

Economic Review



FEDERAL RESERVE BANK OF KANSAS CITY

March 1984

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Of Reducing Structural Unemployment

Recent Experience
With M1 as a Policy Guide

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Enterprise Zones as a Means Of Reducing Structural Employment 3

By Stuart E. Weiner

Structural unemployment resulting from labor market imperfections is an unfortunate reality in the U.S. economy. An enterprise zone program would likely reduce such unemployment by targeting tax and regulatory incentives on depressed inner city areas.

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The monetary policy role of M1 has changed in recent years. In its policy deliberations before 1983, the Federal Reserve attached considerable importance to the narrowly defined money supply. More recently, due to uncertainty about the effects of financial deregulation, the Federal Reserve has deemphasized M1. M1's future role depends on the predictability of its relationship to the economy.

Enterprise Zones as a Means Of Reducing Structural Unemployment

By Stuart E. Weiner

Unemployment in the United States remains undesirably high despite a sharp decline from its recession peak in late 1982. Much of this unemployment is structural in nature, unrelated to the overall strength of the economy. Structurally unemployed individuals are unemployed not because of insufficient aggregate demand, but because of imperfections in labor markets. As such, broad monetary and fiscal policies can have only limited corrective impact; narrower, more targeted policies are needed.

One possible method for reducing structural unemployment is to establish "enterprise zones" in selected depressed inner city areas. Firms operating in such zones would receive tax benefits as well as regulatory concessions. If successful, these tax and regulatory incentives would generate business activity in the zones which, in turn, would lead to lower unemployment.

Originally developed in Great Britain, the enterprise zone concept has sparked considerable interest in the United States. Twenty-one states have passed enterprise zone legislation, and nine have programs in place. At the national level, the Reagan administration has

introduced enterprise zone legislation in each of the last two years. In his recent State of the Union address, the President again urged Congress to "help us to free enterprise by permitting debate and voting 'yes' on our proposal for enterprise zones in America." He went on to say that "its passage can help high-unemployment areas by creating jobs and restoring neighborhoods."

This article evaluates the potential impact of enterprise zones on structural unemployment. The analysis suggests that enterprise zones would reduce structural unemployment. Enterprise zones are no panacea, however, and other programs, more universal in application, could have an equal or greater corrective impact. A comparison of enterprise zones with alternative policies is beyond the scope of this article.

The first section of the article provides an overview of structural unemployment. The distinction is drawn between cyclical and structural unemployment, and various types of structural unemployment are reviewed. The second section describes the enterprise zone concept, emphasizing the administration proposal. Employment incentives, capital incentives, and provisions for regulatory flexibility are surveyed. The third section of the article explores the potential effectiveness of enterprise zones in reducing structural unemployment.

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ment. Included are a discussion of possible sources of new business activity and a brief preliminary report on existing British and U.S. state programs. Finally, the fourth section offers a summary and concluding remarks.

The problem of structural unemployment

There are two major types of unemployment: cyclical and structural. Cyclical unemployment occurs when there is a general downturn in the economy. Consumer and business spending declines, inventories accumulate, production falls, and workers are laid off. Structural unemployment, on the other hand, occurs even when the economy is operating at full strength. Structural unemployment reflects imperfections in labor markets, imperfections that exist regardless of the overall state of the economy.

Structurally unemployed individuals may be unemployed for a variety of reasons. They may have the wrong skills, live in the wrong areas, face institutional barriers, be inefficient in job search, or have little incentive to accept the jobs they are offered. Each of these five primary sources of structural unemployment is examined in this section. While it is difficult to know exactly how much unemployment is structurally based, unemployment in the 6 to 7 percent range is probably at present a good estimate. A portion of this unemployment may be regarded as beneficial, but a good portion of it clearly is not. Consequently, structural unemployment is of some concern.

One source of structural unemployment is the mismatch between the skills possessed by available workers and the skills required for available jobs. Job openings and unemployed individuals can coexist because the individuals do not have the requisite qualifications for the jobs. New entrants into the labor force, reentrants into the labor force, and workers dis-

placed from dying industries often confront this type of unemployment. So too do chronically low-skilled individuals who for one reason or another never acquire the skills that would widen their employment opportunities.

A comparison of unemployment rates across broad occupational groups gives a rough indication of skill mismatch unemployment. In the recovery year of 1979, for example, the unemployment rate among white collar professional and technical workers was 2.4 percent, while the rate among low-skilled manual laborers was 10.8 percent.¹ Professional and technical workers had little difficulty finding employment in the robust economy. Manual laborers, in contrast, had considerable difficulty. Despite general prosperity in the economy, such individuals faced high unemployment because their limited skills failed to match the needs of prospective employers.

Skill mismatch unemployment would decline if available workers were better educated and better trained. Consequently, any policies that furthered those ends would serve as partial remedies to the structural unemployment problem. Better elementary and secondary educational programs, of course, would constitute a basic first step. In addition, vocational training loan programs, similar in design to present college loan programs, could be instituted to assist low and middle income youths in acquiring training at technical schools. Wage subsidy programs designed to encourage on-the-job training would perhaps be even more effective in augmenting the skills of the labor force.

A second source of structural unemployment is the mismatch between the location of available jobs and the location of available workers. Locational mismatch unemployment

¹ From Table 35, *Handbook of Labor Statistics*, Bulletin 2070, Bureau of Labor Statistics, Washington, D.C., December 1980.

can be said to exist when job seekers living in a given location could qualify for existing vacancies in another location.

Locational mismatch can arise when one region of the country grows more quickly than another. One example that has received considerable publicity in recent years is the movement of jobs and people to the Sunbelt. Rapid industrial growth in the South and Southwest has come in part at the expense of the Northeast and Midwest, with the result that some of the unemployment in the latter two regions is locationally derived. Potential remedies for regional locational mismatch unemployment include worker relocation subsidies and an extensive and more efficient national employment service.

Another type of locational mismatch may be termed intrametropolitan mismatch, or the mismatch of workers and jobs in the same metropolitan area. Intrametropolitan mismatch occurs when vacancies exist in the suburbs but available workers in the central city are unable to reach them, either because of high commuting costs or because such individuals do not learn about the vacancies due to high search costs or distance-related deterioration of job information flows. This issue also has come to the fore in recent years. Firms have increasingly abandoned central cities for sites in surrounding suburbs, with a possible adverse impact on the employment prospects of inner-city residents.

