlighted the need for accountability. The NIPFP pioneered the analysis of the link between public spending on education and health and gender development, highlighting the limited effect of strategies focused solely on economic growth and emphasizing the role of fiscal policy in gender-sensitive human development.

The author also reviews the evolution of GRB and its integration into institutional budgeting processes. India's Ministry of Finance included GRB in some of its budget processes on several levels; notably, in its "demand for grants" process. GRB has been applied at the provincial level in India, and, GRB initiatives were launched in Nepal, Pakistan, and Sri Lanka in 2001. Later, the Ministry of Finance applied GRB to the 2005–6 Union Budget. GRB subsequently gained wider adoption in both departments and at the subnational level in India.

The author observes that one of the major obstacles to the implementation of GRB is the high rate of turnover among researchers and public officials charged with planning, budgeting, and auditing government programs. Capacity-building efforts initially took the form of regional workshops, and later through partnerships between national governments and international nongovernmental organizations.

Chakraborty notes that accountability systems remain incomplete in India. The use of benefit incidence analysis is a simple and effective tool to evaluate the distributional impacts of public spending on men, women, and other groups, and thus increase accountability. However, its use remains limited in India. The author next reviews examples of successful uses of GRB in the states of Karnataka, Kerala, and West Bengal. The use of GRB in Kerala led to the design of innovative infrastructure programs. In Karnataka, GRB was used to identify the impacts of unfunded mandates and taxation. In West Bengal, the use of GRB revealed that education expenditures did not reflect the needs of women.

Chakraborty concludes that GRB, while a promising innovation in fiscal policymaking, has not been implemented

sufficiently in India. India, she argues, must refocus its entire budget process to better account for the impacts of its spending decisions on gender development issues. GRB is an essential tool to advance this process.
www.levyinstitute.org/pubs/wp_797.pdf

The Great Recession and Unpaid Work Time in the United States: Does Poverty Matter?

TAMAR KHITARISHVILI and KIJONG KIM
Working Paper No. 806, May 2014

In this, the first study to address the question of the link between poverty status and unpaid work-time changes during the Great Recession, Research Scholars Tamar Khitarishvili and Kijong Kim examine the role of household production as a response to economic shocks and how this response is shaped by gender and poverty status. They employ the 2003–12 American Time Use Survey (ATUS) and perform Oaxaca-Blinder decompositions on the changes in unpaid work time across the business cycle. The analysis contributes to our understanding of the complex interactions between macroeconomic forces, the responses of different household types to economic shocks, and gender asymmetries at the household level.

Using the ATUS dataset, the authors separate the sample of men and women into poor and nonpoor segments. They then evaluate changes in unpaid work time by poverty status, going beyond the role of employment shifts. Their decomposition of the four groups (female- and male-nonpoor, female and male poor) includes employment status, and also analyzes other individual and household characteristics that are likely to affect unpaid work time. They also perform decompositions for the period prior to the recession up to the recession and from the recession to the postrecession period.

Their findings reveal that changes in the unpaid work time of men and women during the Great Recession varied by poverty status. Notably, the lack of a change in unpaid work time of men masked an increase in poor men's unpaid work time and a decrease in nonpoor men's work time. This suggests that increased household production did occur, but predominantly in poor households. There was little change in this pattern following the recession. The authors also found an overall reduction in women's unpaid work time, driven primarily by nonpoor women both pre- and postrecession. Poor women in contrast saw no reduction in their unpaid work time in either period, which suggests that poverty status played a role in shaping household production.

Khitarishvili and Kim next examine the individual and household characteristics behind these developments. Changes in an individual's employment status or in the employment status of an individual's spouse help to explain gender differences in unpaid work-time changes. Changes in household structure also contributed to the differences between poor and nonpoor households. However, the authors find that the forces shaping the changes in unpaid work time are not limited to individual or household characteristics, as a large part of the changes in unpaid work time remain unexplained. For example, poor households saw an increase in the average number of adults and children per household as a consequence of the increase in the number of multigenerational poor households during the recession. Nonpoor households saw household size continue to drop during the recession. The reduction in the number of children per household is one factor that explains part of the decrease in nonpoor women's unpaid work time.

While these characteristics shed light on the changing patterns in poverty-based unpaid work time, much of the total change (in some cases, up to two-thirds) remains unexplained. This supports the hypothesis of poverty-based variation in unpaid work time adjustments, and that poor and nonpoor households responded to the recession in different ways. Their findings invite further investigation of the ways in which poverty affects work-time changes. For example, exploring the forces that drive changes in characteristics of the poor and nonpoor may provide a fruitful direction for future research, as these changes are likely the result of poverty and the movement of individuals in and out of poverty. Nonpoor households might be more likely to merge in response to economic shocks and thus find themselves classified as poor. Further exploration of these factors and dynamics is essential to understanding the adjustments in unpaid work time made by poor and nonpoor individuals.
www.levyinstitute.org/pubs/wp_806.pdf

