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1997

The Macroeconomics of William Vickrey

Timothy A. Canova



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MARCH-APRIL 1997/\$8.00

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The Macroeconomics of William Vickrey

Timothy Canova

This Nobel laureate was a fount of creative ways to utilize markets to improve our lives. William Vickrey's work is a testimony that economics itself is not a dead end for social policy. Its lessons are simply not put to imaginative use.

In the early spring of 1995, William Vickrey joined the National Jobs for All Coalition, a network of progressive economists, political and social scientists, and labor and community advocacy groups committed to developing a full-employment agenda. The coalition received some initial financial backing from the liberal National Council of Churches and was housed in the Interchurch Center near Columbia University, where Vickrey was a professor emeritus and where he had earned his Ph.D. in economics nearly fifty years earlier.

As the coalition's first executive director, I was acutely aware of its funding problems. Virtually ignored by organized labor, the coalition also suffered from the normal growing pains often associated with such a diverse group. With the announcement

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in October 1996 that Vickrey had been named to share the Nobel Prize for economics, coalition members celebrated that their full-employment agenda would finally receive the respect and visibility it deserved. Vickrey promptly declared his intention to use his new prestige as a platform to speak out against the budget-balancing consensus, to revitalize Keynesian thinking, and to advance the coalition's full-employment agenda.¹ But only three days later, Vickrey's fifteen minutes of fame quickly ended with the news of his sudden death from an apparent heart attack. (On Thursday, October 10, 1996, just before midnight, he was found slumped behind the wheel of his car.)

In choosing Vickrey to share the \$1.12 million prize with British economist James A. Mirrlees, the Royal Swedish Academy of Sciences noted Vickrey's "fundamental contributions to the economic theory of incentives," which he had applied to the

Vickrey's work focused on the economics of asymmetric (or private) information—the study of transactions in which some of the parties involved know more than others.

areas of taxation, auction theory, and pricing. Vickrey's work focused on the economics of asymmetric (or private) information—the study of transactions in which some of the parties involved know more than others. He seemed continually to ask how lawmakers could structure markets in a world of imperfect information to provide the proper incentives to achieve our most important public-policy objectives.

Critics of Vickrey's full-employment agenda have noted that his Nobel Prize was awarded not for his progressive views on macroeconomics but for his work done nearly three decades ago in microeconomics. Such conclusions overlook the connection

between Vickrey's early theoretical work and his more recent full-employment blueprint. Vickrey's appreciation of incentives was not limited to the microeconomic behavior of individuals, but extended to corporate pricing behavior and to the macroeconomic aggregation of consumer and investor preferences. His microeconomic insights informed and added credibility to major features of his macroeconomic vision.

Macroeconomic Vision

In his later years, Vickrey often urged economists to see that their overriding task was to help attain genuine full employment, which he defined as an unemployment rate, as presently measured, between 1 and 2 percent.² He pointed out that the official unemployment rate seriously understates the true level of joblessness and underemployment. Mass unemployment, he argued, remains one of the most significant contributing factors to a wide range of "social pathologies," including poverty, homelessness, crime, drug abuse, divorce, domestic violence, broken homes, racial and religious antagonisms, and neglect of educational opportunities.³ He urged a program of what he called "chock-full employment" to address the full range of pressing social problems.⁴

Micro-solutions to unemployment, Vickrey wrote, were akin to "moving selected individuals to the head of the queue." He understood, as did the great Swedish economist Gunnar Myrdal half a century earlier, that programs such as affirmative action were merely a panacea because they failed to reduce the number of people waiting for work. In addition, unemployment would undermine much of the political support for affirmative action. Likewise, Vickrey pointed out that "the shifting of investment involved in enterprise zone programs seems to result in a geographical redistribution of unemployment rather than

an increase in total employment." Instead, he advocated a basic reorientation in macroeconomic policy, starting with the neutralization of monetary policy.