There are no statistics on the extent of suburbanization nationwide. However, changing patterns in the Kansas City metropolitan area may be representative. In 1970, Jackson and Wyandotte counties, the counties containing the central cities of Kansas City, Missouri, and Kansas City, Kansas, respectively, accounted for 77.5 percent of all jobs in the six-county area. By 1980, this share had fallen to 69.3 percent. Johnson County, an area of

rapidly growing suburbs, exhibited the opposite pattern; its share of metropolitan employment increased from 10.1 percent to 17.8 percent.²

Unemployment rates diverge widely within a metropolitan area. Chart 1 presents central city and suburban unemployment rates for the nation as a whole during the years 1973 through 1982.³ As indicated, central city residents have experienced higher unemployment rates than suburban residents throughout the 10-year period. More striking differences emerge when one compares particularly distressed inner-city areas with particularly affluent suburban areas. In the Kansas City area in 1980, for example, unemployment rates of 15 percent and higher were common in the inner city, while rates of 1 and 2 percent were prevailing in certain parts of the suburban fringe.⁴

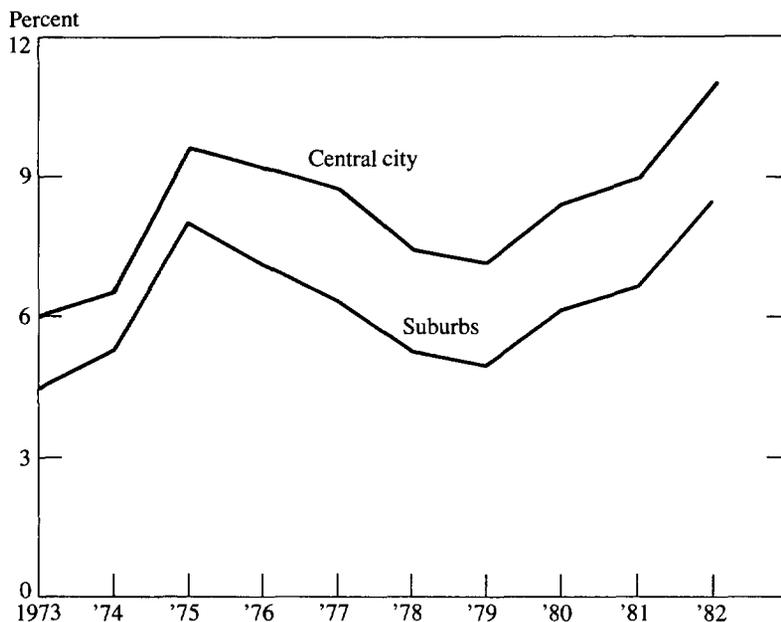
Intrametropolitan mismatch of workers and jobs is probably one factor underlying the divergence of local unemployment rates. One must be mindful, however, of obvious biases. A disproportionate number of inner-city residents are low skilled or receive public transfer payments. Both factors increase the probability of unemployment, irrespective of any loca-

² Reflecting this suburbanization of business, 88.8 percent of the workers living in Jackson County in 1970 worked in Jackson County, while only 2.6 percent worked in Johnson County. By 1980, 84.6 percent worked in Jackson County and 5.9 percent worked in Johnson County. Correspondingly, 41.2 percent of the workers living in Johnson County in 1970 worked in Jackson County, while 43.1 percent worked in Johnson County. By 1980, 29.8 percent worked in Jackson County and 56.5 percent worked in Johnson County. Statistics have been derived from 1970 and 1980 Census data.

³ From Table B-4, *Labor Force Statistics Derived from the Current Population Survey: A Databook*, Volume 1, Bulletin 2096, Bureau of Labor Statistics, Washington, D.C., September 1982, and Table 57, *Employment and Earnings*, Bureau of Labor Statistics, Washington, D.C., January 1983.

⁴ From Table P-10, *1980 Census of Population and Housing, Census Tracts, Kansas City, Mo.-Kan. SMSA*, PHC80-2-200, Bureau of the Census, July 1983.

CHART 1
Intrametropolitan unemployment rates in the United States
 (Adults 16 and over)



tional mismatch. Suburban residents, in contrast, are disproportionately high-skilled, which decreases the probability of their being unemployed. In addition, many suburban residents commute to jobs in central business districts. The favorable employment standing of these individuals clearly does not reflect their closer residential proximity to jobs.

It is not clear how serious intrametropolitan mismatch is, that is, how binding locational constraints (commuting costs, search costs, information flow deterioration) are in practice. Studies indicate that workers are very mobile and that few individuals, including inner-city residents, work near their homes.⁵ Of greater interest, however, is the unobserved mobility of nonworkers, specifically low-income inner-city nonworkers who would like to be

working. For such individuals, as firms migrate from inner cities to suburbs, commuting costs and search costs unambiguously increase and job information flows likely deteriorate. Suburbanization of business would appear to leave inner-city job seekers in a worse position.

One possible solution to intrametropolitan locational mismatch is to encourage firms to stay in inner-city areas. Alternatively, rapid transit routes from the inner city to surround-

⁵ See, for example, Sheldon Danziger and Michael Weinstein, "Employment Location and Wage Rates of Poverty-Area Residents," *Journal of Urban Economics*, April 1976, pp. 127-145, and David T. Ellwood, "The Spatial Mismatch Hypothesis: Are There Teenage Jobs Missing in the Ghetto?" NBER Working Paper No. 1188, August 1983.

ing suburbs could be improved.

A third source of structural unemployment is the existence of institutional barriers. Various laws and social practices prevent labor markets from working as efficiently as possible. Minimum wage laws, union membership restrictions, and racial and sexual discrimination provide three examples.

Minimum wage laws, despite their good intentions, have a deleterious impact on the employment prospects of low-skilled, low-wage individuals. Wages are not permitted to fall below an artificial floor even when market conditions dictate such a decline. Consequently, wages are higher than they otherwise would be, causing employers to hire fewer workers and causing more individuals to enter the labor force. The net result is an excess supply of low-skilled, low-wage individuals, which increases unemployment. Were wages free to settle at market-clearing levels, unemployment among such individuals would decline.

Union membership restrictions are another type of institutional barrier. Individuals excluded for one reason or another from joining a union are unable to work at union shops and unable to take advantage of union training programs. Such restrictions reduce employment opportunities, both now and in the future. Racial and sexual discrimination in hiring has a similar impact. Qualified individuals are shut out of potential positions, losing valuable on-the-job training in the process. Like minimum wage laws and union membership restrictions, discriminatory hiring obstructs the smooth functioning of labor markets.

The remedy for unemployment resulting from institutional barriers is, of course, to remove the barriers. Abolishing minimum wage laws, banning union membership restrictions, and prohibiting discriminatory hiring would eliminate a significant amount of struc-

tural unemployment.

A fourth source of structural unemployment is imperfect information flows. Job vacancies may exist but go unfilled simply because job seekers are unaware of the vacancies.

Individuals can search for employment in a number of ways. They can apply directly to employers, place and answer classified ads, use public and private employment agencies, and exchange information through word of mouth. Some methods of job search may not be as efficient as others. Sole reliance on public employment agencies, for example, may be ineffective because of a large number of applicants per vacancy. Alternatively, some methods of job search may be inefficient for certain groups only. For example, word of mouth is likely to be ineffective for inner-city residents because a large percentage of such individuals' peers are unemployed.

Establishing a more efficient and extensive public employment service would be one way to improve the flow of information to job seekers. Beyond that, however, policy options appear limited. It is difficult, and perhaps undesirable, to develop measures that would influence how individuals search for work.

A final source of structural unemployment relates to the disincentives associated with various public transfer programs. An individual receiving unemployment compensation or welfare payments has little incentive to search for or accept a job paying only a marginally higher income. Public transfer payments clearly serve a useful purpose in providing some measure of income security to individuals facing adversity. However, they also tend to lengthen the duration of unemployment spells.