Program: Economic Policy for the 21st Century

Explorations in Theory and Empirical Analysis

Growth with Unused Capacity and Endogenous Depreciation

FABRIZIO PATRIARCA and CLAUDIO SARDONI
Working Paper No. 795, April 2014

Fabrizio Patriarca and Claudio Sardoni, Sapienza University of Rome, examine the role of capacity utilization in the process of growth in an imperfectly competitive economy. The distinctive element of their model is the hypothesis that the rate of capital depreciation increases as a function of capacity utilization. If true, their argument implies results that differ from most Kaleckian models. The authors find that in a number of cases growth can be profit led rather than wage led. They begin with a basic Kaleckian growth model and discuss the implications of including a normal rate of capacity utilization. Next they present a model in which the rate of depreciation varies.

The most common approach of contemporary Kaleckian economists is to treat the problem of excess capacity within the context of equilibrium growth models as a function of the level of demand. Capacity utilization, the authors note, plays no role in the most basic version of the Kaleckian growth model, and many economists have found fault with this model for this reason. If the Kaleckian model is modified by introducing an exogenous, normal degree of capacity utilization, the investment function must be modified to account for the reaction of firms to deviations of the actual degree of capacity utilization from its normal or planned level. This modification implies substantial changes in the Kaleckian model but only for the short run. However, when the short- and long-run equilibria are considered, a problem of convergence between the short-period equilibrium level of utilization and that of the long-run value emerges. The authors briefly recount how this problem has been treated in the literature, and argue for a different approach to the convergence question.

The convergence of the degree of capital utilization to its long-run value is explained by the rate of capital depreciation, which is both variable and endogenous. Further, Patriarca and Sardoni demonstrate that the short-run equilibrium degree of capacity utilization converges to an endogenously determined long-run value, which is not necessarily the normal degree of capacity utilization. Typically, economists assume a constant rate of depreciation that is independent of the intensity with which the capital stock is used. Patriarca and Sardoni reject this assumption and present a functional relationship between the rate of capital depreciation and capital utilization, assuming that the normal rate of depreciation corresponds to the normal level of capacity utilization and increases or decreases when capacity utilization is above or below its normal level. A variable rate of depreciation can affect economic growth through firms' investment decisions if firms depend on the net rate of profit, and a level of higher capacity utilization may be partly offset by the larger share of total investment devoted to replacing capital.

Based on their results, the authors conclude that including a variable rate of depreciation implies that the conditions for a wage-led economy are more restrictive than those found in standard Kaleckian models. The greater the sensitivity of the depreciation of capital to the level of capacity utilization, the more likely it is that growth will be profit led. Put another way, the positive effect of demand on the growth rate is offset by the negative effect of capacity utilization on the rate of depreciation. The authors then turn to an examination of capital depreciation. Their results indicate that the economy is wage led in the short and the long run, but only if the rate of capital depreciation cannot vary freely and is somewhat anchored to its normal value.

The problem of the short-term convergence of the level of capacity utilization to its long-term level has largely been addressed by arguing that the long-term level is endogenously set. The authors approach this problem by including endogenous depreciation in their model. Overall, they conclude that their results do not differ markedly from those obtained in other Kaleckian models—the long-period equilibrium level of capacity utilization is determined endogenously—but they arrive at this insight by travelling a new path.

www.levyinstitute.org/pubs/wp_795.pdf

Autonomy-enhancing Paternalism

MARTIN BINDER and LEONHARD K. LADES

Working Paper No. 800, May 2014

In this new working paper, Research Associate Martin Binder and Leonhard Lades, University of Stirling, contribute to the discussion of "libertarian paternalism," the notion of using behavioral policy interventions to encourage individuals to make decisions that are in their self-interest. This approach falls within the domain of "soft paternalism," wherein policy seeks to assist individuals without limiting their freedom of choice. The authors highlight three critical problems with this approach: (1) identifying what is in the best interest of an individual, (2) focusing on freedom of choice at the expense of autonomy in making critically reflected decisions, and (3) neglecting to account for all of the effects of libertarian-paternalistic policy interventions. They propose an "autonomy-enhancing paternalism" as a means to address these issues. Their approach draws on subjective well-being research to better understand what truly benefits individuals, and argues for an additional constraint on interventions that emphasizes autonomy and acknowledges the impact of interventions over time. The authors illustrate their proposal with a simple "sin nudges" model.

Behavioral economics has shown how individual decision making often departs from full rationality, perfect information, and complete self-control. Libertarian paternalism argues for interventions to correct these departures, using "nudges" to encourage welfare-promoting choices while not limiting individual freedom of choice. The goal of these interventions is to encourage decisions that individuals would have freely made if they had had full information or were not influenced by one of the decision anomalies identified in behavioral economics. Further, libertarian paternalism, in contrast to traditional paternalism, strives to construct interventions that leave freedom of choice intact. Understandably, this perspective on interventions has sparked considerable debate in recent years.