Vickrey considered evil the natural-rate theories of unemployment, such as the Non-Inflation Accelerating Rate of Unemployment, which condemned society to tolerate mass unemployment to prevent price inflation. But such natural-rate theories were premised on the assumption that the economy was already operating at full capacity. Again Vickrey argued that official capacity utilization rates understated the real level of unused industrial capacity and capital resources. Under such conditions,

According to Vickrey, there was no necessary reason for monetary authorities to "confine their activities to the short end of the capital market."

greater aggregate savings would not necessarily lead to higher levels of investment but, rather, would depress aggregate demand and reduce the "incentives to invest."

According to Vickrey, these problems were compounded by the inflation phobia of central bankers. "Unfortunately," he wrote, "monetary authorities seem to be afflicted with an inherent bias stemming from close association of those responsible for monetary policy with financial interests, and their relative remoteness from the grim realities of unemployment." Rising interest rates were often counterproductive because they contribute to supply-side inflation. Sellers would often pass on the increased costs of interest charges to consumers in the form of higher prices. But Vickrey was particularly concerned with the very high level of real inflation-adjusted interest rates and their adverse effects on long-term private and public investment.⁵ He noted that "a perceived readiness to raise short-term interest

rates, should inflation begin to threaten, is not an atmosphere conducive to the financing of the creation of durable capital."

The real rate of interest, which averaged less than 1 percent on long-term government bonds from 1950 to 1980, has more than quadrupled since. To provide an illustration of the distributional consequences of this shift, a borrower of a \$100,000 loan at 1 percent real interest would pay back \$134,000 over thirty years in principal and accumulated compound interest. On the same loan at 5 percent real interest, that same borrower would have to repay more than \$432,000 over the same period. Vickrey was concerned that the resulting shifts in income and wealth distribution have dragged down mass purchasing power and depressed the growth in aggregate demand, production, and employment.

Many of today's economists, influenced by rational expectation models, proclaim that the Federal Reserve cannot deliver any long-lasting stimulus by lowering short-term interest rates. Long-term interest rates would only rise as bondholders expect higher inflation down the road. But, according to Vickrey, there was no necessary reason for monetary authorities to "confine their activities to the short end of the capital market." The Federal Reserve has all the legal authority it needs to purchase long-term bonds to drive down long-term interest rates as well.

Nor should the budget deficit provide adequate justification for a tight monetary policy. An economy with an annual gross domestic product of some \$7 trillion should be able to afford a much larger budget deficit than today. Vickrey strongly endorsed calls for capital budgeting, to permit the federal government to pay for long-term public investment over several years, rather than account for such capital expenditures on a current basis.⁶ We would never think of shackling IBM or General Motors by requiring the private sector to pay for its capital investment on a current basis. This double standard highlighted the futility of speaking about balancing public-sector budgets.

Vickrey was quick to point out that a larger deficit may be necessary, at least at first, to achieve full employment. The real challenge, he said, would be in servicing the debt, but that could be managed if the Federal Reserve pegged interest rates at low enough levels. One need only look to the last period of genuine full employment, the great boom of World War II, when the Federal Reserve pegged short-term interest rates at three-eighths of one percent and long-term rates at around 2 percent. The central bank was able to accomplish this objective through its open-market purchases of government securities even though the federal deficit was twenty-five times larger and the national debt nearly twice as large as today's deficit and debt as a percentage of gross national product. The deficit, when wisely managed by low-interest financing, is not an economic sin, Vickrey wrote, but an economic necessity.