Several proposals have been made for reducing this type of structural unemployment. Suggestions range from reducing benefit levels or eligibility to establishing a voucher system

in which transfer payment recipients could in effect buy employment from employers. The issue continues to generate a good deal of research and a great deal of debate.

While all structural unemployment inherently reflects imperfections in labor markets, some structural unemployment may nevertheless be beneficial from a personal standpoint. When an individual quits a job to look for a better one or enters the labor force for the first time, the time spent in job search represents in part an investment in the future. (This unemployment is structural because if job information networks were perfect, job search would be unnecessary.) For example, an individual entering the labor force from college would probably not want to accept the first job offered. Instead, the new entrant would want to “shop around,” talking to a number of potential employers and weighing the alternatives. In a world of imperfect, sequential information, such a strategy is optimal.⁶

Society also profits from this extended job search. The better matched workers and jobs are, the more productive workers will be. From a societal as well as a personal standpoint, therefore, some structural unemployment is beneficial.⁷ Unfortunately, much structural unemployment is clearly nonbeneficial. It is to this type of unemployment that enterprise zones are directed.

The enterprise zone concept

Enterprise zones were conceived by Peter Hall, a professor of geography and urban planning at the University of Reading in Great Britain. In a 1977 address to the British Royal

⁶ Robert J. Gordon develops this argument in *Macroeconomics*, 2nd ed., Little, Brown and Co., Boston, 1981, pp. 312-314.

⁷ This component of structural unemployment is sometimes referred to as “frictional” unemployment.

Town Planning Institute, Hall proposed establishing “freeports” in severely depressed areas of Britain in order to encourage entrepreneurial activity. These freeports would be zones of “fairly shameless free enterprise,” where all British tax laws, social services, and industrial regulation would be suspended. Wage and price controls, including minimum wage laws, would be eliminated, and all goods could be imported and sold duty-free. As Hall explained:

This is essentially an essay in non-plan. Small, selected areas of inner cities would be simply thrown open to all kinds of initiative, with minimal control. In other words, we would aim to recreate the Hong Kong of the 1950s and 1960s inside inner Liverpool or inner Glasgow.⁸

Hall regarded the freeport proposal as an “extremely drastic last-ditch solution,” and recommended that it be attempted on a very small scale. He felt that “it is most appropriate to those inner-city areas which are largely abandoned, and denuded of people, or alternatively, areas with very grave social and economic problems.”⁹

Hall’s freeport proposal sparked the interest of Sir Geoffrey Howe, a leading member of the Conservative Party and then Shadow Chancellor of the Exchequer. Howe offered a more restrained version of the proposal in a speech in 1978. It was in this speech that he coined the term “enterprise zone.” When the Conservative Party, led by Margaret Thatcher, came to power in 1979, Howe moved into the office of the Chancellor of the Exchequer. He announced detailed plans for an enterprise

⁸ Peter Hall, “Enterprise Zones: A Justification,” *International Journal of Urban and Regional Research*, September 1982, p. 417

⁹ Hall, p. 417.

zone program in his March 1980 budget address. By late 1981, 11 zones were in operation. Thirteen additional zones were authorized in 1982.

The British enterprise zone program is seen as being essentially experimental. It is not regarded as part of the government's regional policy, nor has it replaced any existing programs. Enterprise zones, the first 11 of which range in size from 140 to 1,100 acres, are so designated for ten years. They enjoy the following primary benefits: (1) exemption from the development land tax, i.e., exemption from capital gains taxes on increases in land value; (2) exemption from "general rates," i.e., exemption from local property taxes on industrial and commercial property, with local governments being reimbursed by the central government; (3) 100 percent deductibility of capital expenditures on the construction, extension, or improvement of industrial and commercial buildings against corporation or income tax liabilities; (4) simplification of planning procedures — developments that conform to general guidelines do not require individual approval; and (5) reduction of governmental requests for statistical information. As evident from the list, enterprise zone provisions offer major incentives to developers and firms to operate in the zones. However, they fall far short of the sweeping deregulation originally proposed by Hall.

The enterprise zone concept was introduced into the United States by Stuart Butler, a Heritage Foundation policy analyst who became aware of the idea while visiting Great Britain in 1978. Butler promoted the idea in numerous publications, and politicians soon took notice. Enterprise zone legislation first appeared in 1979, in the Illinois legislature. National legislation was introduced in 1980 by Representative Jack Kemp. With Representative Robert Garcia as a cosponsor, Kemp reintroduced the

bill later that year and again the following year.¹⁰ The Reagan administration formally embraced enterprise zones in 1982 by introducing a bill of its own. The bill was approved by the Senate Finance Committee but was not acted upon in the House. The administration submitted a slightly revised version of the bill in 1983; it again cleared the Senate Finance Committee and also received a committee hearing in the House.¹¹ As the President emphasized in his recent State of the Union address, passage of the bill remains a legislative priority of the administration in 1984.

The administration's enterprise zone proposal has as its twin goals the creation of jobs in depressed areas and the physical redevelopment of these areas. These goals are to be accomplished through various tax and regulatory incentives made available to businesses locating in the zones. Like the British government, the Reagan administration regards its proposed program as experimental. Under the bill, termed the Enterprise Zone Employment and Development Act of 1983, the Secretary of Housing and Urban Development would designate up to 75 areas as enterprise zones over a three-year period.¹² A designation would remain in force for 20 years, followed by a four-year phaseout. To qualify as a potential enterprise zone, an area would have to meet certain economic demographic, and physi-

¹⁰ David Hardison provides a detailed political history of U.S. enterprise zone legislation through 1981 in *From Ideology to Incrementalism*, Princeton Urban and Regional Research Center, Princeton University, 1981.

¹¹ Forty-three senators cosponsored the bill in the Senate (S.863), and 242 representatives cosponsored the bill in the House (H.R.1955).

¹² Unlike the 1982 bill, the 1983 bill requires that 25 zones be located in rural areas. The analysis in this article is strictly applicable to urban enterprise zones only; however, several of the issues raised hold for rural zones as well.

cal criteria. Areas would be nominated by local governments in conjunction with their states. Major provisions of the proposed program are as follows:

(1) A general payroll tax credit for employers increasing net employment in the zones, equal to 10 percent of each additional employee's wages up to \$17,500, or \$1,750 per employee.¹³ The credit is nonrefundable — amounts in excess of current tax liabilities would have to be carried forward for use in later years;

(2) A nonrefundable special tax credit for employers hiring "disadvantaged" individuals in the zones (welfare recipients, general assistance recipients, and others poverty stricken), equal to 50 percent of the employee's wages, with no upper limit;

(3) A nonrefundable tax credit for employees working in the zones, equal to 5 percent of the employee's wages up to \$10,500, or \$525;¹⁴

(4) A nonrefundable 3 or 5 percent investment tax credit, over and above the regular investment tax credit, on capital investment in the zones, and a 10 percent credit for the construction or reconstruction of buildings;

(5) Elimination of all long-term capital gains taxes on business property in the zones;

(6) Preservation in the zones of the use of tax-exempt small-issue industrial development bonds, currently scheduled to sunset at the end of 1985;

(7) Increased regulatory flexibility in the zones, whereby federal agencies and regulatory bodies could relax, upon request of state and local authorities, any regulatory requirements except requirements provided by statute or affecting civil rights, safety, or public health; and

(8) A requirement that state and local governments commit themselves to specific actions to enhance development of the zones, including perhaps tax and regulatory relief, improved services, and community involvement.