One of the main objections to libertarian paternalism is whether or not choice architects can identify choices that make people better off in their own judgment. Traditional economics assumes that choices reveal true preferences, while behavioral economics argues that choices can be mistaken. There is the further problem of knowing when a decision is sufficiently informed and thus faithful to an individual's preferences. The authors contend that the main problem with the approaches used to detect what makes individuals better off, as judged by the individual, is that they do not address the context of actual choices; they deal with the problem in a procedural rather than a substantive manner (as if all choosing were the same). To address this problem, Binder and Lades require a substantive theory of "the good" (i.e., the well-being of an individual). They turn to the literature on subjective well-being (SWB) as a way to unpack the "black box" of the utility function. Using empirical research from SWB research provides a basis, the authors argue, for identifying policy interventions that are, on average, in the interests of individuals. However, SWB research is a relatively new endeavor for economists.

Turning to the question of autonomy, policy interventions can only be described as libertarian when individual liberty is preserved. They suggest that "liberty" can also be configured in terms of the ability to make critically reflected autonomous decisions, an important feature of libertarian views too often neglected. Autonomy is an important feature to preserve and should not be excluded in favor of a narrow definition of freedom. The authors suggest added autonomy as an operationalized constraint on behavioral interventions permitted. Further, behavioral paternalistic interventions (or "nudges") should not manipulate individuals even if the results are beneficial to the individual, as this is morally undesirable and undermines the principle of individual autonomy.

The third problem is the static outlook of libertarian paternalism (i.e., it fails to account for the intertemporal effects of nudges on future choices). Nudges can affect future choices through preference learning and changing the deviation from rationality. This can have both positive and negative results for individuals, increasing or decreasing their ability to make critically reflected decisions. Thus, nudges have the potential to reduce the need for future interventions if individuals experience increased autonomy from prior interventions. The authors present and discuss their formal model of optimal sin nudges and also illustrate the impacts of behavioral policy interventions. In their view, behaviorally informed paternalism holds the potential to help individuals overcome their biases and decision-making fallibilities and thus make better, more autonomous choices.

www.levyinstitute.org/pubs/wp_800.pdf

What Do We Know About the Labor Share and the Profit Share? Part I: Theories

OLIVIER GIOVANNONI

Working Paper No. 803, May 2014

In the first in a series of three working papers on the functional distribution of income, Research Scholar Olivier Giovannoni examines the major theories of income distribution (i.e., the share of income received by the factors of production, not the personal distribution of income). The author covers the contributions of John Maynard Keynes, Nicholas Kaldor and Luigi Pasinetti, Michał Kalecki, and Richard Goodwin, and discusses various contributions related to technology and the shape of the production function. He closes with a summary of the various approaches to modeling income distribution, and concludes that no single model has emerged as the dominant one.

Giovannoni recalls that the role of income distribution is one of the oldest questions in economics; the allocation of income across the factors of production, and therefore economic and social classes, is one of the principle problems of political economy. It is a subject that has been taken up, or pointedly ignored, throughout the history of economic thought. Following the global financial crisis that began in 2008, it has once again become a central question. For many years prior to the crisis, the labor share remained more or less steady. This has changed in recent years, with the labor share falling, and has inspired much of the renewed interest in the functional distribution of income.

Keynes took up the issue frequently but did not, the author notes, treat it as a central theme in his work, preferring to address other issues more extensively, and thus leaving the marginalists' approach unchallenged. In contrast, Kalecki devoted substantial effort to developing his theory of income distribution. The most mature iteration (i.e., the most recent) of Kalecki's treatment arose out of the antagonism between capitalists and workers, a norm of imperfect (or oligopolistic) competition, and less than full employment (i.e., persistent underemployment and excess capacity). Giovannoni explains that, within Kalecki's theory, with a constant level of spending by capitalists, higher profits can only be achieved by limiting output and employment. The wage share is thus inversely related to the degree of monopoly. Oligopolistic markets are thus the enemy of the labor share of income. Wage-led growth relies on strong unions to counter the decisions of capitalists. Giovannoni discusses the policy implications of Kalecki's contribution, including the role of state intervention to address underemployment.

Turning to the work of Kaldor and Pasinetti, the author notes that Kaldor's conclusion that the investment and savings rates of capitalists, not those of workers, shape the distribution of income. Pasinetti identified a "logical drift" in Kaldor's model but his revision did not alter the central conclusion of Kaldor's argument, giving us what is referred to as the Kaldor–Pasinetti model. The model's stylized facts include an assumption of full employment, for which it has been criticized in some quarters. Giovannoni suggests that Kaldor and Keynes reached conclusions consistent with neoclassical authors with regard to full employment—that income distribution plays a supporting role but not a deterministic one. Overall, Kaldor's contribution was to introduce distribution to the economic discourse, confirm that workers spend what they earn and capitalists earn what they spend, and identify the role of demand in driving economic activity.