Micro-Credibility

Vickrey was recognized with a Nobel prize for his work on the economics of incentives in asymmetric settings. Throughout the 1940s Vickrey devoted much of his attention to problems in taxation and public finance and developed a theoretical design of an optimal tax system that would achieve the dual objectives of equity and efficiency. His classic *Agenda for Progressive Taxation* established him as a leading authority in the field, and as part of Carl Shoup's Tax Mission to Japan, he soon helped lay the foundation for that country's post-war tax structure.⁷

More recently, Vickrey called for abolishing the corporate income tax to create greater investment incentives and for replacing regressive state and local taxes with a single tax on land values, an idea first popularized in the late nineteenth century by Henry George.⁸ He also opposed the present interest exemption on state and local bonds as a subsidy to upper-bracket pur-

chasers of those bonds. Instead, he supported replacing that exemption with a subsidy—a tax credit to maintain the value of the bonds—which would benefit the issuers (state and local governments) and would improve long-term investment allocation. Vickrey's views on public finance were entirely consistent with the objectives and methods of the Sovereignty Loan Proposal, a plan supported by some coalition members to have the U.S. Treasury create and issue United States Notes (much like Lincoln's Greenback) in the amount of \$90 billion a year for four years to lend interest-free to state and local governments for capital investment. Vickrey's early achievements in the area

In a Vickrey auction, would-be buyers make sealed bids, but the winner pays only the amount of the second-highest bid. Everyone has an incentive to bid truthfully by offering a price commensurate with their anticipation of future value.

of public finance are also consistent with his more recent warnings about the inequities and inefficiencies of government's most burdensome and insidious indirect tax: the tax on debt in the form of higher interest rates to service these debts.

Throughout the 1960s, Vickrey was concerned with using legal rules to structure private markets so that governments might raise revenues with minimal distortion to those markets. Vickrey recognized that many markets were imperfectly competitive, although often for different reasons. For instance, auctions are marked by imperfect competition because of the asymmetry in information, while the pricing of public services and utilities are shielded from market mechanisms because of the lack of market competition and traditional government regulation of so-called natural monopolies.

Vickrey's seminal work on auction theory in the early 1960s provided ground-breaking insights for the practical development of game theory.⁹ Vickrey understood that in ordinary sealed-bid auctions, bidders usually bid much less than they anticipate will be necessary to win. With everyone bidding below the anticipated value of the prize, the seller may not obtain the maximum or even a fair amount. In a Vickrey auction, would-be buyers make sealed bids, but the winner pays only the amount of the second-highest bid. Everyone has an incentive to bid truthfully by offering a price commensurate with their anticipation of future value. Under such circumstances, the prize will most likely be awarded to the party who can make the most of it. This type of auction allows the seller to obtain as high a price as with any other auction. Vickrey's ideas on auction theory have been used by both the public and private sectors to sell everything from bands of the broadcast spectrum to oil fields.¹⁰

By the mid- to late 1960s, Vickrey moved on to other problems associated with the incentives of pricing, particularly the difficulties of pricing public services such as roads, public transit, and energy utilities.¹¹ Vickrey concluded that charging the same fee to every user to recover enormous investment and start-up costs could lead to heavy congestion in periods of peak demand and sparse use during off-peak times. He devised pricing structures for smoothing the peaks and troughs by linking prices to demand, charging higher prices during times of higher demand. Since public pricing was determined largely by administrative fiat, Vickrey's congestion pricing prescriptions were easily adaptable. Time-of-day pricing is now regularly used by electrical utility companies to limit their need to build expensive new generating capacity or to increase output at their most inefficient plants. Vickrey's pricing theories are also applicable to the private sector as public service and utility companies have been increasingly privatized and to the degree that private cor-

porations are shielded from competitive pressures by virtue of barriers to entry and commanding market share.

Micro-Tools to Combat Inflation

It is Vickrey's Nobel-recognized work on auction theory and congestion pricing that may most inform his macroeconomic blueprint. In both areas, Vickrey acknowledged the information asymmetries inherent in the processes of price determination. And in his auction theory, as with his work on optimal pricing of public utilities and transport, Vickrey appreciated the central role of legal rules in structuring the market and determining prices. In this way, Vickrey followed in the great tradition of the institutionalists who understood that the market itself is an institution created and shaped by legal rights with profound effects upon economic performance. He also displayed a conception of the economist as an active designer of policy, not a mere predictor relegated to the sidelines.