The administration's enterprise zone proposal differs in several ways from the British program. The most important difference is that it provides explicit employment incentives in addition to capital and development incentives. Another notable difference is that the U.S. proposal does not call for a federally financed elimination of local property taxes.

Enterprise zones have received considerable attention at the state level as well. Twenty-one states have passed enterprise zone legislation, and nine — Kansas, Missouri, Illinois, Louisiana, Kentucky, Ohio, Florida, Maryland, and Connecticut — have programs in place. Provisions vary from state to state, but all are in keeping with the general aim of the enterprise zone concept: to encourage business activity in severely depressed areas with the intent of creating jobs and lowering unemployment. The next section assesses the likelihood of meeting these goals.

¹³ The income eligibility limit would vary over time, equaling 2.5 times the FUTA (Federal Unemployment Tax Act) wage base (presently \$7,000).

¹⁴ The income eligibility limit would vary over time, equaling 1.5 times the FUTA wage base.

Will enterprise zones reduce structural unemployment?

Enterprise zone legislation seeks to create jobs in depressed inner-city areas. Although such legislation is explicitly aimed at bringing jobs to available workers in the hope of reducing intrametropolitan locational mismatch unemployment, other types of structural unemployment may be reduced as well. In this section, the potential effectiveness of enterprise zones in reducing all forms of structural unemployment is examined. The analysis focuses on the administration proposal.

If enterprise zones are to be successful in lowering structural unemployment, they must first generate new business activity in the zones. Accordingly, this section opens with an evaluation of the likely sources of new activity. In the second subsection, the key issue is addressed: What types of structural unemployment would new activity likely reduce? The section closes with a brief review of early experience under existing British and U.S. state programs.

Sources of new activity

Enterprise zones can attract new business in three different ways: through the in-migration of outside firms, the birth of new firms, or the expansion of existing firms. The provisions of the administration proposal appear to favor the third.

Studies indicate that, although relocations are well publicized, few firms actually relocate, and those that do rarely do so for tax purposes. Factors more often cited by execu-

tives as being influential in relocation decisions include low land costs, favorable labor climate, proximity to markets, access to transportation, and "economies of agglomeration," or the presence of other firms in the area.¹⁵ Although lower taxes are obviously desirable, they do not appear to be an overriding concern.

These results suggest that the tax incentives offered in the administration proposal might not be successful in getting firms to relocate to zone areas. Such an outcome would not necessarily be cause for concern, however. Unless relocating firms expanded their workforce upon arrival, migration of firms into enterprise zones would merely represent a transfer of activity from one area to another. If previously existing vacancies were filled, however, or if other firms were induced to expand operations in the zones because of growing economies of agglomeration, migration of existing firms would on net be beneficial.

Enterprise zone proponents look to the birth of new firms and the expansion of existing firms as more important potential sources of new activity. A research group at MIT has found that virtually none of the employment change in an area is due to firms migrating in or out.¹⁶ Instead, most of the change reflects firm birth and expansion relative to firm death and contraction.

Virtually all enterprise zone initiatives in the United States, including the administration proposal, have emphasized the desirability of providing an environment in which new small businesses could thrive. This policy goal in part derives from studies which indicate that small businesses contribute more than their

¹⁵ Kenneth A. Small surveys several of these studies in *Geographically Differentiated Taxes and the Location of Firms*, Princeton Urban and Regional Research Center, Princeton University, 1982.

¹⁶ David L. Birch, "Who Creates Jobs?" *The Public Interest*, Fall 1981, pp. 3-14.

employment share to net employment growth.¹⁷

In its present form, however, the administration proposal would likely do little to encourage the birth of small businesses. Two factors lead to this assessment. First, all the capital and employment tax credits in the proposal are nonrefundable. Unless a firm was profitable enough to incur tax liabilities, the tax credits could not be realized. Since new small businesses tend to operate at a loss for several years, they would not benefit from the tax concessions.¹⁸ Second, except for the extension of the small issue development bond program, which tends to favor large developments, the proposal contains no financing provisions. One of the chief obstacles facing a potential entrepreneur is the need to raise capital. If the proposal included a provision for a small-business loan program or a provision allowing small-business stock purchases to be tax deductible, it would provide more impetus for the birth of new firms.¹⁹

The administration proposal would likely be successful, however, in inducing existing zone firms to expand and inducing existing nonzone

firms to open new branches in the zones. Existing firms would likely have the tax liabilities necessary to use the numerous tax credits. These credits would effectively lower capital and labor costs, making an increased level of production profitable. The regulatory concessions would also serve to lower operating costs. As production increased, employment would increase, and general activity in the zones would rise.

Because the tax credits would be geographically targeted, the possibility exists that a portion of the benefits would be capitalized in higher rent and land prices. That, of course, would temper some of the expansionary momentum. The speed and extent of capitalization would depend on a number of factors, including the rigidity of existing contractual arrangements, the relative bargaining strength of those supplying and demanding land, and the holdings of land by public authorities. Even if full capitalization eventually occurred, however, business activity would likely expand.²⁰

Since enterprise zones are not costless, there is the question of who would ultimately pay for them. Under the administration proposal, tax revenues would decline as firms and individuals utilized the employment and capital tax credits, while expenditures would

¹⁷ See Birch, and also Catherine Armington and Marjorie Odle, "Small Business — How Many Jobs?" *The Brookings Review*, Winter 1982, pp. 14-17; Catherine Armington, "Further Examination of Sources of Recent Employment Growth," unpublished mimeograph, March 1983; and Candee S. Harris, "Small Business and Job Generation: A Changing Economy or Differing Methodologies?" unpublished mimeograph, February 25, 1983.

¹⁸ Frank Swain, chief counsel for advocacy with the U.S. Small Business Administration, emphasized this point in testimony before the Senate Finance Committee. See *Enterprise Zones — 1983: Hearing Before the Committee on Finance, United States Senate*, U.S. Government Printing Office, Washington, D.C., April 22, 1983, pp. 135-151. Although nonrefundable, the tax credits could be carried forward for use in later years. Of course, this would not improve the cash flow of small firms during their early years.

¹⁹ Such provisions have been included in other enterprise zone bills. For a description of some of these bills, see *Enterprise Zones — 1983*.