In Goodwin's model, workers and capitalists vie for control of the income distribution. Giovannoni finds that, in this model, the distribution of income is endogenous and deeply embedded, and that it functions in concert with the economic system. The income distribution is thus integral to the business cycle itself, as it can affect the level of production and employment.

The author next turns to theories of the role of technology and the shape of the production function. As technology shapes the yield of the various factors of production, technological progress may contain a bias for some factors over others, and thus their income share. The author examines various types of technological progress and the different types of production functions to explore these linkages; notably, the Cobb-Douglas and constant elasticity of substitution models. The author concludes with a taxonomy of the various theories of income distribution, observations on ergodicity, and the role of economic policy.

www.levyinstitute.org/pubs/wp_803.pdf

What Do We Know About the Labor Share and the Profit Share? Part II: Empirical Studies

OLIVIER GIOVANNONI

Working Paper No. 804, May 2014

In the second paper in a three-part series, Olivier Giovannoni examines the empirical research into the determinants of the functional distribution of income, focusing on three major areas: technological change, international trade, and financialization (welfare policy is not treated extensively in this paper, but some preliminary findings are included). These forces are found to influence the labor share of income and are frequently mutually reinforcing. The author examines the case of the United States, and finds that the fall in US shares conintegrates with rising inequality in the top 1 percent income share.

The debate on the role of technological change in the labor share of income revolves around whether or not such changes benefit capital or labor, or are Hicks-neutral. The author finds that technology, or the substitution of capital for labor, has played a relatively small role in the evolution of the labor share of income. In many countries, capital and labor have been found to be complementary, with the exception of Europe, where the technology has exerted a decidedly negative influence on the labor share of income.

In contrast, market liberalization and welfare state retrenchment have had negative effects, with Europe, again, showing some of the strongest negative impacts. Likewise, international trade, capital mobility, foreign direct investment, and "globalization" all exert a downward pressure on the labor share in both developed and developing countries. This is true for countries that are net exporters (e.g., Japan, Germany, and China), as they have also recorded declining labor shares over time. Yet, it is financialization that has the distinction of being the single most depressive force on the labor share of income. The author concludes that the combination of globalization, welfare retrenchment, financialization, and the rise of the profit/property share account for the decline in the labor share.

Giovannoni notes that these factors share a bias and do not affect the population equally. Welfare retrenchment hurts the poor, as do technological changes that do not benefit unskilled workers; international trade creates winners and losers, while financialization benefits those with the wealth and information to exploit opportunities in the financial markets. This suggests a link between the relative factor shares and income inequality, as has been documented in a number of studies. The growing divergence between the shares of wealthy, skilled individuals and the less fortunate is growing. However, the divergence increasingly favors the top 1 percent of the population, with the middle- and lower-income groups facing a declining share. The author notes that between 1947 and 1980 the evolution of the property share and inequality was relatively stable. Since 1980, there has been a constant increase in the property share and inequality. This is due to the divergence of the top incomes, as documented with Gini coefficient data, and the four factors (technology, trade, finance, and welfare retrenchment) driving inequality and changing the relative factor shares. Unbalanced growth has two consequences: a rising property share and increased income inequality.

These findings allow the author to clarify certain points in the current debate on the source of current and rising inequality. It is inaccurate, he argues, to attribute these changes solely to changes in trade or technology. The data do not support such a claim. Financialization and welfare retrenchment (i.e., policy choices) provide a better explanation for these trends. Financialization—which was aided, if not created, by liberalization—and unbalanced growth are, at least in part, the result of policy choices. Unless institutions engage in strongly redistributive policies, the author concludes, liberalization and financialization will continue to drive the increase in income inequality.

www.levyinstitute.org/pubs/wp_804.pdf

What Do We Know About the Labor Share and the Profit Share? Part III: Measures and Structural Factors

OLIVIER GIOVANNONI

Working Paper No. 805, May 2014

The assumption that factor shares remain relatively constant is a common assumption in economic theory. In this final installment in a three-part series, Olivier Giovannoni derives the first high-frequency measure of the labor share for the whole US economy. Using National Income and Product Accounts (NIPA) and Piketty–Saez data, he investigates the apparent stability of the labor share. He finds a substantial compositional change that has damaged the labor share and benefited capital. Giovannoni calculates that the labor share in the United States in 2012 was at the same level as in the 1920s, and that similar patterns can be found in Europe and Japan. He begins with a discussion of the evolution of factor shares and production functions. This decrease in the labor share in recent decades is greater if the CPI is used rather than the GDP deflator.

Giovannoni notes that our theoretical understanding and use of production functions have remained relatively unchanged in the last 50 years, in no small part because of the widespread assumption of constant factor shares. In effect, production and distribution are seen as separate issues. However, empirical research has cast growing doubt on this assumption, with much of this research conducted by government and international organizations, not academics. The author cautions that what is often loosely referred to as the "wage share" (or labor share) of income depends on methodological choices that are hardly straightforward. His analysis therefore presents several calculations of the labor share and employs alternative data sources so as to reveal different aspects of the labor share and thus arrive at a more robust understanding of the underlying dynamics.

