Table of Contents

Forward

Articles

Minsky’s Financial Instability Hypothesis
By Janelia Tse

The Demise and Rebirth of Laissez-Faire Capitalism
By Fadhel Kaboub

By James W. Okenfuss

Money: A Comparison of the Post Keynesian and Orthodox Approaches
By Pavlina R. Tcherneva

Department of Economics
211 Haag Hall
University of Missouri-Kansas City
5100 Rockhill Road
Kansas City, Missouri 64110
Forward

The contributors to the present issue of *Oeconomicus* are graduate students in the Department of Economics at UMKC. They offer some critiques of key mainstream microeconomic and macroeconomic views with regard to price theory, monetary policy, fiscal policy, and *laissez-faire* capitalism. The authors suggest some plausible alternatives with regard to economic theory and policy. As the readers will notice, the authors are influenced by post-Keynesian and Institutionalist theories, which reflect the pluralistic nature of the Department of Economics at UMKC. Our department has an interdisciplinary approach to economics and seeks to provide our students with a better understanding of today’s political economy. Being exposed to a wide variety of schools of economic thought, students in our department are trained to become open-minded scholars who are able to engage in constructive debates free of dogmatic ideologies.

We would like to thank Professor Frederic S. Lee, Professor James I. Sturgeon, Professor L. Randall Wray and Professor Ben Young for supervising the work of their students and making many valuable suggestions. Professor Lee also conducted a series of seminars this semester on *Research Methodology* where several guest speakers and Ph.D. candidates presented the methodology they use in their research. These seminars were very helpful for graduate students who are not at the dissertation stage yet. We are grateful to Professor Lee for taking this initiative.

On behalf the *Economics Club*, we also would like to thank the Department of Economics, the Social Science Consortium (SSC) and the Center for Full Employment and Price Stability (C-FEPS) for inviting three prestigious guests this semester, with whom students enjoyed the opportunity to engage in informal discussions. Professor William Williams, a visiting scholar at UMKC presented a series of seminars on “Demand Theory and the Psychology of Perception,” “The Theory of Agency,” and “Grounded Theory.” Professor Paul Downward from Staffordshire University, England, presented his research on “Critical Realism and Econometrics,” “Post Keynesian/Heterodox Economics in Britain,” and “An Economic Analysis of the Recent Developments in English Football.”

Distinguished Visiting Scholar Edward J. Nell* from the New School for Social Research gave three seminars entitled respectively: “The Theory of Growth of Demand,” “Effective Demand and the Employer of Last Resort,” “Transformational Growth and Critical Realism.” He also participated in a discussion with Professor Lee on “the Theoretical Integration of Keynes and Sraffa: Challenges and Possibilities.”

The editors: Ben Young
&
Fadhel Kaboub

*Edward J. Nell is Malcolm B. Smith Professor of Economics at the New School for Social Research, New York. Professor Nell concentrates on macroeconomic theory and policy, methodology, growth theory, business cycles, inflation and unemployment. He currently heads the New School's Program on Transformational Growth and Full Employment, which collaborates closely with UMKC's Center for Full Employment and Price Stability. Professor Nell is the author of *The General Theory of Transformational Growth, Transformational Growth and Effective Demand, Prosperity and Public Spending*, and numerous books and articles.
Minsky’s Financial Instability Hypothesis*

By Janelia Tse

Hyman Minsky recognized a growing need for Post-Keynesian theory in the 1980s. This need was mandated by decades of financial innovation and economic change [Minsky 1986a]. Minsky also stressed the many varieties and forms capitalism can take. As Minsky argued, “Whereas all capitalisms are flawed, not all capitalisms are equally flawed” [Minsky 1986b, 295].

Minsky’s financial instability hypothesis is designed to explain instability as a result of the normal functioning of a capitalist economy [Minsky 1985, 26]. It is an alternative to the neoclassical synthesis. As Minsky noted, the financial instability hypothesis was “advanced as an interpretation of Keynes’ General Theory [Minsky 1991b, 158]. In brief, the financial instability hypothesis states that over a period of good times, the financial structures of a dynamic capitalist economy endogenously evolve from being robust to being fragile, and that once there is a sufficient mix of financially fragile institutions, the economy becomes susceptible to Fisher-type debt deflations.

To control the natural instability of a dynamic capitalist economy, Minsky emphasized the importance for the government to create adequate constraining institutions to stabilize the economy. The two most important institutions were the Big Government and the Big Bank. In the pre-war period, the problem was that the US government was too small as a percent of gross domestic product (GDP) to help maintain stability in the economy. In order to be able to prevent debt deflations to occur, the government needs to be able to offset the fluctuations of investment, and therefore it has to be at least as big as investment.

With the existence of the Big Government and the Big Bank, stability of the economy can be maintained more successfully. The deficit of a big government will have three effects [Minsky 1986a]. The first is the income and employment effect. With a government deficit, gross national product (GNP) is increased through the multiplier, and this causes an increase in income flow and employment. Minsky includes transfers (which is strongly countercyclical) and interest payments (which can be countercyclical) in this effect. The second impact of a government deficit is the cash flow effect. A government deficit maintains cash flow so people can maintain debts. For example, if people lose jobs, and there is a recession, unemployment compensation kicks in. The third impact is the portfolio effect. In the portfolio effect, with a government deficit, there is injection of net money into the system, and therefore leads to excess reserves. Government issues more government bonds to drain excess reserves. The private sector will hold more government bonds. Since government bonds are the safest kind of asset, the private sector feels more secure and confident.

The government deficit sets ceilings and floors on employment, personal income, and profit flows. Unlike orthodox Keynesians, Minsky does not believe in trying to fine-tune the economy [Wray and Papadimitriou 1999, 3]. Minsky argues that Big Governments alone may not be enough to stabilize the economy. It is possible that one may still default even with ceiling and floors set by the Big Government. In a recession,

* I would like to thank Professor L. Randall Wray for his valuable suggestions to my paper. He should not, however, be held responsible for any errors.
if a big firm or bank defaults on its debt, it can also bring down others in the economy due to the interlocking nature of their balance sheets. This could cause a “snowball effect” on the economy. An additional constraining institution is needed to prevent debt deflation from occurring.

Big Banks, therefore, step in as the lender of last resort. The Central Bank will generally be taking up this role, as is the case in the United States. The Central Bank will lend to financial institutions. By lending to them, especially to the big financial institutions, the Central Bank prevents big financial institutions from defaulting. One problem with being the lender of last resort is that if banks know that the Fed will always step in if the borrower defaults, banks will have nothing to worry about. Risky behavior is rewarded. There is, therefore, a need to supervise the private banks to decrease the number of bad loans they approve. In the United States, the supervision of balance sheets is undertaken by the Federal Deposit Insurance Corporation (FDIC), the Comptroller of the Currency, as well as by the Fed and by state bank supervisors [Minsky 1992]. Minsky notes that profit-seeking firms have incentives to leverage and borrow more against equity as long as the economy appears to be stable, therefore, “stability is destabilizing.” People take on more and more risk. Hence, regulation and supervision are needed.

We can see that Minsky views the economy as being naturally unstable. Government intervention is needed to stabilize it. Minsky insists that “institutions and interventions thwart the instability breeding dynamics that are natural to market economies by interrupting the endogenous process and ‘starting’ the economy again with on-market determined values as ‘initial conditions’” [Minsky and Ferri 1991a, 4]. In an effort to stabilize the economy, policies are implemented. If policies are successful, the economy booms. Expectations about the expected future returns become increasingly optimistic. As mentioned before, riskier behavior is awarded. This leads to fragility in the economy. This differs from the orthodox view, where the economy is naturally stable, with the invisible hand constantly moving the economy towards equilibrium. This view believes that the government is evil and it moves the economy away from stability. We will briefly look at the characteristics of the orthodox micro and macro models.