²⁰ Binding rental and sales contracts, negotiated prior to the designation of the zones, would of course preclude immediate capitalization. So too would public ownership of the sites in question; rents and land prices would not be subject to profit-motivated market forces. Greater bargaining strength on the part of buyers relative to sellers (particularly in cases where the sites were previously vacant) and imperfect knowledge of the potential value of the tax credits would also temper capitalization. Even under conditions of eventual full capitalization, however, one would expect an expansion of output and employment. The effect of eventual full capitalization would be to increase fixed costs (assuming land was not a variable input); profit-maximizing output and associated input levels would therefore remain at their tax credit-induced higher levels.

remain unchanged. This implies that the federal deficit would increase. In effect, all individuals who were affected by the larger deficit, through its possible impact on interest rates or inflation, would bear the costs of enterprise zones. This is only the first-round effect, however. As business expanded in the zone areas, employment would increase, causing personal income tax revenues to rise.²¹ To the extent that newly hired employees had previously been collecting welfare or unemployment insurance, expenditures would decline. In addition, business profits might increase, further augmenting the tax base. While it is difficult to attach firm numbers to the various factors, it is clear that first-round considerations alone overstate the net budgetary impact.²²

Structural unemployment reductions

The above analysis suggests that the administration's enterprise zone proposal would induce new business activity in zone areas. This increased activity would likely cause a reduction in many types of structural unemployment.

Perhaps ironically, there is no guarantee that intrametropolitan locational mismatch unemployment would be reduced. This follows because none of the tax concessions have employee residency requirements. Firms locating in the zones would be entitled to the investment tax credit and capital gains exclusion regardless of whether they hired area residents.

²¹ Future personal income tax revenues would rise as well since newly hired individuals would acquire training and experience, making them more employable in the future.

²² The Treasury has tentatively estimated that a 75-zone program would result in a \$3.5-billion revenue loss. It is not clear, however, whether this estimate incorporates the second-round effects. See the statement by William S. McKee, acting deputy assistant secretary for tax policy, Department of the Treasury, in *Enterprise Zones — 1983*.

Likewise, firms would receive the general payroll and special disadvantaged worker tax credits regardless of where new employees lived. Although jobs might open in high unemployment areas, there is no assurance that the individuals experiencing that unemployment would benefit.

Despite this possibility, it is likely that area residents would benefit because previously existing locational constraints would be removed. Search costs would be lower because more jobs would be opening closer to home. Commuting costs would decline, making previously inaccessible job opportunities accessible. Distance-related deterioration of information flows would also diminish. All three factors would tend to reduce locational mismatch unemployment among inner-city residents.

A greater reduction in structural unemployment would likely come from the implicit toppling of the minimum wage institutional barrier. The administration's proposal in effect would allow firms to circumvent minimum wage laws. Because firms would receive general payroll and disadvantaged worker tax credits whenever they hired new employees, wages paid by employers would effectively be lowered, in some cases to below minimum wage levels. Wages received by employees, on the other hand, would be unchanged. In effect, the government would be subsidizing the wages of newly hired workers.

As noted in the previous section, minimum wage laws create an excess supply of low-skilled, low-wage individuals. The general payroll tax credit would provide an incentive for firms to hire such individuals because its income eligibility limit would effectively make the tax credit larger for low-wage workers than high-wage workers. At 10 percent, however, the tax credit would not allow large deviations from minimum wage. The disadvantaged worker tax credit, narrowly targeted on low-income, largely unskilled individuals, would permit much larger deviations, providing a subsidy of 50 percent. In circumventing

minimum wage, one important source of structural unemployment would be circumvented.

The wage subsidy provisions would also reduce skill mismatch unemployment because firms would find it profitable to hire and train workers at the now-lower effective wages. Training of general skills would be particularly enhanced. Firms usually have little incentive to train workers in general skills, as opposed to firm-specific skills, because having acquired such skills the workers can take them to other employers, leaving the original employer to absorb the training costs. If wages were subsidized over the training period, however, firms would not incur these costs. Newly hired individuals would therefore tend to acquire more on-the-job training, and their skills would be enhanced. As a result, they would be better matched to available jobs, both now and in the future.

The administration's enterprise zone proposal would also likely cause a reduction in unemployment resulting from transfer payment disincentives. Public transfer recipients would have a greater incentive to search for and accept jobs as more jobs became available at a closer distance. Search costs would decline and commuting costs would fall, making previously marginal jobs more lucrative. The employee tax credit would reinforce this incentive, although, at 5 percent, its impact would likely be small.

Finally, the increased level of business activity in zone areas would serve to reduce unemployment resulting from inefficient job information networks. Previously inefficient methods of job search would become more efficient as job information flows improved among inner-city residents. Word of mouth, for example, would become more effective, simply because there would be more vacancies to discuss. Direct application to employers would become more effective because travel time and travel costs would be reduced. In short, enterprise zones would likely have a beneficial impact on information-related

unemployment just as they would on unemployment resulting from locational mismatch, skill mismatch, minimum wage laws, and transfer payment disincentives.

British and state experience

Enterprise zone programs have already been implemented in several states in this country and in Great Britain. Preliminary results have been favorable for the former, but more mixed for the latter.

Eleven enterprise zones have been operating in Great Britain since 1981; an additional 13 have been operating since 1982. A new government-commissioned study of the first 11 zones reports that economic activity has increased in the zones, but much of this activity has been attributable to the relocation of outside firms rather than the birth of new firms.²³ Thus, although employment has increased in the zones, net job creation has been more limited. As theory would predict, rents and land values have tended to rise. The rate of development has been encouraging, but like all the early results, it is not clear how much of the improvement is due to enterprise zone incentives and how much is due to other government programs. Local governments, for example, have spent considerable sums of money developing publicly owned land.

In assessing the preliminary British results, and in particular, their possible implications for a U.S. program, two points must be made. First, the British program is very young, and one must be careful not to draw conclusions prematurely.

²³*Monitoring Enterprise Zones: Year-Three Report*, Roger Tym and Partners, London, January 1984. See also *Monitoring Enterprise Zones: Year Two Report*, Roger Tym and Partners, London, April 1983; Barbara Rosen, "U.K. Enterprise Zones Seem Successful But Depend Largely on Government Aid," *Wall Street Journal*, April 29, 1983, p. 20; Cristina Howick and Ian McDonald, "Enterprise Zones: A First-Year Progress Report," *Investors Chronicle*, September 1982, pp. ii-iii; and "Hong Kong in Wales?" *The Economist*, November 20-26, 1982, p. 61

Second, the British program differs markedly from the proposed U.S. program. The British program is designed primarily to develop abandoned land and, as such, most of its incentives are property based. It provides no direct employment incentives. The proposed U.S. program, in contrast, explicitly seeks to reduce unemployment by creating new jobs; it does provide direct employment incentives.

A recent study suggests that enterprise zones at the state level are faring well in the United States.²⁴ Nine state programs are operational, with 180 zones activated to date. Most of these zones have been in operation for less than a year. According to state and local officials surveyed, business activity has increased in nearly all the zones. A number of jobs have been created. Unlike the British experience, almost all of the increased activity has come from the expansion of existing firms and the birth of new firms. Relocation has largely been nonexistent.

But here again, the results must be interpreted with caution. The state programs are even younger than the British program, and early results could be misleading. In addition, state provisions frequently differ from the proposed national provisions, making strict comparison difficult. Like the British program, however, the state programs provide an opportunity for discovering the strengths and weaknesses of specific enterprise zone measures.