The author next addresses the persistent and difficult question of how to apportion proprietor, or "entrepreneurial," income. He presents alternative methods of mixed-income apportionment, using a combination of fixed-weight and flexible-weight methods to establish a baseline labor share estimate. He finds similar results for most of the methods. The labor share has remained remarkably stable over time at 62–69 percent of GNP, which seems to validate the use of Cobb-Douglas production functions. However, these calculations tell us nothing about the composition of the labor share. Before addressing composition effects, Giovannoni compares his results thus far with alternative US and international datasets. Overall, his measure of the labor share is robust and displays several desirable properties.

Turning to the question of the composition of the labor share, a topic largely neglected in the literature, the author investigates the impact of structural changes in the economy. He examines sectoral changes that appear to cancel out one another at the aggregate level. However, the disaggregated data show a shift from high-wage, high-unionization sectors to low-wage, low-unionization sectors. Greater labor force participation by women is a structural change that appears to have a strong correlation with a declining labor share, but the complexities of this issue and the data limitations require further research. The purchasing power of the labor share (i.e., what wages buy) using the CPI shows a 20 percent decline in purchasing power between 1980 and 2013. Trends in top income shares reveal that the labor shares for the bottom 90, 99, and 99.9 percent of the population have fallen since the 1980s. On the property side (i.e., top 1 percent incomes) there were dramatic increases, pointing to income inequality as yet another driving force in the evolution of the labor share. The author notes that financial and top incomes grew dramatically and at the expense of the labor share. In 2012 alone, $1.8 trillion went from labor to capital.

Giovannoni concludes with suggestions for future research and the policy applications of his findings. A clearer understanding of the evolution of the labor share has clear implications for policymaking, says the author, ranging from international trade policy to taxation and social welfare programs.
www.levyinstitute.org/pubs/wp_805.pdf

Income Distribution Macroeconomics

OLIVIER GIOVANNONI
Working Paper No. 807, June 2014

Research Scholar Olivier Giovannoni treats factor shares as a measure of income distribution rather than following the mainstream trend in the literature that uses inequality measures and microeconomic analysis. Factor shares, he notes, have been largely treated as constant in the postwar era and thus largely neglected. For example, the Cobb-Douglas and Solow growth models assume constant factor shares and render questions of distribution as all but irrelevant. In this paper, Giovannoni demonstrates how, with relatively simple modifications, valuable insights can be gained from traditional growth models. His analysis covers the Keynesian cross, Solow, and Harrod-Domar models.

He begins with a discussion of distribution, the multiplier, and growth. His analysis relies on a common textbook model that assumes that profits are endogenous because production precedes profit. From this, he derives a labor share of

0.65 to 0.80 and a multiplier of between 1.2 and 1.5, which is consistent with the relevant literature. Giovannoni notes that with multipliers greater than one, monetary and fiscal policies are legitimized. Because profits are assumed to be endogenous, the author observes that the economy is therefore wage led in the short run, not profit led, and offers a formal proof that is compatible with the literature.

Giovannoni analyzes changes in aggregate demand and the labor share of income using a traditional 45-degree line diagram. He then turns to long-run growth dynamics. He finds that factor shares are exogenous in the long run but that the distribution of income may change if, for example, markets are imperfect, technology is biased, taxes or subsidies change, or the production function does not conform to the specifications of a Cobb-Douglas model. He then modifies his formal analysis to examine heterogeneous savings rates along a balanced growth path, employing a Kaldorian decomposition of the savings rate. Giovannoni concludes that income distribution is inconsequential to the process of growth along a balanced growth path.

His second modification explores an endogenous savings rate along the transition path. He reports a temporary increase in the rate of growth following a permanent increase in the profit share. After the transition is completed, the economy reaches a steady state in which growth is driven by the rate of depreciation and the rate of technological change, not income distribution. Thus, the transition path remains profit led. Finally, he analyzes a Harrodian growth framework and finds that the warranted growth path (i.e., production capacity) is profit led, which in no way affects the classic instability of the warranted growth path.

Giovannoni concludes that these modifications offer fruitful pedagogical devices that can demonstrate the importance of income distribution, with useful implications for the design of both institutions and policy. For example, in the short run, countercyclical policies should promote stable aggregate wages; whereas, in the long run, institutions should encourage profit accumulation and capacity expansion based on the understanding that profit-led expansions are only temporary, and unstable.
www.levyinstitute.org/pubs/wp_807.pdf

INSTITUTE NEWS

MS Program Welcomes New Graduate Students

The Levy Institute would like to welcome its first class for the Master of Science in Economic Theory and Policy program. This highly talented group—from the United States, Brazil, Canada, Ethiopia, and Romania—will take part in both theoretical and applied training in one of five key Levy Institute research areas: macroeconomic theory, policy, and modeling; monetary policy and financial structure; distribution of income, wealth, and well-being; gender equality and time poverty; and employment and labor markets. For more information about the program, visit www.bard.edu/levyms.