In the orthodox micro model, the economy is imagined to function like a simple barter economy. The auctioneer announces the price for each product. There is no false trading, and trades always take place at the equilibrium price. The restrictions to the model are that there is no money in the model; there are no institutions except the auctioneer; there are no capital assets; and there is no financial capitalism (borrowing and lending to finance positions in long-lived assets). Free markets will lead the prices to equilibrium. Minsky argues that the orthodox micro model is unable to model the modern financial capitalist economy. The General Equilibrium Theory has not been able to show that the equilibriums are stable, as there are not enough institutions to constrain instability nor is it able to show uniqueness of equilibrium. As Minsky argued, the only way to have stability is to have more institutions, such as Big Government and Big Banks.

As for the orthodox macro model, which is essentially based on the Neoclassical model, it is driven by an aggregate labor market and an aggregate production function. “The labor market ‘dominates’ in that flexible wages ensure full employment. Given full employment, the production function determines aggregate output. Saving and investment in a “loanable” funds model determines the ‘real’ interest rate, which simply determines the division of output between consumption today and consumption tomorrow
Minsky argues that it is impossible to explain an unemployment equilibrium except with wage rigidities or “fooling” in the short run in the orthodox macro model. In the long run, the economy will have to be at full employment equilibrium.

In Minsky’s alternative model, he argues that there are five main roles of prices in the modern financial capitalist economy [Minsky 1986a, chap. 7]. An adequate or proper price will:

i. Ensure that a surplus is generated;
ii. Ensure that at least some of the surplus goes to owners of capital;
iii. Ensure the market (or demand) prices of capital assets are consistent with current production costs (or supply price);
iv. Ensure that obligations on business debts can be fulfilled;
v. Ensure that resources are directed toward the investment sector, that is, to allow accumulation of capital.

According to Minsky, as long as there is sufficient spending, some of the surplus will go to the owners of capital if prices are set appropriately. In the Kelecki-Levy profit equation, the aggregate amount of profits is identically equal to the sum of investment plus consumption out of profits plus the government’s deficit and the trade surplus, less savings out of wages [Wray and Papadimitriou 1999, 8]:

\[
\text{Gross Profits} = I + C \text{ out of profit} + G \text{ Deficit (+) or G Surplus (-)} + \text{Net Exports} – \text{Savings Out of Wages.}
\]

We can therefore see that profit in the aggregate is not from the productivity of firms, but depends on aggregate spending. When firms set prices (\(\text{Price} = \text{Cost} + \text{Markup}\)), they will get part of the profit if they can realize those prices. The surplus at the aggregate level can only be obtained by spending. As the saying goes “Workers Spend What They Get, Capitalist Get What They Spend” on investment and consumption out of profit.

In ensuring that the market (or demand) prices of capital assets are consistent with current production costs (or supply price), we can look at the figure below representing the impact of internal funds and external finance.

A capitalist economy is characterized by two sets of relative prices, one of current output and the other of capital assets. Prices of capital assets depend upon current views of future profit (quasi-rent) flows and the current subjective value places upon the insurance against uncertainty embodies in money or quick cash: these current views depend upon the expectations that are held about the longer-run development of the economy. The prices of the current output are based upon the current views of near-term demand conditions and current knowledge of money wage rates. Thus the prices of current output – and the employment offered in producing output – depend upon shorter-run expectations. Capital asset and current output prices are based upon expectations over quite different time horizons: capital asset prices reflect long-run expectations and current output prices reflect short-run expectations [Minsky 1985, 29].
The two-price system approach that Minsky came up with is based on expectations. The lender’s risk is the risk banks face when lending to firms. The larger the loan is, the more likely it is for the firm to default on the loan. Borrower’s risk is the risk of the borrower being indebted. The larger the debt amount is, the greater chance the borrower will lose equity. From the figure above, at (1), there is no borrowing. Firms use their own internal funds. At (2), there is lender’s risk and as firms borrow more, the interest rate increases. Similarly, at (a), there is no borrowing and borrower’s risk increases as we move down to (b). Therefore, at I, internal funds are used, and I is the amount actually invested. The combination of the two prices determines investment. I represents the agreed price of capital.

For investment to occur, the demand price must exceed the supply price. If the government always were to intervene by preventing economic crisis, people take on riskier investments. According to Minsky, three possible financial positions may evolve:

1. **Hedge**: Income flows are expected to meet balance sheet outflows in every period.
2. **Speculative**: the firm must roll over debt because income flows are expected to only cover interest costs.
3. **Ponzi**: income flows won’t even cover interest costs, so the firm must issue new liabilities at the end of each period to capitalize interest (or it must sell-off assets).

We can conclude that Minsky believes that the economy is naturally unstable. Minsky’s financial instability hypothesis is pessimistic. Instability in the economy is mainly caused by fluctuations in autonomous expenditure. Each success in prevention of a financial crisis leads to further risk taking and hence a more fragile economy. Adequate constraining institutions such as the big government and big bank are necessary to step in to prevent debt deflation. Minsky uses reasonable expectations in explaining the decision-making basis in investment and finance. As for policy implications, Minsky argues that discretionary fiscal and monetary policies are most appropriate in today’s real world.
References


The Demise and Rebirth of Laissez-Faire Capitalism

By Fadhel Kaboub

“While laissez-faire economy was the product of deliberate state action, subsequent restrictions on laissez-faire started in a spontaneous way. Laissez-faire was planned; planning was not” [Polanyi 1957, 141].

The stagflation of the 1970’s discredited the Keynesian fine-tuning policies, which dominated both economic theory and policy since World War Two. Government activism and national planning were not believed to be helpful in terms of solving the stagflation problem. Both economists and policy-makers went back to the pre-Keynesian ideas (Say’s Law) and to the maxim of laissez-faire, laissez-passer. The Keynesian demand-side economics was replaced by the elitist supply-side economics. Monetarism took over central banking, and the economic doctrine of laissez-faire – strongly supported by academicians – regained its place in the political arena.

The laissez-faire disciples usually refer to Adam Smith as the father of laissez-faire and free market capitalism, but they fail to understand that Smith’s society was not a fully capitalist society. He was trying to predict what it would be like to free society from the feudal and church power. Even though Adam Smith “was a Free Trader and an opponent of many eighteenth century restrictions on trade… his attitude towards the Navigation act of the Usury laws shows that he was not dogmatic” [Keynes 1926, 27].

Keynes argued that “the phrase laissez-faire is not to be found in the writings of Adam Smith, of Ricardo, or of Malthus” [Keynes 1926, 27]. In fact, the use of the term laissez-faire, laissez-passer is attributed to Vincent de Gournay (1712-59) a precursor of the physiocrats and of Adam Smith. He was interested in reforming the French economy and in abolishing trade restrictions. Keynes strongly affirmed that the maxim of laissez-faire was created by political philosophers not by political economists. It “is what the economists are supposed to have said… It is what the popularisers and the vulgarisers said… It is what the Utilitarians… were driven to believe in, if they were to effect a synthesis” [Keynes 1926, 23-4]. Karl Polanyi explained that for “politicians and administrators laissez-faire was simply a principle of the assurance of law and order, with the minimum cost and effort” [Polanyi 1957, 117].

Laissez-faire capitalism is a system based on four “laws of nature.” First, the laws of personal interest and competition, which represent the fundamental forces driving rational individuals to achieve social welfare while pursuing their own personal interest. The second set of “natural laws” – private property and freedom – are the institutional prerequisites that guarantee the existence of the first two “natural laws.” Therefore, the role of government has to be limited to the protection and reinforcement of private property and freedom. Rational individuals seeking their own personal interest and competing against one another will ultimately lead the economy to “equilibrium.” Being away from the “equilibrium” position means that the government failed to guarantee

---

* I would like to express my gratitude to Professor L. Randall Wray for helpful comments. Remaining errors are mine.
private property and freedom. Under *laissez-faire* capitalism, unemployment is voluntary because rational individuals prefer leisure to the “disutility” of work.

The 1920’s and 1930’s was a recession period, which generated very high unemployment rates in the U.S. and Western Europe, and unemployment did not seem to be voluntary. The Keynesian revolution against *laissez-faire* capitalism helped to save capitalism from the threatening communist system where other “natural laws” guaranteed jobs to nearly 100 percent of the population.