Summary

The administration's proposed enterprise zone program would likely be successful in generating business activity in depressed inner-city areas. Most of this activity would probably come from an expansion of firms already located in the zones

or the startup of new branches of multilocation firms headquartered elsewhere. Such firms would have the tax liabilities necessary to use the capital and employment tax credits. The regulatory benefits, the precise nature of which are unspecified, could serve to reinforce the incentive to expand activity in the zones.

As business activity increased in the zones, many types of structural unemployment would likely be reduced. The largest reduction would probably come from the circumvention of minimum wage laws made possible by the employment tax credits. The subsidization of wages implicit in the employment credits would also encourage more on-the-job training, which in turn would reduce present and future skill mismatch unemployment. A healthier local economy would unambiguously lower search costs and commuting costs to inner-city residents, having a beneficial impact on any existing intrametropolitan locational mismatch unemployment resulting from suburbanization of business. Unemployment resulting from public transfer payment disincentives and inefficient job information networks would also likely decline.

The proposal is not without its shortcomings, however. Because tax credits are nonrefundable and capital-raising provisions are largely absent, the proposal would do little to promote the birth of new small businesses. In addition, because enterprise zone programs by their very nature are geographically targeted, the possibility exists that some of the tax benefits could be capitalized in rent and land prices, tempering some of the expansionary incentive.

On balance, however, the enterprise zone concept has much to recommend it and, at least on an experimental basis, appears to be worth undertaking. As a narrow program designed to reduce labor market imperfections, enterprise zones are a step in the right

²⁴ *Enterprise Zone Activity in the States*, Sabre Foundation, Washington, D.C., November 1983.

direction. In addition to their beneficial short-run impact on structural unemployment, enterprise zones could help policymakers design more comprehensive future programs. In particular, by carefully monitoring the effects of the employment tax credits, policymakers could gain a better understanding of the potential benefits of a universal wage subsidy program.²⁵ Such a program, in combination with some or all of a number of other measures intended to improve the functioning of labor markets, including the elimination of minimum wage laws, a more efficient and extensive national employment service, a reduction in union membership restrictions, a reduction in discriminatory hiring, better vocational training loan programs, and better schooling in general, could go a long way in reducing structural unemployment to a desirable level. Such policies would allow the economy to move closer to a situation in which full employment was truly full employment, a situation in which minimal unemployment rates could be maintained without igniting inflationary forces.

²⁵ A geographically unrestricted wage subsidy program, the Targeted Jobs Tax Credit (TJTC) program, has been part of federal law for the past few years. Aimed at various disadvantaged groups, including welfare recipients, general assistance recipients, economically disadvantaged youth, economically disadvantaged Vietnam veterans, and economically disadvantaged ex-convicts, the TJTC program is similar in design to the disadvantaged worker tax credit contained in the administration's enterprise zone proposal. Its provisions are somewhat more modest, however. In particular, the TJTC program has a \$6,000 income eligibility limit (versus no limit in the enterprise zone proposal), and credits can be earned for two years only (versus seven years in the enterprise zone proposal). The TJTC program also appears to apply to a smaller set of individuals. The program is scheduled to continue through 1985.

The other recent experience with wage subsidies was in 1977-78, under the New Jobs Tax Credit (NJTC) program. Similar in design to the general payroll tax credit contained in the administration's enterprise zone proposal, the NJTC program granted employers tax credits for hiring additional employees. Unlike the enterprise zone proposal, however, the NJTC program was

invoked primarily as a countercyclical measure, to last only two years. For a generally favorable appraisal of its impact, see Jeffrey M. Perloff and Michael L. Wachter, "The New Jobs Tax Credit: An Evaluation of the 1977-78 Wage Subsidy Program," *American Economic Review*, May 1979, pp. 173-179. Robert Tannenwald is less enthusiastic in "Are Wage and Training Subsidies Cost Effective?—Some Evidence from the New Jobs Tax Credit," *Economic Review*, Federal Reserve Bank of Boston, September/October 1982, pp. 25-34. For a general discussion of wage subsidy programs, see Robert H. Haveman, "The Potential of Targeted Marginal Employment Subsidies," in *Marginal Employment Subsidies*, OECD, Paris, 1982.

Recent Experience with M1 as a Policy Guide

By Howard L. Roth

The narrowly defined money supply, M1, has played a changing role as a monetary policy guide in recent years. Between 1979 and 1982, M1 received considerable weight in policy deliberations because it and nominal GNP had previously been quite closely related. This relationship, however, began to diverge from historical patterns in 1982. Moreover, concern that it would be loosened further by impending deregulation led the Federal Reserve in late 1982 temporarily to “give considerably less weight to M1 in implementing policy and rely more on the broader aggregates.”¹

The reduced emphasis on M1 continued in 1983 as its behavior remained atypical.² Late in 1983, however, more normal and predictable patterns of M1 behavior appeared to be emerging. This development, if it continues, could allow an increased policy role for M1 in the future. Chairman Volcker, appearing before Congress this February, testified that “substantial weight will continue to be placed on the broader aggregates for the time being, and growth in M1 will be evaluated in the light of the performance of the other aggregates.”³

To help assess the future suitability of M1 as a policy guide, this article examines the

experiences with M1 in monetary policy in the past two years. The first section reviews the rationale for using M1 as a policy target, showing that the efficacy of targeting this measure depends on the predictability of its behavior. The second section examines the behavior of the turnover, or velocity, of M1 in 1982 and 1983. The third section reviews the Federal Reserve’s decision to deemphasize M1 in October 1982, and the next section presents other views of this decision. The last section concludes that the weight of the evidence indicates the relationship between M1 and economic activity changed in the past few years, supporting the reevaluations of the policy role of M1 that took place.

Monetary aggregate targeting and velocity

Although monetary policy aims to promote noninflationary economic growth and sustainable patterns of international transactions, the

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¹ *Monetary Policy Objectives for 1983, Summary Report*, Federal Reserve Board, February 16, 1983.

² See *Monetary Policy Objectives for 1983, Midyear Review*, Federal Reserve Board, July 20, 1983.

³ *Monetary Policy Objectives for 1984, Testimony of Paul A. Volcker*, Federal Reserve Board, February 7, 1984.

Federal Reserve does not ordinarily base month-to-month or quarter-to-quarter policy decisions on the concurrent achievement of these goals. Some of the goal variables are not measured accurately enough or soon enough. Furthermore, the reaction of goal variables to policy actions tends to be delayed and spread out over time. As a result, policy action based on values of the goal variables announced today may be counterproductive when the effects of the policy are felt three or six months from now.

Because of these limitations, the Federal Reserve sets goals for intermediate target variables. In the transmission of policy action, these variables are intermediate to the tools of policy, such as open market operations, and the goal variables of policy, such as inflation. The strategy is to determine the evolution of the intermediate variables that is consistent with the development of the goal variables being sought, and then to base policy on the attainment of the indicated course of the intermediate variables.