New Research Scholar

The Levy Institute is pleased to announce the appointment of Leonardo Burlamaqui as a research scholar working primarily in the State of the US and World Economies program. Burlamaqui is an associate professor of economics at the State University of Rio de Janeiro (UERJ) and a former senior program officer at the Ford Foundation, where he was in charge of the Reforming Global Financial Governance Initiative. His academic appointments include professor of economics at Candido Mendes University, and he has served in various capacities at the World Intellectual Property Organization, the World Institute for Development Economics Research (Helsinki), the Institute for Developing Economies (Tokyo), and the Centre for Development and the Environment, University of Oslo. He is a former member of the board of the International J. A. Schumpeter Society (2002–06) and currently sits on the board of The Other Canon Foundation. He is also a contributing editor to the *Post Keynesian Economics Forum*.

Burlamaqui has published in the areas of innovation and competition, development economics, intellectual property, institutions and economic change, and the political economy of knowledge and finance. His recent publications include "Governing Finance and Knowledge," *Homo Oeconomicos*, Special Issue, "Schumpeter for Our Time," Spring 2010; "Knowledge Governance, Innovation and Development," *Brazilian Journal of Political Economy*, Fall 2010; *Knowledge Governance—Reasserting the Public Interest* (co-editor, with R. Kattel and A. C. Castro), 2012; and "From Intellectual Property to Knowledge Governance" (with M. Cimoli), in J. Stiglitz et al., eds., *Intellectual Property Rights: Legal and Economic Challenges for Development*, 2013. He is a co-editor of the forthcoming *Financial Governance and Development in Brazil*.

Burlamaqui holds a Ph.D. in economics from the Federal University of Rio de Janeiro (UFRJ).

New Research Associate

The Levy Institute is pleased to welcome behavioral economist Martin Binder as its newest research associate. Binder is a professor of economics at Bard College Berlin and a visiting professor of normative economics and business ethics at the University of Kassel. His research interests are focused on behavioral and normative economics, and especially subjective well-being ("happiness") research. He was a research fellow and associate at the Max Planck Institute of Economics from 2004 to 2012, conducting research in the fields of behavioral and evolutionary economics, and subsequently held a research position at the University of Sussex. In 2009–11, Binder received a grant from the European Commission to study knowledge-intensive entrepreneurship and social well-being.

Binder has published extensively and is a member of the editorial board of *Social Indicators Research*. His recent publications include "Innovativeness and Subjective Well-Being," *Social Indicators Research*, 2013; "Life Satisfaction and Self-Employment: A Matching Approach" (with A. Coad), *Small Business Economics*, 2013; "Should Evolutionary Economists Embrace Libertarian Paternalism?" *Journal of Evolutionary Economics*, 2013; "The Structure of Subjective Well-Being: A Vectorautoregressive Approach" (with F. Ward), *Metroeconomica*, 2013; "Volunteering, Subjective Well-Being, and Public Policy" (with A. Freytag), *Journal of Economic Psychology*, 2013; "From Average Joe's Happiness to Miserable Jane and Cheerful John: Using Quantile Regressions to Analyze the Full Subjective Well-Being Distribution" (with A. Coad), *Journal of Economic Behaviour & Organization*, 2011; and *Elements of an Evolutionary Theory of Welfare*, 2010.

Binder holds a Habilitation in economics from the Friedrich Schiller University Jena, a Ph.D. in economics (2009), an M.A. in philosophy (2004), and an M.Sc. in business administration (Dipl.-Kfm., 2003) from RWTH Aachen; and a B.Sc. in economics (2002) from Florida Atlantic University. His dissertation, which explores the normative consequences of measuring societal progress and development via measures of subjective well-being, was published by Routledge in 2010.

Upcoming Event

Conference

Europe at the Crossroads: A Union of Austerity or Growth Convergence?

Athens, Greece

November 21–22, 2014

In November, the Levy Institute will hold its second annual conference at the Megaron Athens International Conference Centre in Athens, Greece. Co-organized by the Institute and Economia Civile, the conference will focus on the continuing debate surrounding the eurozone's systemic instability; proposals for banking union; regulation and supervision of financial institutions; monetary, fiscal, and trade policy in Europe, and the spillover effects for the US and the global economy; the impact of austerity policies on US and European markets; and the sustainability of government deficits and debt.