The breakdown of the old *laissez-faire* model occurred in the 1929-33 period. Government intervention became a necessary and sustainable policy that helped to increase investment, income and consumption through the government spending multiplier. The concept that prevailed after the Second World War was that the government was the main moving force for social and economic development. Between 1933 and 1969, the American economy reached a considerable level of economic growth and social welfare. When the government got heavily involved in solving the economic problem, unemployment and income inequality decreased, and “American capitalism – though not perfect – was a *successful* economic system” [Minsky 1996, xii].

After the first oil crisis, economists started to doubt the validity of demand-side economics. Supply-siders argued that stagflation was caused by high taxes (which is associated with low levels of supply and an incentive not to produce or invest more) and welfare programs (which is associated with high levels of demand and an incentive not to work). Even though the economy continued to grow, the amplitude of the business cycle continued to increase and income distribution became increasingly unequal [Minsky 1996, xiii].

In the 1980’s, the rise of Ronald Reagan and Margaret Thatcher symbolized a rebirth of *laissez-faire* capitalism. Both “Reagan and Thatcher tried to overthrow the big government interventionist capitalisms that they inherited” [Minsky 1993, 7]. The government was to become small and development left to the “natural laws of the market.” This conservative trend went together with the enormous growth of international corporations, which sometimes have greater resources at their command than nation-states.

The standard of living in the U.S. during the 1980’s decreased considerably, with a high unemployment rate, increasing inequality of income distribution, falling real wage, and a relatively high inflation rate. Politicians, economists and the media were able to convince the public that the fall in the standard of living and the economic crisis was simply due to the government’s deficit. The Reagan administration accumulated a $1.3 trillion deficit over the 1980-88 period. The deficit became a political issue, and the public blindly joined the euphoria for balancing the budget, decreasing government expenditure, reforming welfare, and cutting social spending.

The “theoretical” justification of supply-side economics lies in the Laffer curve, which advocates a decrease in the progressive income tax and in the capital gains tax. Balancing the budget is simply a matter of finding the optimal combination of tax rate and tax revenue (figure 1). Supply-siders advocate tax cuts for the rich and welfare cuts for the poor because they believe that the masses are not creative or productive. The public is the demand-side. According to Gilder, leadership (the elite) is the supply-side, and “nothing demoralizes the capitalists more than high marginal tax rates… [The rich]
are altruistic *givers*... [who] give in order to get without being sure of the getting” [Rousseas 1982, 33].

Monetarists also had their word to say on the rebirth of *laissez-faire*. Milton Freedman strongly advocated *laissez-faire* capitalism as a social system in which individuals are “free to choose.” Some individuals make rational decisions to be poor or unemployed. The government should leave them alone and respect their choices. According to Friedman, the government can only intervene when the market forces fail to achieve overall welfare (i.e. market failure). The government has to create the rules of behavior for the economy and reinforce them in order to guarantee economic and political freedom. Market forces would eliminate any discrimination or monopoly power. Therefore, the government does not even need to regulate firms having monopoly power. The only exceptions for which Friedman allows government intervention is in providing public goods, controlling the money supply and correcting for externalities (or neighborhood effects, as he prefers to name it). Friedman rejects the Neoclassical-Keynesian fine-tuning policy because, according to him, increasing government spending would completely crowd out private investment. He advocates a flat tax rate and a negative income tax, which he believes to be fairer than the progressive income tax. Friedman also believes that the government should balance its budget over the business cycle, but not necessarily every year.

The birth of *laissez-faire* in the 19th century and its rebirth in the 1970’s is not a natural phenomenon that emerged out of capitalism. According to Polanyi, “free markets could never have come into being merely by allowing things to take their course... *Laissez-faire* itself was enforced by the state... *Laissez-faire* was not a method to achieve a thing, it was the thing to be achieved” [Polanyi 1957, 139]. *Laissez-faire* did not come
out of capitalism as a “natural” mode of functioning of society. It was purposely created to appease selfish elitist desires. One might think of capitalism as the best social and economic system yet discovered, but we should also think of the evolution and diversity of socio-economic systems. We must recognize intra-capitalism diversity, which acknowledges an evolution of capitalism along with its institutions. In fact, Minsky identified as many as 57 varieties of capitalism in America [Minsky 1993, 3], and he repeatedly used the term in the plural form (capitalisms). Laissez-faire capitalism was only one of the varieties of capitalism that Minsky mentioned in his analysis. Minsky argued that “if capitalisms are to be successful in the 21st century they are likely to be quite different from the models we are familiar with” [Minsky 1993, 7]. He certainly did not imagine another laissez-faire model, but probably a system in which economic theory and policy evolve along with capitalism and its institutions, a system where two institutions are deemed necessary in order to “stabilize” the system. First, a big government with countercyclical fiscal deficits is necessary to keep aggregate demand and thus output and employment at a high level. Second, a big bank that operates as a lender of last resort, regulates, and supervises the banking industry [Papadimitriou and Wray 1999].

Notes

1. Some ideas expressed in this paper are taken from Econ 538 and Econ 506 class notes, and other readings listed below.
2. Italics in original.
3. Friedman believes that fine-tuning reduces freedom.

References


By James W. Okenfuss

The California State Legislature, responding to a groundswell of popular support, enacted sweeping regulatory changes to the electric power market within the state. The passage of Assembly Bill 1890 transformed California’s regulated electric system into a competitive market for wholesale power. Under the new system, existing utilities divested themselves of all generating assets. In their place independent power producers would generate power, with quasi-governmental corporations conducting power sales in a virtually transparent pricing auction.1 It was hoped that the competitive changes would lower costs of power production and lead to a reduction of electricity prices to the consumer.2 The new system experienced a few delays, but the market commenced operation on April 1, 1998. After two years, the expected savings for California electricity consumers have yet to materialize. In fact, prices have increased, up to four hundred percent, above prior year levels in areas which retail competition is permitted.3 In areas where retail rates are locked in at old regulated rates, stable prices exist, but with frequent blackouts and service interruptions.4

This paper looks at the salient features of AB1890, and the author’s research into the Day-Ahead Market of the California Power Exchange. Focusing on the pricing mechanism, the data from this research is used to demonstrate orthodox pricing theory. Next it is shown that orthodox theory did not predict the resulting volatility or reduced reliability of electric service frequented upon the deregulated market even when escalating fuel costs are considered. Finally, different interpretations of the data are then offered for consideration.

Background

In California, the most sweeping regulatory overhaul in the United States electric generating industry has been implemented. In 1996, the state legislature passed AB 1890 (The Public Utility Restructuring Act) and ushered in a timeline for electricity deregulation. In the first phase, the State would require wholesale power to be sold in an open, auction-type market by January 1, 1998. The second phase would follow with the opening of the retail power market to competitive rates sometime before December 31, 2001.5 Quoting from the Assembly Analysis forwarded from the Conference Committee, this bill:

Restructures the electrical services industry in California in order to transition to competitive markets by December 31, 2001, to lower the cost of electricity, retain and attract jobs, and to reduce power outages. 6

---

* The author would like to thank Professor Frederic S. Lee and Professor James I. Sturgeon for their review of and input to this paper. Any omissions or errors however are solely the responsibility of the author.
Yet, after more than two years of operation, the savings and reliability improvements expected as the inevitable by-products of competition have failed to materialize. Increases in wholesale rates have taken many in the electric industry by surprise. While the established utilities such as Pacific Gas and Electric (PG&E) and Southern California Edison (SCE) have fixed rates that they charge retail customers, the escalating cost of purchased wholesale electricity has forced these firms into a losing position with every transaction for a kilowatt of power they sell during times of peak energy demand. Reports indicate that the magnitude of the loss is so great that some distribution utilities face dissolution in 2001. Meanwhile, the new entrants to the electric generation market are not responsible to serve the ultimate electricity consumer, and as a result are reaping huge profits. At the time of the writing of this paper [November 2000], no action had been taken by the state or by the Federal Energy Regulatory Commission to assist the financial situation of the distribution companies or the consumer, except to extend the retail rate freeze in San Diego and a temporary cap on wholesale power prices. To understand how California’s electric system arrived at this juncture, a look at the history and makeup of the state’s deregulation legislation is in order.