Vickrey's work on microeconomic market incentives provides credibility to his plans for developing anti-inflation policy tools based on market incentives, a strategy that would offer a much-needed alternative to today's exclusive reliance on monetary stringency and high real interest rates. In this way, Vickrey answered the call of the first Nobel laureate in economics, the late Dutch economist Jan Tinbergen, who often said that we should have at least as many policy tools as there are policy problems.¹²

One of Vickrey's most important contributions to the development of a full-employment agenda was his support for establishing a market in rights to raise prices, which was largely based on the Market Anti-Inflation Plan (MAP) of economists Abba Lerner and David Colander.¹³ Years earlier, Lerner and Colander acknowledged their debt to Vickrey for his stimulating comments on early drafts of their plan. Vickrey's work on

asymmetrical information informed and animated his discussion of MAP. Without any assurance of a stable price level or important information that would help it determine the proper market-clearing price for its goods or services, each firm operates in the dark. By creating a market for the right to raise prices, but keeping the level of rights at a stable level in the aggregate, Vickrey's plan promised to bring some predictability to the overall inflation level and to each firm's pricing process.

The proponents of MAP recognized that excess-demand inflation (aggregate overspending) is less of a problem in an economy operating below full-employment levels. Rather, cost-push (or administered excess-claims inflation) and expectational inflation are the real dangers in a slow-growth economy. They developed a blueprint that would give every firm the right to increase its value-added in proportion to the estimated rise in the economy's overall productivity.¹⁴ According to Vickrey, each firm would be issued a certain number of "warrants" or permits for gross markups (the excess of sales revenue over amounts paid for non-prime inputs). These warrants would be issued on the basis of the gross markups for a corresponding preceding period, with adjustments for changes in prime inputs such as labor and invested capital. By permitting firms to raise prices only by purchasing these warrants from other firms, each firm would know the cost of raising its prices while building in an incentive for price stability.

Vickrey also favored combining this market-based solution with tax penalties for firms that raised prices in excess of their accumulated rights. By setting this tax at a level higher than the market price of the warrants, the tax would serve as an enforcement mechanism rather than a source of revenue. This tax borrows from congestion pricing and resembles similar proposals by James Tobin, another Nobel laureate in economics, to ensure stability in exchange rates through a financial transaction tax.

Likewise, Vickrey's work on auction theory adds credibility to his overall market-based approach, which closely mirrors policy departures regarding the environment, such as the 1990 amendments to the Clean Air Act, which created a functioning market for the right to pollute.¹⁵ The Environmental Protection Agency (EPA) has issued emission allowances (otherwise known as pollution credits) to firms that may then buy and sell such credits to other firms. Companies that pollute in excess of their allowances are subject to a tax for every ton of excess sulfur dioxide emitted. The Pacific Stock Exchange has developed an electronic market on the Internet for trading between firms. The Chicago Board of Trade has held auctions and created a futures market for pollution credits, and the EPA plans to auction more pollution credits in years to come.

Proponents of the market-based approach have already claimed success. Public utility companies emitted 5.3 million tons of sulfur dioxide in 1995, well below the EPA's target of 8.7 million tons and down from 10.9 million tons in 1980. Meanwhile the price of a pollution credit has fallen dramatically, from \$450 a ton in 1993 to less than \$70 a ton in 1996. The reasons for the falling price of pollution credits are related to the decline in pollution emissions. Railroad deregulation cut the cost of shipping cleaner, low-sulfur coal, while the price of scrubbers fell by 50 percent. Consequently, utilities have stockpiled their pollution credits by emitting far less pollution than their allowable limits. One important concern, however, is that this stockpile of credits will mean more pollution sometime in the future, after stricter EPA pollution limits go into effect. This may call for the EPA to issue far fewer pollution credits in the future.