The Federal Reserve has relied increasingly in the last decade on monetary and credit aggregates as intermediate targets. Since the mid-1970s, the Federal Reserve has established annual targets for three or four aggregates, the target for each expressed as a range of annual growth rates believed to be consistent with the ultimate objectives of policy.⁴

During most of the time it has used monetary and credit aggregate targets, the Federal Reserve has assigned a prominent role to the narrowly defined money supply, M1. The appeal of M1 as an intermediate target is not hard to understand. Consisting primarily of currency in circulation and checkable deposits, M1 is made up almost entirely of funds that can be spent immediately. As a result, it is thought to be a measure of the public's spending intentions and, therefore, an indicator of

the general health of the economy. In contrast, the broader aggregates contain large amounts of investment funds that are less likely to reflect spending intentions. Also, most of M1, unlike the broader aggregates, is subject to reserve requirements, which enhances the Federal Reserve's control over it. Furthermore, because the demand for M1 is more sensitive to changes in short-term market interest rates than demand for the broader aggregates, the Federal Reserve can affect the level of M1 more easily through open market operations.

Table 1 lists the upper and lower growth range limits for M1 for 1980 through 1984, as reported to Congress in accordance with the requirements of the Humphrey-Hawkins Act. A general trend toward a reduction in the ranges, reflecting the Federal Reserve's effort to lower inflation through slower money growth, is obscured by adjustments made in response to financial deregulation. For example, the effective M1 range was adjusted upward in 1981 to account for the expected effect the introduction of nationwide NOW accounts would have on M1 growth. The M1 growth ranges were raised again in 1983, but the weight given to M1 in Federal Reserve decisions was reduced in response to continued financial innovation.

The rationale for using monetary and credit

⁴ The specification of a range rather than a specific number reflects two realities of monetary policy. First, the aggregates have been and likely will continue to be affected by factors largely unrelated to developments in the ultimate goal variables of policy. For example, on occasion M1 has grown more quickly than initially expected when the public has become increasingly uncertain about the health of the economy. Such growth does not reflect increased spending intentions and should not be offset by the Federal Reserve even though it may result in M1 growing more quickly than was initially thought to be consistent with the goals of policy. Second, no exact relationships exist among the various aggregates. Thus, financial deregulation has had differential impacts on the aggregates. The specification of growth ranges allows for such differential effects.

TABLE 1
Annual growth range for M1

<u>Period</u>	<u>Range</u>	<u>Actual</u>
1979:IV - 1980:IV	4.0 - 6.5	7.4
1980:IV - 1981:IV	3.5 - 6.0* (7.0 - 9.5)	2.5* (5.1)
1981:IV - 1982:IV	2.5 - 5.5	8.7
1982:IV - 1983:IV	4.0 - 8.0 †	10.0
1983:IV - 1984:IV	4.0 - 8.0	

Note: The figures given for 1980 and 1981 are for the monetary measure M1-B, a measure that corresponds to today's M1. In 1981 an adjusted M1-B series was computed to account for deposit shifts during the nationwide introduction of NOW accounts. The figures for the unadjusted series appear in parentheses.

* Adjusted for estimated deposit shifts due to the nationwide introduction of NOW accounts.

† In July 1983, the Federal Open Market Committee changed the base period for measuring M1 growth to 1983:II and raised the limits of the growth target range to 5 and 9 percent.

aggregates as intermediate targets is based on a relationship between money, output, and prices. This relationship — the equation of exchange — can be written as follows:

$$(1) \dot{M} + \dot{V} = \dot{P} + \dot{y}$$

The growth of a monetary aggregate, \dot{M} , plus the growth of velocity or turnover of the aggregate, \dot{V} , must equal the rate of inflation, \dot{P} , plus the rate of growth of real output, \dot{y} . Stated another way, the growth rates of money and its velocity must equal the growth rate of nominal output, $\dot{P} + \dot{y}$.

The basic idea behind monetary targeting is that if velocity is predictable, a target for money growth can be set to achieve any desired level of nominal output. If, for example, policymakers want nominal output growth of 10 percent in a given year and velocity growth is expected to average 3 percent, the appropriate target for money growth is 7 percent.

Predicting the growth of velocity is important in achieving desired growth in output. If

actual velocity growth turned out to be, say, 4 percent instead of 3 percent, a 7 percent target for monetary growth would lead to excessive growth in nominal output. Thus, if velocity growth is expected to be higher than normal, the Federal Reserve would need to lower its money target to keep nominal output on track. Similarly, weaker velocity growth would require that the monetary targets be raised.

Much of the recent debate over the Federal Reserve's implementation of monetary targeting reflects differing views about the behavior of M1 velocity. Some insight into the debate can be obtained by examining three categories of velocity behavior and their implications for monetary targeting. In the first case, velocity growth is assumed to be constant. In the second case, velocity growth is assumed to be not constant but predictable. In the third case, velocity growth is assumed to be neither constant nor predictable.

An assumption of roughly constant velocity growth is implicit in the Federal Reserve's program of systematic reductions in the monetary growth ranges over a period of years. If velocity growth is constant, lower money

growth will slow growth in nominal output.⁵ For example, with a constant velocity growth of 3 percent, a reduction in targeted money growth from 7 to 4 percent would be expected to reduce nominal output growth from 10 to 7 percent.

Alternatively, velocity growth might not be constant but still be predictable by standard statistical methods. Used in this sense, predictable means that the relationships between velocity and the variables thought to affect velocity have not changed. With nonconstant velocity growth, simply lowering money growth ranges year after year might not be wise. Adjustments might be needed. If, for example, velocity growth was expected to fall from 3 to 1 percent because a new type of transaction account increased the demand for money, and the Federal Reserve wanted to achieve 10 percent growth in nominal output, rigid adherence to a 7 percent monetary target would result in only an 8 percent growth in output. With this slower output growth would come higher interest rates and the danger of a recession. To prevent such an outcome, the Federal Reserve would have to raise the monetary growth target temporarily from 7 to 9 percent.⁶

Finally, velocity growth might be neither constant nor predictable. If velocity cannot be predicted, the rationale for monetary targeting breaks down. Because velocity is not constant, some adjustment in the target ranges is needed. But if velocity is not predictable, there is no obvious way of adjusting the targets. In this case, monetary targets are ineffective and potentially dangerous.

The behavior of M1 velocity in 1982 and 1983

Federal Reserve decisions to deemphasize the role of M1 in policymaking in October

1982, and to raise the M1 growth range in mid-1983 rested on a belief that financial innovations in 1982 and 1983 would cause M1 velocity to behave unpredictably. In effect, M1 velocity was seen as unpredictable enough that monetary targeting was not practical. Before examining these decisions in detail, it is useful to compare the behavior of M1 velocity in 1982 and 1983 with that of earlier periods. Chart 1 records four-quarter M1 velocity growth for each quarter between 1960 and 1983.