Assembly Bill 1890

AB 1890 was considered in an atmosphere of intense lobbying on behalf of energy firms and power marketers from across the nation. This lobbying effort was so successful that the legislation passed both chambers on nearly unanimous votes. Very little debate occurred during the consideration of this legislative action. In fact, during the entire conference hearing on the bill, not a single word was spoken in opposition. What was in the legislation was a proposed framework that would allow power to be auctioned competitively within the state. In order to facilitate the new framework for competition, the legislature called for the formation of two independent, not-for-profit corporations; the California Power Exchange, and the Independent System Operator. One of the interesting caveats of the restructured market was the requirement that existing investor owned utilities should divest all their generation assets located in the State of California. It was assumed by members of the Assembly (undoubtedly lead to this assumption by orthodox economists and lobbyists for the regulated electric utilities) that since these plants were built under a regulatory regime, the generation facilities were poorly designed and/or over-engineered in order to meet arbitrary regulatory goals. Since these designs would cause the cost of generation of these assets to be non-competitively excessive, a means to make them financially viable in a regulatory framework was required. Therefore all generating assets were sold by the existing utilities, the difference between the sale price (which would be based on discounted value of the future revenue stream) and the book value, would be made up by the state in the form of a stranded cost adjustment. The funds for these adjustments came from state-issued bonds, paid back through a “competitive transition charge” each consumer would pay on their electric bill. This requirement forced (or allowed, depending on your point of view) the established investor owned utilities to sell off these assets in what can only be described as a fire sale. Therefore, established utilities sold off (with the guarantee of a return of their stranded costs) valuable generation assets to new market entrants at a greatly reduced price.
Independent System Operator (ISO)

The ISO is the entity that acts as a neutral coordinator and operator of the entire California electrical transmission grid. In this capacity, it is responsible for the accurate delivery of power from the electric generator to the power distribution company or end user, acting as a statewide power dispatcher for the deregulated system. Theoretically, the ISO should have no economic impact on the operation of the market, as it will always attempt to operate as economically as possible. The market participants share all of the ISO’s expenses by the payment of service fees. It raises funds for its operations through a fee charged on every megawatt-hour of energy sold in the state. Since it is not a privately owned, publicly regulated entity, but instead a highly efficient corporation, all system dispatching and operation should be smooth and seamless. The centralization of dispatching would reduce costs through economies of scale by relieving individual distribution utilities the expense of operating their small portions of the grid. This would allow the overall market to capture the cost advantage from economies of scale in the transmission of power. System reliability is a major responsibility of the ISO as well. It is required to maintain adequate levels of reserve generation and transmission capacity in order to meet future demands for power within the state. By law, the ISO must guarantee levels of generation reserve capacity at least as high as those required by the Western Systems Coordinating Council (WSCC). To be assured that government intervention would be kept to a minimum, the legislature exempted the ISO from regulation by the state Public Utility Commission and left regulation of the ISO solely in the province of FERC, the Federal Energy Regulatory Commission.

Even though the ISO is “responsible” for the reliability of the system, it has no institutional avenues to exercise that power. For example, the ISO cannot order a generator to produce power, or request additional capacity to be built, etc. In the actual operation of an electric system, the inability to require output or to schedule when a unit may be shut down for maintenance only confers a platitude and not a true power onto an organization. In a very real sense, the reliability of the system is in the province of the individual power producers. Therefore, those who are responsible for reliability are completely divorced from those who have control of reliability.

California Power Exchange (CalPX)

The CalPX provides a clearinghouse for bulk power transactions in the state and a single marketplace to sell capacity generated by California producers. The CalPX operates three different markets; (1) a futures market for delivery up to three months in advance, (2) a day-ahead market for delivery on the next day and (3) a day-of market for hourly spot prices. This paper will investigate the day-ahead market for power.

The CalPX has set up procedures by which the day-ahead market determines prices. Bids to purchase and quotes to sell blocks of power are forwarded to the CalPX from 7:00 am to 8:00am Pacific Time from buyers and suppliers for each of the twenty-four hour-long periods of the next day. At 8:00 am, this data is tabulated in ascending price order to approximate aggregate supply and demand curves. The intersection of these curves forecast the cost of power on an hourly basis for the next day’s operation. The CalPX publishes only the determined hourly prices to market participants and the general public by 9:00 am. For more detailed information, the bid and quote information...
is posted on the CalPX website after a three-month delay. This paper uses this time-delayed bid and quote data to develop aggregate supply and demand curves in order to approximate a market operating in a manner ascribed to within orthodox economic theory.

**Orthodox Theory**

The drive to change the electricity market into a competitive framework derives from the economic theory that a self-regulating market, devoid of governmental interference, will adjust to a socially desirable optimization of capital utilization, output, and price. All economic actors will tend to maximize utility or profits to arrive at a stable equilibrium or market output and prices. By regulating prices, government arbitrarily disrupts the automatic feature of the market, and in almost all cases causes a reduction in the total welfare of society. The best that regulation can hope for is to accidentally determine the price at which the market would have determined on its own. But under certain circumstances, regulation may be required.

**Orthodox Basis of Regulation**

The orthodox basis for government regulation comes from the idea of natural monopolies rising up from competitive struggles in industries that exhibit increasing returns to scale. Higher cost firms are combined voluntarily or through acquisition in order to increase market share and decrease marginal costs of production. Higher cost firms are selected by their costs structures or by institutional forces in the marketplace to either go out of business or combine with larger firms. This continues until a single entity serves the population as a monopoly that occurred naturally.

Since this single monopoly would be unfettered by competition in setting prices, the state assumes that this firm would restrict output in order to achieve higher prices in the market and earn monopoly profits to the detriment of the public and a reduction of total society welfare. The states imposed agency regulation in an attempt to fix a rate structure in which the monopolist would receive a rate of return equal to the return found in a competitive marketplace. The goal of the agency regulator is to find the price that would have existed, if the market could have somehow been constituted as a competitive market with several producers, each as efficient as the monopoly firm. In this way, society would benefit from the reduced cost of production (at ever-increasing returns to scale), while avoiding monopoly profits.

**Orthodox Basis of Deregulation**

A large number of energy firms have now lead an effort to free themselves from regulatory oversight. In the public arena, power marketers have resorted to over simplistic arguments to persuade public opinion in favor of deregulatory efforts. Using such vague terms as “consumer choice” and the benefits of “market forces,” many marketers promise electrical cost savings to the consumer. But, if we assume a natural monopoly exists in the electric generation industry, how could competition be fostered?

In response, sympathetic economists devised the theory of contestable markets. A contestable market is differentiated from a competitive market in that it need not be made
up of atomistic firms in order to achieve social optimality in the determination of the welfare-maximizing price. Indeed, the contestability of the market will lend oligopolistically or monopolistically organized industries to have socially desirable pricing without any need for government intervention. How the perfectly contestable market achieves this goal is by having no costs for a producer to enter or exit the market. Even if a market has only one incumbent firm, the monopoly would be unable to charge a price above the social optimum. If the firm made any attempt to earn monopoly rent by curtailing production, a new entrant would effortlessly gain access to the market and steal this rent by undercutting the monopoly price. Therefore, the monopolist is forced to charge the welfare-maximizing price from fear of potential competition.

In imperfectly contestable markets, high capital costs may be associated with entry to the market. This will not affect the functioning of the monopoly firm though. Because if the monopoly were to restrict production, the new entrant would be able to construct capacity to undercut the monopoly and the value of the capacity would still hold since society needed the output of that capacity to achieve optimality. Therefore the new entrant could easily sell this capacity to the monopoly or to another firm. In this case the new entrant bears no risk by building capacity and therefore faces no true barrier to entry.