Compare this to MAP proposals for a market for warrants to raise prices. If, for example, MAP were designed to restrict overall inflation to 2 percent, then an appropriately small number of warrants would be issued. But if the economy was falling into a deflationary

period, few firms would use their warrants. The supply of warrants would exceed the demand, and the price of warrants would fall—similar to the present situation with pollution credits. Stockpiling MAP credits would make it easier for firms to purchase warrants and raise prices, certainly not a bad scenario for a deflationary economy. In any event, there is less likelihood of stockpiling warrants under MAP since the warrants would be effective for a much more limited time period than the pollution credits. And it is also worth noting that the likelihood of deflation is diminished under MAP since monetary stringency and fiscal austerity would not be needed to stem inflation in the first place.

Pollution credits have also created some problems stemming from geographical distribution as midwestern polluters have bought credits from some eastern utilities. While pollution from eastern utilities is likely to blow out over the ocean, the increased amount of midwestern pollution could result in continued environmental damage in the East. From the outset environmentalists warned that the trading of pollution credits could result in such "hot spots" where local pollution concentrations far exceed the level prescribed by air quality standards.¹⁶ This has led to proposals to develop alternative market structures to prevent or diminish hot-spots, such as limiting the size of the market region, or retaining a uniform ceiling on permissible concentrations.

The analogous problem for MAP would be when specific firms buy excessive amounts of warrants, thereby permitting those firms to raise their prices exorbitantly. Certain groups of consumers could be harmed by such price increases far in excess of any benefit from the falling prices of other products. Presumably this danger exists in markets protected from competition by patent law (such as pharmaceutical products) or oligopolistic structures (such as cartels). This might also necessitate some limits on the MAP market such as restrictions on the total amount of warrants that a particular firm could purchase.

Vickrey was cognizant of the various problems associated with setting up a market-based anti-inflation system, such as "the problem of how to measure price changes in the face of quality changes, new products, and variations in the terms of sale such as delivery, reliability, service, credit terms, tie-in sales, and the like." Solving problems of measurement and evasion would require a more cooperative business culture and bureaucratic administration, oversight, and enforcement of market trading rules. Those who criticize MAP for its potential bureaucratic costs selectively ignore the enormous bureaucracy required to contain the social damage stemming from persistently high unemploy-

The public discussion has been deprived of living proof that an intelligent and accomplished economist could still believe in the necessity and feasibility of a genuine full-employment program.

ment. To be sure, MAP would necessitate set-up and administration costs in establishing allowable aggregate price limits, the initial allocation of permits, measurement, market trading, and disclosure rules. But low and predictable inflation, along with genuine full employment, would reap much more significant benefits. Policy-makers would no longer need to rely on monetary restraint, high interest rates, and mass unemployment to impose price stability.

Command and control solutions to regulatory problems became discredited in Vickrey's lifetime. Government intervention such as wage and price controls were abandoned. At times such policies were quite successful in achieving policy objectives, and their demise may have owed more to the rise of neoliberal conceptions of the limited role of government in a so-called free enterprise system. But deregulation and economic

liberalization did not replace such policy tools with effective alternatives to achieve price stability and genuine full employment. What was once said of the Lerner–Colander anti-inflation plan could be said for Vickrey’s entire macroeconomic blueprint: It could well be the best remedy for stagflation, but many less promising remedies will first have to be tried and proved ineffective to render Vickrey’s program politically acceptable.¹⁷

Like a martial artist who uses his opponent’s own force and weight as a weapon of his own, Vickrey was poised to argue that market incentives could be used to keep prices stable in a chock-full-employment economy. Vickrey did not merely appreciate market incentives, his accomplishments in the area were rewarded with Nobel recognition. His sudden death was a serious loss for those seeking to challenge today’s acceptance of mass unemployment and the mania for balanced budgets. The public discussion has been deprived of living proof that an intelligent and accomplished economist could still believe in the necessity and feasibility of a genuine full-employment program. Economists lost an important voice to remind them that their central task today is to construct an economy that provides decent jobs for all who seek dignified work.