Invited speakers include Stanley Fischer, vice chair, US Federal Reserve System; Richard W. Fisher, president and CEO, Federal Reserve Bank of Dallas; Sarah Bloom Raskin, deputy secretary, US Department of the Treasury; Mihai Tănăsescu, vice president, European Investment Bank; Marek Belka, governor, National Bank of Poland; Gyorgy Matolcsy, governor, National Bank of Hungary; Peter Bofinger, German Council of Economic Experts; Lubomír Lízal, board member, Czech National Bank; Carlos da Silva Costa, governor, Bank of Portugal; Heiner Flassbeck, former director, Division on Globalization and Development Strategies, UNCTAD, and former deputy finance minister, Germany; Roberto Lavagna, former Argentinian minister of economy and production; Patrick Honohan, governor, Central Bank of Ireland; Mario Tonveronachi, professor of financial systems, University of Siena; Eckhard Hein, professor of economics, Berlin School of Economics and Law; George Argitis, professor of economics, University of Athens, and scientific director, Institute of Labour, GSEE; Stuart Holland, professor, University of Coimbra; Emilios Avgouleas, chair, International Banking Law and Finance, University of Edinburgh; Elga Bartsch, European chief economist, Morgan Stanley; Lex Hoogduin, professor of economics and business, University of Groningen; Stephen Kinsella, lecturer in economics, University of Limerick; Engelbert Stockhammer, professor of economics, Kingston University; and Andrea Terzi, professor of economics and coordinator of the Mecpoc Project, Franklin University Switzerland.

For more information, visit www.levyinstitute.org.

PUBLICATIONS AND PRESENTATIONS

Publications and Presentations by Levy Institute Scholars

JAMES K. GALBRAITH *Senior Scholar*
Publications: "Foreword," in J. Sommers and C. Woolfson, eds., *The Contradictions of Austerity: The Socio-economic Costs of the Neoliberal Baltic Bodel*, Routledge, 2014; "Comment on Bank Regulation," *The International Economy*, Winter 2014; "Comment on Innovation," *The International Economy*, Spring 2014; "Kapital for the 21st Century? A Review of *Capital in the 21st Century*, by Thomas Piketty," *Dissent*, Spring 2014; "UTIP Global Inequality Data Sets, 1963–2008: Updates, Revisions and Quality Checks" (with B. Halbach, A. Malinowska, A. Shams, and W. Zhang), UTIP Working Paper No. 68, University of Texas Inequality Project, May 6; "Whither Europe: The Modest Camp vs. the Federalist Austerians" (with Y. Varoufakis), openDemocracy.net, June 11; review of *America's Fiscal Constitution: Its Triumph and Collapse*, by Bill White, *The Texas Observer*, June 24.
Presentations: "Is Inequality a Major Challenge and Why? How Should It Be Addressed?," Progressive Economy Forum 2014, sponsored by the European Parliament, Brussels, Belgium, March 5, 2014; guest speaker, Henry George Lecture Series, St. John's University, April 7; "Economics of the Predator State," Annual Conference of the Institute for New Economic Thinking, Toronto, Canada, April 12; "A Matter of Standards," International Transport Forum, sponsored by the Organisation for Economic Co-operation and Development, Leipzig, Germany, May 21; "Keynes 'in the 21st Century': Tradition, Circumstance, Fad and Pretence in the Wake of the Great Crisis," The Third Nordic Post-Keynesian Conference, Aalborg University, May 22; lecture, "Inequality and the Labor Market," CEVEA, Copenhagen, Denmark, May 23.

GREG HANNSGEN *Research Scholar*
Publication: "Fiscal Policy, Chartal Money, Markup Dynamics, and Unemployment Insurance in a Model of Growth and Distribution," *Metroeconomica: International Review of Economics*, Vol. 65, No. 3, July 2014.
Presentation: "Consumption Bliss Points and Complex Dynamics in Kalecki-Steindl Growth Models," Eastern Economic Association 40th Annual Conference, Boston, Mass., March 6–9, 2014.

KIJONG KIM *Research Scholar*
Presentation: "The Great Recession and Unpaid Work Time in the United States: Does Poverty Work?," Economics Department Seminar, Union College, April 4, 2014.

THOMAS MASTERSON *Research Scholar and Director of Applied Micromodeling*
Publications: "Living Standards in the United States in a Historical and Comparative Perspective: Some Results from the LIMEW Project" (with A. Zacharias, E. N. Wolff, and S. Eren), in D. Greenwood and R. Holt, eds., *A Brighter Future: Improving the Standard of Living Now and for the Next Generation*, M. E. Sharpe, 2014; "Turkiye'de Yoksulluk Olcumune Yeni Bir Yaklasım" (A New Approach to Poverty Measurement in Turkey) (with A. Zacharias and E. Memiş), *Feminist Approaches in Culture and Politics*, No. 23, June.
Presentation: "The Impact of Universal Child Care Subsidies on Time and Income Poverty in South Korea," Eastern Economic Association 40th Annual Conference, Boston, Mass., March 6–9, 2014.