The only effective barriers to entry, according to the theory, are those imposed on the industry by government intervention or regulation. Assuming contestability, if a producer is earning economic profit by the exercise of market power, new entrants will invest in the market to capture some of that profit. Therefore, if a monopolistic firm is not protected by regulatory barriers to entry, it will be forced to charge a competitive rate or face the possibility of new entrants to the market. Since capital cost is not an effective barrier to entry, according to the theory, the construction cost of a new power plant is high but will not be a barrier to a market that is desperate for power. No matter what the cost of construction, once a plant is built it can be sold to a producer who can use the assets of the plant to produce electricity. Therefore investors are absolutely protected in that the underlying value of the plant will derive from the market’s need for the electricity it generates.

Orthodox Policy Recommendations

With the guidance of the theory of contestable markets, and a firm belief in the undue cost burden of governmental oversight, a very simple policy recommendation can be formed: get rid of regulation. By definition, all government intervention is counter productive or an undo burden and cost onto producers who would otherwise arrive at the same socially optimal price and quantity without government prodding. What society would save is the cost of the regulatory agency, while at the same time increasing total societal welfare. Therefore the regulatory relaxation in the 1996 bills should have caused the efficiencies of the marketplace to provide cheaper wholesale power.

The transition to deregulated and market based prices has not been smooth by most observers accounts. Applying the theory of contestable markets to the generation of electricity has not achieved the desired effect of lower consumer price. Since prices have not responded to the competitive forces according to overall orthodox theory, the mechanism of price setting in the market must be reviewed in light of the theoretical determinant of prices.
Orthodox Pricing Theory

A firm will set its level of output (and therefore its price) based on its individual cost structure. In the orthodox view, prices are determined by the firm’s desire to maximize profits at the point where marginal cost for the firm is equal to the marginal revenue. In a market in which firms are making profits, the price elasticity of demand for the commodity relates the price to the marginal cost at the point of profit maximization.\(^{32}\) As we know from elementary economics, a firm’s revenue is determined completely by multiplying the quantity of goods sold by the price.\(^{33}\)

\[ R = pq \]

Taking the total derivative of this formula with respect to quantity, the marginal revenue can be calculated,\(^ {34}\)

\[ MR = \frac{dR}{dq} = p + q \frac{dp}{dq} \]

We can further manipulate the marginal cost formula by reduction using the definition of price elasticity of demand. The elasticity of demand can be shown as,\(^ {35}\)

\[ \varepsilon_d = - \frac{d(\ln q)}{d(\ln p)} = - \frac{pq}{q \frac{dq}{dp}} \]

Since firms will operate at the profit maximizing point where marginal revenue will be equal to marginal cost, we can combine the two preceding equations into the following expression,\(^ {36}\)

\[ MC = MR = p (1 + q \frac{dq}{dp}) = p (1 - \frac{1}{\varepsilon_d}) \]

Rearranging terms, we can express a mark-up formula for price over marginal cost.

\[ p = MC \left( \frac{\varepsilon_d}{\varepsilon_d - 1} \right) \]

According to this equation, the marginal cost, demand elasticity and price of a good are related in a pricing identity assuming efficient markets at a profit maximizing point of production. In another leading mathematical text, Chiang states the same relationship and adds the following conditions upon the price elasticity of demand in order for the mathematical model to hold,

Recall that \(|\varepsilon_d|\) is, in general, a function of \(P_i\), so that when (equilibrium quantity) is chosen, and (equilibrium price) thus specified, \(|\varepsilon_d|\) will also assume a specific value, which can be either greater than, or less than, or equal to one… Inasmuch as a firm’s MC is positive, the first order condition \(MC = MR\) requires the firm to operate at a positive level of MR. Hence the firm’s
chosen sales levels... must be such that the corresponding point elasticity of demand is each market is greater than one.\textsuperscript{37}

Therefore, in order to test the effectiveness of orthodox theory of price determination in the deregulated power market, demand elasticity for electricity can be compared to its price and cost.

By taking the derivative of the markup with respect to price elasticity

\[
\frac{d(\text{mark-up})}{d(\varepsilon_d)} = -\frac{1}{(\varepsilon_d - 1)^2}
\]

At any value of $\varepsilon_d$, the first derivative of the mark-up function will be negative. Therefore for any increase of the price elasticity of demand, the mark-up over marginal costs must decrease.

**Post Keynesian Theory**

Another approach to economic analysis lay in the methodology of Post Keynesian theory. In this framework, no commonly accepted body of theory exists to account for all possibilities (such as the laws of supply and demand or marginal analysis for the neoclassicalists). Phillip Arestis holds,\textsuperscript{38}

There are a number of propositions which all post-Keynesians accept. Sawyer concurs with Davidson on the following three: (i) the economy is a historical process, (ii) in an uncertain world, expectations have a significant and unavoidable impact on economic events, (iii) institutions, economic and political, are of paramount importance in shaping economic events.

But many of the theoretical tools available to the Post Keynesian are helpful in the analysis of the data sets and provide additional insights to the workings of the new deregulated structure of the Day-ahead market in California. One such tool is to examine the causal mechanism used to set prices.

**Causal Mechanisms**

Under the Post Keynesian framework, we will begin by looking for the causal mechanisms by which the price is actually determined by a human being. The causal mechanism can be thought of as the decision making process that has as its output the price of one unit of production. The advantage of this is described by Downward:

This account of the processes underlying price formation is extended by allying it to knowledge of the decision making structures in firms, as propounded by organisational, institutional and behavioral theory. Their joint role as causal factors determining pricing behaviour is thus explored and a more satisfactory microeconomic account of pricing offered.\textsuperscript{39}

The origin of the day-ahead prices is arranged by an auction conducted by the power exchange every day. All companies that can sell power to California are allowed
to submit offered prices for the day ahead on an hourly basis. The form of these quotes is for a block of power to be delivered to one of the ISO’s delivery points. For example if Enron had a generator that was capable of providing 3 MW of power they would place quotes for that power every hour of the preceding day. Ostensibly, under a theoretical view, Enron would bid its power only to cover the costs of operation and to earn a small profit. If the bid is higher, the CalPX may not take up its quote.40 However, the decision process of price setting at Enron may be affected by more information than market price data. Enron may use a mark up on costs based on other criteria.

Discussion of Mark-ups

The idea of the cost mark-up theory of pricing has many different variations. The simple premise of each is that a firm will based the price of its product on the cost to make that product. Post Keynesians have identified at least three different methods that firms use as mark up procedures: Cost-plus pricing, full-cost pricing, and target-return pricing.41 For this paper the differences among these different methods will not be considered, but it is important to note that Post Keynesians are not in complete agreement over the use of these methods by industry. According to the theory of cost-base mark up pricing, firms will base their markup on any number of specific goals, such as fixed flow of production, or a target rate of return, or to meet a desired earnings level to finance future investment.

Unlike the orthodox model in which price elasticity of demand must determine prices in order to equilibrate and clear the market, Post Keynesian firms, using cost-based pricing, are assumed to be unable to determine the elasticity and therefore can not use that information in is mark up decision process. Therefore, producers are free to set prices without regard to societal optimality or capital efficiency, charging consumers what Veblen termed hold-up prices based upon what the market will bear.42 Producers of electricity have no way of determining the price elasticity of demand for their product. In order to determine the slope of a demand curve a firm would have to vary its price over a range and determine the repose of the public in buying its goods, while making certain that no other factor affecting demand has changed. As we will see from the data, the demand curve for power changes radically, hour by hour due to such factors as the time of day, ambient temperature, and intra-day cyclical usage.43 The actual price of the commodity changes so rapidly that the end-use consumer would be unable to modifying his or her usage in response to such a temporary change in prices

Collection and Analysis of the Data

Actual bid and ask data for the California Day-Ahead wholesale power market is available from the Cal-PX website three months after the day of the auction. Over 10,000 bids and quotes are tendered every day in this market. Therefore method of determining a trend was selected. Since three years data were desired only the months of April and June had three years data. With the market opening in April of 1998, inexperience of market participants may have skewed any data from that month. Therefore the sampling was reduced to the month of June. However the number of bids and quotes in these three months totaled more than 900,000 individual transactions. Therefore the first Wednesday in each month was selected as the sample day as, (1) being the middle of the week all
business and industrial usage should be stable and, (2) California weather was fairly normal on these three days.44

**Determination of Demand and Supply Curves**

To determine the effects of competitive pressures on the market under the orthodox framework, supply and demand curves are built for each of the hourly auctions held on the three sampled days. The quantity and price data from these days were tabulated into twenty-four sets of hourly aggregated supply and demand curves, with quantity levels determined for each of nine prices, which fit the information into a logarithmic format. The price levels determined from the demand and supply curves were 0, 10, 20, 50, 100, 200, 500, 1,000, and 2,000 dollars per megawatt/hour. If the exact data price was not in the data set, data prices were then determined by linear extrapolation. The data for six representative hours is presented in graphical form as Appendix A.