Notes

1. Peter Passell, “Two Theorists of Real-Life Problems Get Nobel,” *New York Times* [Florida edition] (October 9, 1996): C1.

2. William Vickrey, “Today’s Task for Economists,” *Challenge* (March–April 1993): 4.

3. William Vickrey, “Social Pathologies, Unemployment, and the Fatal Obsession with Debt Reduction and Other Fallacies” (draft on file with author, revised November 22, 1994).

4. William Vickrey, “Why Not Chock-Full Employment?” *Atlantic Economic Journal* 22, no. 1 (March 1994): 39.

5. Vickrey’s opposition to central bank adherence to high real interest rates reminds one of similar concerns in Keynes’s *General Theory*, where Keynes refers to a nineteenth-century saying quoted by Bagehot: “John Bull can stand many things, but he cannot stand 2 percent.” See also Leonard Silk, “The Crucial Issue Politi-

cians Ignore," *New York Times* (April 24, 1992): D2. (The real rate of interest on commercial paper rose from an average of 0.8 percent between 1951 and 1980 to nearly 5 percent during the 1980s.)

6. See also Robert Eisner, "Balancing Our Deficit Thinking: Why the Debt Isn't All Bad," *Nation* (December 11, 1995): 743; Frederick C. Thayer, "Do Balanced Budgets Cause Depressions?" *Social Policy* (summer 1995): 49.

7. William Vickrey, *Agenda for Progressive Taxation* (Ronald Press, 1949; reprinted, New York: Augustus Kelley, 1971).

8. William Vickrey, "The Corporate Income Tax in the U.S. Tax System," *Tax Notes* (November 4, 1996): 597.

9. William Vickrey, "Counterspeculation, Auctions, and Competitive Sealed Bids," *Journal of Finance* 16 (1961): 8-37.

10. "Secrets and the Prize," *Economist* (October 12, 1996): 86.

11. William Vickrey, "Pricing and Resource Allocation in Transportation and Public Utilities: Pricing in Urban and Suburban Transport," *American Economic Review* 53 (1963): 452-65. William Vickrey, "Congestion Theory and Transport Investment," *American Economic Review* 59 (1969): 251-60.

12. On the equality of instruments and targets, see Jan Tinbergen, *Economic Policy: Principles and Design* (Amsterdam: North-Holland, 1956), pp. 53-56. The three objectives of full employment, price stability, and equilibrium in the balance of payments could not be achieved without the use of three specific policy instruments. On matching controls and objectives, see Vickrey, "Social Pathologies, Unemployment, and the Fatal Obsession with Debt Reduction and Other Fallacies," p. 10.

13. Abba P. Lerner and David C. Colander, *MAP: A Market Anti-Inflation Plan* (New York: Harcourt, Brace and Jovanovich, 1980); David C. Colander, ed., *Incentive Based Incomes Policies* (Cambridge, MA: Ballinger, 1986).

14. T. Scitovsky, "Abba Ptachya Lerner," in *The New Palgrave Dictionary of Economics*, vol. 3 (New York: Stockton Press, 1987), p. 168.

15. The Economic Report of the President, February 1996, ch. 5, pp. 146-51. The federal government has also developed individually tradable quotas in fishing harvests.

16. "A Remedy for the Victims of Pollution Permit Markets," *Yale Law Journal* 92 (1983): 1022 and 1027. See also Daniel J. Dudek, Richard B. Stewart, Jonathan B. Wiener, "Environmental Policy for Eastern Europe: Technology-Based Versus Market-Based Approaches," *Columbia Journal of Environmental Law* 17 (1992): 1.

17. Scitovsky, "Abba Ptachya Lerner," p. 168.