DIMITRI B. PAPADIMITRIOU *President*

Publications: "The Currency/Jobs Connection in Greece," EconoMonitor Blog, March 24, 2014; "The Jobs-Currency Connection in Greece," *The Huffington Post*, March 25; "The Jobs-Currency Connection in Greece," *Ethnos*, March 26; "The Jobs-Currency Connection in Greece," *Avgi*, March 27; "Employment Policies," *Kathimerini*, April 6; "The Greek Economy Looks Like a Beaten Boxer," Part I (with C. J. Polychroniou), *Eleftherotypia*, May 4; "The Myth of the Greek 'Success Story,'" (with C. J. Polychroniou), *Truthout*, May 4; "The Greek Economy Looks Like a Beaten Boxer," Part II (with C. J. Polychroniou), *Eleftherotypia*, May 11; "The Coming 'Tsunami of Debt' and Financial Crisis in America," *The Guardian*, June 15; "We Need a Different Europe," *Kathimerini*, July 6; "Export Model 'Science Fiction,'" *Naftemporiki*, August 5; "Are EU Bankers Trying to Increase Unemployment in Greece?," *The Huffington Post*, August 21; "How Would Greece Get Out of the Unemployment Impasse?" *Kathimerini*, August 27; "Greek Crisis and the Dark Clouds Over the American Economy" (with C. J. Polychroniou), *Truthout*, August 27; "The Economy Is Living the Myth of Numbers," *Ethnos*, August 31. "The Solution for the Debt Is a Large Haircut," *Eleftheros Typos*, September 14; "Two Lost Decades and Still an Overindebted Greece" (with C. J. Polychroniou), *Eleftherotypia*, September 14.

Presentations: Interview regarding the Geuro and employer-of-last-resort in Greece with George Gilson, *Crash* Magazine, March 29, 2014; interview regarding the financial crisis in Greece with Anthee Carassava, *Rizopuolos Post*, April 2; "Youth Unemployment: The Case of Greece," conference on "Recharging the Youth," Stavros Niarchos Foundation, New York, N.Y., April 3–4; interview regarding full employment with Sasha Abramsky, April 14; interview regarding the European Parliament elections with Tsitsas Thanassis, May 14; "More Europe, Enough Europe, Less Europe," conference on "After the EU Elections—Old Problems and New Challenges," Berlin, Germany, July 2–3; interview regarding the expanded role central banks are playing in the global economy with Ron Fink, September 8.

EDWARD N. WOLFF *Senior Scholar*

Publication: "Living Standards in the United States in a Historical and Comparative Perspective: Some Results from the LIMEW Project" (with A. Zacharias, T. Masterson, and S. Eren), in D. Greenwood and R. Holt, eds., *A Brighter Future: Improving the Standard of Living Now and for the Next Generation*, M. E. Sharpe, 2014.

L. RANDALL WRAY *Senior Scholar*

Publication: Comment letter on proposed amendments to Regulation A (Extensions of Credit by Federal Reserve Banks) that would implement sections 1101 and 1103 of the 2010 Dodd-Frank Act, March 6, 2014.

Presentations: Interview regarding Modern Money Theory, Euro Truffa Radio (Italy), March 13, 2014; lecture, Perdana Leadership Foundation, Kuala Lumpur, Malaysia, March 17; lecture, "The Global Financial Crisis: Causes, Imbalances, Future," Bard Center for Environmental Policy, Bard College, April 13; lecture, "The Reality of the Present and the Challenge of the Future: Fagg Foster for the 21st Century," University of Denver, April 17; lecture, "Financing the Capital Development of the Economy," Institute for New Economic Thinking, April 21; interview regarding the US financial outlook with Sinclair Noe, Money Radio, April 29; interview, "Bubbles and Piketty," *The Thom Hartmann Program*, May 27; "Financing the Capital Development of the Economy," conference on "Mission-oriented Finance for Innovation," London, England, July 22–24; speaker, 12th International Post Keynesian Conference, University of Missouri–Kansas City, September 25–27.

AJIT ZACHARIAS *Senior Scholar and Program Director*

Publications: "Living Standards in the United States in a Historical and Comparative Perspective: Some Results from the LIMEW Project" (with E. N. Wolff, T. Masterson, and S. Eren), in D. Greenwood and R. Holt, eds., *A Brighter Future: Improving the Standard of Living Now and for the Next Generation*, M. E. Sharpe, 2014; "The Emergence and Development of Official Measurements of Economic Well-Being," in S. Payson, ed., *Public Economics in the United States: How the Federal Government Analyzes and Influences the Economy*, Praeger; "Turkiye'de Yoksulluk Olcumune Yeni Bir Yaklasım" (A New Approach to Poverty Measurement in Turkey) (with T. Masterson and E. Memiş), *Feminist Approaches in Culture and Politics*, No. 23, June; "Yoksulluk ölçümü: Eski mesele, yeni yaklaşım ve bazı çıkarımlar" (Measuring Poverty: An Old Issue, A New Approach, and Some Conclusions), *Perspectives*, No. 9.

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