**Estimation of Arc Elasticity of Demand**

Using the data from the hourly demand curves presented in Appendix A, estimates of price elasticities of demand were calculated using an arc elasticity formula. This information is presented in Appendix B.

**Comparison of the Data to the Two Theories**

**Inconsistencies with orthodox theory**

The elasticity data presents two problems with the orthodox theory supporting the working of a competitive market, (1) inelastic demand and, (2) comparison of price increases to elasticity changes. On first glance, the price elasticity of demand can not accommodate a profit maximizing firm since the elasticity at all equilibrium points is less than one, in direct contradiction to the requirements set forth by Chiang. According to the marginal theory developed earlier in this paper, for a firm to profit maximize, the elasticity must be some value greater than one. Otherwise at the profit maximizing point, marginal revenue would be negative. Leaving this argument, a much more interesting relationship can be distilled from this data.

One of the most interesting and consistent trends found has been the tendency of the demand curve toward an increasing price elasticity of demand at the equilibrium point. In short the demand for the product has become more sensitive to price changes as time advances. The fact that the elasticity of demand at all hours has increased over the three-year period belies the fact that price increased for all hours. Should the identity set forth earlier hold the second requirement of Chiang must also hold that an increase in price elasticity should command a price decrease. One possible explanation for this response could be found in an increasing marginal cost. However, elasticity increases in this market have approached 1,000%. For prices to increase 400%, underlying marginal costs must have increased over 4,000% in order to balance the price-elasticity-cost identity. Fuel costs are historically the highest cost component in the production of electricity. Assuming a 300% increase in fuel costs, we still do not begin to approach the cost increases needed to justify the prices commanded by the producers in this market.
However, the business-oriented journals still refer to the fact that onerous environmental regulations are now causing the increases in costs.45

**Power Providers and mark-ups**

The supposition that there exists increases in the cost of production at all levels of output is truly difficult to believe in light of the actual facts of the production facility and its operation. No major power plants were decommissioned in the time span of the elasticity analysis in either California or in the major interconnected states. Where it is true that peak overall demand has increased, the corresponding increase in the supply cost of power delivered to the CalPX reflects increased costs of generation at all levels of demand. Even if the demand for power had not increased, the prices of electricity would still have risen, given the quotes offered to the CalPX by the power producers.

What can be surmised is that firms producing power in the state of California are administering prices to the market based on the actual costs of production plus a markup to recover investment or to meet a specific rate of return. The value of the markup is slowly increasing over time as firms are becoming more aware of the price they can charge without attracting new production into the state. As proof of the increase in markups, several articles have been written describing the high profits of firms, which entered the California market.46

**Conclusions**

As recently as June 2000, the first of the bonds securing effective transfer of San Diego Gas and Electric from regulated to market based electric prices were retired, opening the way for fully deregulated retail prices in its service territory. San Diegans were then able to reap the benefit of fair, market-based prices of electricity. Their retail electric rates tripled in one month. Even though they had a choice to select which company served their electricity, the choice boiled down to deciding which out-of-state corporation would get pleasure to pick their pockets. Responding to the public furor, the State extended the retail rate freeze to protect consumers from wild fluctuations in the wholesale power market.

In the same timeframe, the ISO could not provide adequate power to meet the demands of Oakland and the San Francisco Bay areas. Homes and businesses were placed under rolling blackouts. Many commentators and observers claim that construction of new power plants in the state has completely stopped due to the efforts of environmentalists or due to the inability of firms to assume the risks of construction in a market where prices were supposed to have dropped by 25% in most pre-deregulatory estimates. However these claims have not been substantiated.

Not long after full deregulation of retail prices impacted California’s first few communities, it became apparent that more thought was needed to fix the problems brought about by deregulation. The staff of the editorial page of the Wall Street Journal (leading proponents of deregulation) places the blame squarely on past regulatory excesses and environmentalists.47 What is needed is a careful review of the actual mechanism which set the prices and determines the reliability of the nation’s most important energy delivery system. The market, in this case, has shown quite well that it is incapable of delivering on any of the promises of a “free” market. Coordination of this
valuable resource is immediately needed. In this light, the initial moves of the Governor of California to stabilize the market by having the State assume some active participation in the production of electricity may interject a market participant that can affect some stability onto the system.

Appendix A: Hourly Aggregate Supply and Demand Curves

04:00 Hour 1998

04:00 Hour 1999
12:00 Hour 2000

16:00 Hour 1998

16:00 Hour 1999
16:00 Hour 2000

20:00 Hour 1998

20:00 Hour 1999
Appendix B: Summary of Arc Elasticity of Demand

<table>
<thead>
<tr>
<th>Time</th>
<th>Price-Low</th>
<th>Price-High</th>
<th>Q-Low</th>
<th>Q-High</th>
<th>Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00</td>
<td>0</td>
<td>10</td>
<td>16397</td>
<td>15288</td>
<td>0.0350</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>10</td>
<td>17036</td>
<td>16187</td>
<td>0.0256</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21678</td>
<td>16417</td>
<td>0.3222</td>
</tr>
<tr>
<td>8:00</td>
<td>0</td>
<td>10</td>
<td>21671</td>
<td>20472</td>
<td>0.0285</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>50</td>
<td>21202</td>
<td>19777</td>
<td>0.0811</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30506</td>
<td>22747</td>
<td>0.3400</td>
</tr>
<tr>
<td>12:00</td>
<td>10</td>
<td>20</td>
<td>23277</td>
<td>23033</td>
<td>0.0158</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>50</td>
<td>23327</td>
<td>21845</td>
<td>0.0766</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>27925</td>
<td>25034</td>
<td>0.1638</td>
</tr>
<tr>
<td>16:00</td>
<td>10</td>
<td>20</td>
<td>23610</td>
<td>23310</td>
<td>0.0192</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>50</td>
<td>23510</td>
<td>22026</td>
<td>0.0760</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>31711</td>
<td>27028</td>
<td>0.2392</td>
</tr>
<tr>
<td>20:00</td>
<td>10</td>
<td>20</td>
<td>21774</td>
<td>21508</td>
<td>0.0184</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>50</td>
<td>22348</td>
<td>20836</td>
<td>0.0817</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25690</td>
<td>23237</td>
<td>0.1504</td>
</tr>
<tr>
<td>24:00</td>
<td>0</td>
<td>10</td>
<td>18624</td>
<td>17526</td>
<td>0.0304</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19193</td>
<td>18195</td>
<td>0.0267</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25309</td>
<td>20149</td>
<td>0.2649</td>
</tr>
</tbody>
</table>

Calculation for Arc Elasticity

\[ \varepsilon_d = -\frac{(Q_H - Q_L)(P_H + P_L)}{(P_H - P_L)(Q_H + Q_L)} \]

Notes

5. California State Assembly, AB1890, Chap. 854, §1 (a), September 23, 1996.
7. PG&E and Edison signed onto the deregulation effort in order to protect existing retail rates at 1996 levels. Since the firms felt (as did almost everyone else at that time) that wholesale prices would decrease, the utilities requested the retail rate freeze in order to protect (and possibly increase) their profit margins.
11. The Bill passed the General Assembly on a vote of 77 ayes and one abstention. The senate vote was 33 ayes with one Senator absent.
13. California State Assembly, AB1890, Chap. 854, §1 (a), September 23, 1996.
15. This is the typical “gold-plating” argument against utility regulation. In effect, it assumes that regulators impose inefficient requirements onto the design of a generation facility. However most of these requirements involve safety of workers or system reliability.
17. California State Assembly, AB1890, Chap. 854, §1 (c), September 23, 1996.
19. FERC has had its own share of price instability problems in the wake of FERC Order 888, opening the national market to wholesale power wheeling. For a more detailed description of the problems associated with Order 888, please see author’s paper on the physical limitations of power transmission and its effect on electrical market competition.
20. Please see author’s paper on the physical limitation of power transmission.
21. California State Assembly, AB1890, Chap. 854, §1 (c), September 23, 1996.
23. It is this data that is used in the analysis in this paper.
26. Church and Ware, 762.
30. Baumol and Willig, 408.
31. Church and Ware, 764.
33. Henderson and Quandt, 176.
34. Henderson and Quandt, 176.
34. Henderson and Quandt, 176.
35. Henderson and Quandt, 177.
36. Henderson and Quandt, 178.
43. The actual demand for power could be described as a component of a larger macroeconomic model of the economy based upon a Leontief-type input-output model. For further description, please review Frederic Lee, *Post Keynesian Price Theory*, Chapter 12, “The pricing model, et. al.”, especially pages 220-223.
44. California weather did not demonstrate any unseasonable or otherwise unusual weather during this time frame. Local conditions may have varied, but the state did not suffer from any large-scale weather fluctuations related to the flooding of 1998 or the drought of 1999 on the days in question.

**References**


Church, Jeffrey and Ware, Roger. *Industrial Organization: A Strategic Approach*, 2000, McGraw-Hill.


Money: A Comparison of the Post Keynesian and Orthodox Approaches*

By Pavlina R. Tcherneva

“Money is Neutral” and “Money Matters” are two commonly used phrases characterizing the essential difference between the orthodox and non-orthodox approaches to money. The story of money – its origin, nature, and functions – is among the most misrepresented stories in economics. Hence, a wide range of issues relating to money, from inflation to interest rates, from fiscal policy to the multiplier, need revisiting and reinterpretation. Understanding money is perhaps the most crucial task in understanding modern economies.

I begin with the standard orthodox story of money as represented by the Monetarist and Austrian traditions. I later compare it with the non-orthodox views of money as described in the Horizontalist, Chartalist, and State Theory of Money approaches. The differences in these schools of thought emerge at the outset. As the orthodox theory would have it, markets evolved first, long before money came into being. In contrast, as I will discuss later, the non-orthodox approach holds that markets did not exist before money. In the orthodox story, markets formed as a result of people’s natural disposition for exchange. The transactions that took place were based on barter. Over time, money naturally emerged to lubricate these markets. Since barter required a double coincidence of wants, a common medium of exchange dramatically reduced transaction costs.

The discussion of how money actually came to exist and persist in the market as a medium of exchange is insufficient and unconvincing. It has yet to be shown in the Monetarist and Austrian stories why and how economic agents came to a spontaneous choice of one particular medium of exchange. Orthodox theory holds that economic agents spontaneously settled on gold first. Later governments issued paper money claiming convertibility into gold. Since governments have always had the incentive to spend more than their gold reserves allowed, they were later forced to abandon convertibility. Thus, fiat money came to dominate markets. Even this bit of detail does not resolve the previously raised questions: why did markets spontaneously and uniformly agree to use gold and later paper money as the medium of exchange, and why did this medium of exchange prevail?

Although the primary function of money is quite clear in the orthodox theory – a medium of exchange, which lubricates markets and reduces transaction costs – the origin of money is ambiguous. It can be perhaps best described as a “helicopter drop” theory of money [Cottrell 1994, 590n2]. In his critical survey of Post-Keynesian monetary economics, Allin Cottrell argues that the “helicopter drop” concept stands at the heart of the orthodox analysis of the changes in the money supply and their effects. Several questions need to be addressed: 1) who/what is the source of money? (Where is the “helicopter drop” coming from?); 2) how do variations in the quantity of money cause inflation?; 3) do these changes affect real variables?; and 4) what is the monetary transmission mechanism?

* Many sincere thanks to Professors L. Randall Wray and Mathew Forstater for their valuable comments and suggestions. Any remaining shortcomings and errors are the sole responsibility of the author.
In the orthodox story, the government is quite clearly the source of money. It is argued that, since governments control the reserve requirement ratio and, therefore, reserves, they can control the supply of money as well [Brunner 1968, 9-24]. In other words, since the Federal Reserve determines the reserve requirement ratio, it can therefore control reserves. By accelerating or decelerating the monetary base, the Central Bank controls the money supply as well. Reserves are denominated in fiat money, and therein lies the problem of the system. (“Fiat money” in orthodox theory is money that only has nominal and no real value since it is not backed by gold). Because the government can issue too much money, it entices the private banking sector to do so as well, making the system inherently inflationary. The only remedy, according to Monetarists, is reverting back to a gold standard or instituting monetary rules that will prevent the government from spending too much and too fast. One such rule is, for example, a three percent annual growth in the money supply.

The next questions to be addressed are how variations in the quantity of money cause inflation and what is the transmission mechanism. The quantity theory of money is a core tenet of orthodox analysis. In the long run, real variables and forces are independent of money. Money only determines the nominal value of those real variables (i.e. the causation runs from money to prices). As mentioned above, in a fiat currency system the government has an incentive to print and spend too much. Hence, if too much money is chasing too few goods, inflation automatically results. The only way in which money can affect real variables, such as employment and output, is in the short run through the so-called effect of “monetary fooling.” The transmission mechanism is as follows: should the money supply become too large, the excess will be spent on a wide variety of assets (these are very broadly defined and include physical as well as financial assets). Prices of all assets will therefore be pushed up. As prices rise across the board, firms expect greater profitability and therefore react by stepping up hiring efforts and output. Hence, both prices and output increase in the short run, and so does nominal income. Money demand, being dependent on nominal income, rises as well until it meets the initial increase in the money supply. The impact of the increase in money supply on employment is only temporary.

A different type of monetary fooling involves interest rates. Real interest rates are determined by real factors such as productivity and thriftiness (i.e. they are determined in the loanable funds market). Nominal interest rates, on the other hand, depend on real interest rates and expected inflation. Since too much money in this model can cause inflation, it can also affect nominal interest rates. In the long run, however, money cannot affect the real interest rate. The only way the real rate can be affected is in the short term when it deviates from the normal rate and fools investors into changing their investment, employment and production plans. Monetary fooling happens only in the short run because adjustment processes occur with a lag.

In the long run money is neutral – agents have perfect foresight and the system settles at the natural rate of unemployment. Any policy attempt to move it beyond that point (i.e., to increase employment) will fail and will only lead to hyperinflation in the long run. Fiscal policy, as mentioned above, is highly undesirable, unless subjected to monetary rules. In a fiat monetary system, governments are believed to use taxation to fund their expenditures. They are tempted to spend in excess of their tax revenues by 1) borrowing or 2) printing money. Either way is considered bad policy since 1) borrowing
crowds out the private sector by increasing government spending at the expense of households and 2) printing is inflationary.

Several features describe the orthodox theory of money: 1) the system is inherently stable and fine-tuning is undesirable; 2) inflation is a monetary phenomenon; and 3) changes in the money stock are the predominant factor in determining money income. The last point implies a diminished role for the multiplier. It can be contrasted with Keynes’s (1936) analysis of output growth, which holds that increased effective demand resulting, for example, from greater government expenditures, augments aggregate income via the multiplier effect. To conclude, the orthodox analysis of money has an important policy implication. It holds that divorcing fiscal from monetary policy is highly desirable, since this separation is believed to reduce the threat of inflation. Hence, the Central Bank is to maintain complete independence from the fiscal authority.

Post Keynesian economists tell a very different story of money. Chartalists and State Money theorists, in particular, have perhaps the most comprehensive analysis of the origins, nature, and functions of money. The analysis offered, coupled with the Horizontalists’ view, provides an alternative explanation of the money supply, money’s relation to production, fiscal spending, interest rates and other issues. It also leads to markedly different policy implications.

I first begin with the history of money. The subject is complex and the following summary will certainly not give justice to the evolution of money but will attempt to summarize the key points. L. Randall Wray (1998) provides a detailed historical account of money’s evolution, which I will briefly overview here. He argues that most likely money evolved out of the penal system [Wray, 2000], which instituted a set of fines, taxes, and fees for settling disputes. Furthermore, Wray points out that the emergence of money was always preceded by the emergence of a class structure, which gave birth to some form of a state or governmental power. While initially these fines were in the form of a commodity, governments later standardized them by picking a unit of account. It later administered the fines and fees. These were the two ingredients for markets to develop: 1) the existence of a standard unit of account; and 2) administered prices [Wray, 2000]. Unlike the Monetarist school of thought, the Chartalist historical account answers the question of why a particular unit of account came to exist and persist in certain markets. Charles A. E. Goodhart (1997), George. F. Knapp ([1924] 1973), Abba. P. Lerner (1947) and Wray (1998), argue that a certain monetary unit came to dominate markets because it was required by governments in payment of taxes. The first money that emerged was fiat, that is a currency issued by the governing taxing authority (emperors, colonizers, modern states, etc.). The payment of taxes denominated in that unit was the population’s liability to the government. Supplying the fiat money itself and then accepting it as payment of taxes was the government’s liability to the population. Since the inception, dues (taxes, fines, fees, etc.) were the driving forces behind money, regardless of whether that money was in the form of wooden sticks, weighted units, or paper money. Fiat money has always been that which is required to pay taxes and its value has been embodied in the state’s laws requiring its subjects to meet their tax obligation.

To use Abba Lerner’s words, money is “a creature of the state” [Lerner 1947, 312-317]. The state chooses the unit of account. It defines what serves as money and what satisfies the tax liability (i.e. what it will accept in payment of taxes). When modern
states impose taxes denominated in the state’s monetary unit they transfer goods and services from the private to the public sector. Governments need to spend – they need for example a navy, a police force, and social workers. To ensure it is able to buy the services of private agents (in other words, to ensure that private agents sell their labor), the state imposes a tax liability, which creates the demand for the Government’s money. In turn, government spending provides the supply of that which is required to pay taxes.

Understanding modern money and how it works has some important implications. Since the government is the monopoly issuer of its currency, spending always comes first, while taxation follows later. Governments cannot tax before they spend; neither can they tax more than they provide to the public. Furthermore, deficits are a normal condition of the system. Balanced budgets are the theoretical minimum that can be achieved. Private sector hoarding ensures that deficits are generated, that is the desire to net save causes deficits. A surplus in the first year of the currency’s operation is impossible; surpluses in subsequent years are limited to the previous year’s deficit spending. Since spending is independent of taxation, there are no financial constraints ever. The market demand for the currency determines the size of the deficit. Attempts to operate on a fixed quantity rule (i.e. placing caps on expenditures or otherwise restricting the issue of the currency) results in instant unemployment. The value of the money is determined by what is required to obtain it. In the current system, the pool of unemployed maintains the value of the dollar. There is a pool of reserve labor that finds it hard (in the case of the unemployed, impossible) to obtain the dollars necessary to pay taxes. Some economic units are able to obtain and hoard dollars; others are not and are therefore unemployed. To summarize, money is a creature of the state. Governments tax to generate demand for their money. The primary function of money is to allow governments to spend and consume (i.e. to transfer real goods and service from the private to the public sector).

In the Post Keynesian story, the source of the money supply is quite obviously the government (i.e. the monopoly issuer of the currency). The government is more accurately the supplier of high-powered money (HPM) (i.e. coins, federal notes and treasury checks). Whenever a government check is deposited in the banking system, bank reserves increase. Taxes, on the other hand, destroy HPM, meaning that reserves are depleted. Taxes are not stockpiled and they do not finance spending and hence the fiscal policy implications are vastly different from those of the orthodox approach. Government spending in Post Keynesian theory is the source of money. Government deficit spending allows the public to save (which is exactly the opposite of Monetarist theory, which claims that government spending crowds out private spending). In orthodox theory, when governments borrow in order to deficit spend, they compete in the market for loanable funds and push up interest rates. In reality, as Post Keynesians point out, government borrowing does not cause a rise in interest rates. Rather it allows the private sector to earn interest on hoards. The sale of government bonds (“borrowing”) does not fund government expenditures; rather it offers an interest-bearing alternative to holders of non-interest bearing government money. Government borrowing therefore can be thought of as an interest rate maintenance operation. With respect to the actual determination of the interest rate, Post Keynesians reject the orthodox story of loanable funds markets. Rather they adopt Keynes’s liquidity preference theory (1936), which explains the determination of a wide range of interest rates. Post Keynesians partially accept the Horizontalist view
that interest rates are exogenously determined, but positing that this is the case only for some interest rates, namely the federal funds rate and the rate on short-term government debt.

The Horizontalist approach offers an alternative view of the money supply to the one of Monetarists. Basil Moore argues that as expected profitability and planned spending increase, so does the demand for loans [Moore 1988]. Every new loan in the system creates a new deposit as well. Each new demand deposit requires additional bank reserves. If the banking system is short of reserves, then banks go to the Federal Reserve to ask for them. The Fed acts as a lender of last resort, not only because it wants to prevent the federal funds rate from skyrocketing, but also because it wants to make sure that the US payment system works and checks clear at par. From here, it is quite clear that the causation goes from money to reserves [Moore (1989) in Snowdon, Vane and Wynarczyk 1994, 374] and not the other way around as in Brunner (1968). In other words, the Fed never uses its discretion in deciding whether or not to provide the reserves, it simply always does. As demand deposits increase, the Fed always accommodates to keep its banking system solvent. The Federal Reserve is the lender of last resort, which ensures that all banks meet their obligations.

I will now briefly summarize some of the differences between the orthodox and non-orthodox approaches and then draw important policy conclusions. First, as Post Keynesians argue, money emerges not spontaneously in order to lubricate markets, rather because of the government’s conscious effort to generate a demand for its currency. Secondly, it is not that governments are antithetical to market forces and crowd out private spending, rather governments are the only source of the currency needed by the private sector for retirement of taxes, accumulation of hoards (net saving) and leveraging of high-powered money. Furthermore, the monetary authority cannot increase reserves and hope that an increase in demand deposits will follow to soak up the excess reserves. Rather, if planned spending increases and so do demand deposits, the government responds by providing the reserves required to keep the banking system solvent. The causality runs from money to reserves. The money supply, therefore, depends on private sector activity; it is endogenously determined. The Federal Reserve cannot control the supply of money. It can only control the federal funds rate and the rate on short-term government debt (i.e. these rates are exogenously determined). Interest rates are not determined in the loanable funds market but by the demand for liquidity. Since there is no helicopter drop of money, economic systems are not inherently inflationary. This is not to say that excess government spending cannot be inflationary. Cutting spending or increasing taxes can offset the inflationary pressure. (Here I focus on inflationary pressures resulting from too much government spending only. It must be pointed out that in Post Keynesian theory inflation is not a monetary phenomenon, but rather results from the cost plus pricing of oligopolistic firms that have too much market power). In the Chartalist approach, government spending is not inherently inflationary. Should governments decide to spend on a fixed price rule and implement an Employer of Last Resort policy as the one proposed in Wray [1998, 122-54], the value of the currency will be set by the administered wage of the buffer-stock labor and inflation will be eliminated. Understanding that money is a creature of the state and how it operates is critical in formulating policies for full employment and price stability with an in-built automatic stabilizer.
To conclude, the orthodox argument for separation of government from the monetary authority is illogical. The very nature of money and the imperative behind its functionality dictates that fiscal and monetary policies are wedded from inception. Any separation of these institutions, favoring monetary independence, will ensure that the government loses its basic power to maintain the value of its currency and exercise meaningful stabilization policy.

References