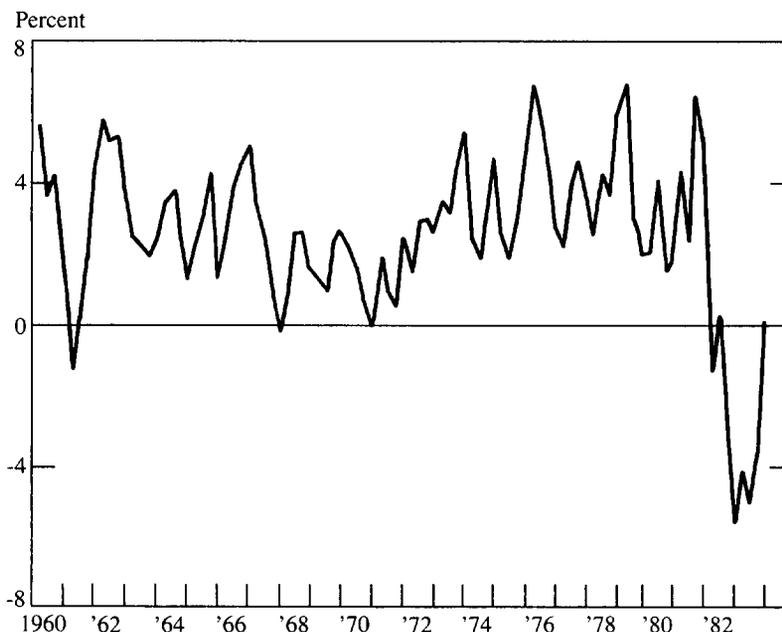
Clearly M1 velocity growth was not constant between 1960 and 1981. It ranged from -1.0 to 6.9 percent, while averaging slightly more than 3.1 percent. Although not constant, M1 velocity growth was outside two standard deviations of its average, -0.1 to 6.3 percent, in only 5 of the 88 quarters. The standard deviation of M1 velocity growth, a statistical measure of its variability, was 1.6 percent in this 22-year period.

Growth of M1 velocity was even less con-

⁵ The equation of exchange says nothing about the distribution of the reduction in nominal output growth between real output and inflation. But a key assumption behind the Federal Reserve's inflation-fighting program is that a gradual lowering of monetary growth over the course of a number of years would primarily lower inflation with little effect on real output.

⁶ An example of an accommodation of policy to nonconstant, but predictable M1 velocity growth is the adjustment made to the 1981 M1 growth range in anticipation of increased demand for M1 with the nationwide introduction of NOW accounts (See Table 1). Savers were expected to transfer funds from passbook savings accounts to the new NOW accounts. The new account, unlike the old one, would be checkable and, thus, included in M1. Thus, a transferral of funds would produce an increase in M1 which would *not* reflect increased spending plans; M1 velocity growth would be artificially depressed. To offset the depressing effect of reduced velocity growth on nominal output, the growth range for M1 was raised. For purposes of designing monetary policy, an estimate of transferred savings balances was subtracted from a transactions measure corresponding to today's M1 to obtain a shift-adjusted M1 series. Had this adjustment of policy not been made to offset the expected fall in velocity, nominal output growth for the year most likely would have been less.

CHART 1
Four-quarter growth rate of M1 velocity (1960-83)



stant in 1982 and 1983. The most prominent feature of Chart 1 is the sharp dip in 1982 and 1983. In six of the eight quarters of this period, M1 velocity growth fell below the minimum observed in the earlier period — an extremely unlikely development if, in fact, M1 velocity behavior was not changed by one or more events of the past few years.⁷

It is possible that the unusual M1 velocity behavior was caused by cyclical behavior of the economy. The economy spiraled downward in a long and severe recession for most of 1982, reaching bottom in November. Table 2 shows velocity growth around the troughs of the seven most recent recessions. For the six previous recessions, average M1 velocity growth was slightly negative in each of the two quarters preceding the trough and more

than 4 percent in each of the three quarters after the trough. Although there were exceptions, velocity has tended to be procyclical, growing less than its 3 percent average annual rate in the two quarters preceding the trough and more than 3 percent in the three quarters after the trough.

Growth of M1 velocity around the trough of the most recent recession was unusual in several respects. The most striking difference was a 6.4 percent drop in velocity in the first quarter after the trough (the first quarter of 1983)

⁷ If M1 velocity growth were a normally distributed random variable with mean and standard deviation equal to the values calculated for the 1960-1981 period, the probability of observing six quarters of M1 velocity growth as extreme as those in the 1982 and 1983 period would be much less than one in a thousand.

TABLE 2
Cyclical behavior of M1 velocity
 (seasonally adjusted annual rates of growth)

Date of Recession Trough	Quarter					
	Before Trough		Trough	After Trough		
	-2	-1	0	1	2	3
1954:II*	-6.1	-1.9	- 1.1	1.1	5.4	8.8
1958:II*	-2.5	-6.2	- 0.8	7.8	6.6	3.1
1961:I	-2.4	-2.2	0.4	5.6	4.3	7.2
1970:IV	1.7	2.1	- 4.1	8.5	-1.8	0.3
1975:I	4.2	1.3	- 1.3	3.8	8.7	7.8
1980:III	4.3	4.9	- 6.4	5.1	14.0	-2.5
Average	-0.1	-0.3	- 2.2	5.3	6.2	4.1
1982:IV	3.3	-3.4	-10.3	-6.4	1.0	1.5

*Old M1 definition used to calculate velocity.

as compared with an average gain of 5.3 percent in the previous recessions. In none of the six previous recessions did velocity fall in the first quarter after the trough. Furthermore, velocity growth in the second quarter of the current recovery was sharply lower than average second-quarter growth in previous recessions. Finally, the drop in velocity was considerably sharper than average in the quarter of the most recent trough as well as in the preceding quarter. Thus, the behavior of M1 velocity around the troughs of previous recessions clearly did not foretell velocity in 1982 and the first half of 1983.

Although the behavior of M1 velocity in 1982 and the first half of 1983 was not normal cyclical behavior, it was not necessarily unpredictable. Its behavior could have simply reflected an unusual recession and recovery. To assess this possibility, a definition of predictability is needed. One criterion is the ability of economic models to replicate the observed behavior of velocity after the fact using the actual histories of economic variables believed to affect M1 velocity. Economic theory identifies some of these variables—

spending or economic output, the overall level of prices in the economy, and rates of return on assets other than M1. If M1 velocity was predictable in 1982 and the first half of 1983, economic models that were previously reliable should be able to reproduce fairly accurately the behavior of M1 velocity when supplied with the actual values of variables thought to affect M1 velocity variables.⁸

But, as is common in economics, not all events that can affect M1 velocity are easily modeled. For example, financial innovation can produce changes in economic behavior and degrade the performance of previously reliable economic models, and maybe even invalidate them altogether. As the definition of M1 has changed over time to include more

⁸ Of course, in deciding to place less emphasis on M1 in October 1982, the FOMC did not know the future values of variables thought to affect M1 velocity. Thus, even if M1 velocity behavior in 1982 and the first half of 1983 was predictable in an after-the-fact (ex post) sense, uncertainty about the future values of variables that affect M1 velocity could have justified the deemphasis of M1. On the other hand, a verdict that M1 velocity behavior of the period was not ex post predictable would heavily support the decision to deemphasize M1.

interest-bearing transactions accounts, the interest rate sensitivity of the demand for M1 may have changed. If so, this change would have to be incorporated into economic models used in predicting velocity behavior. Otherwise, the accuracy of predictions could be expected to deteriorate. For another example, a change in the public's uncertainty about the future of the economy might affect M1 velocity behavior. If M1 is seen as a safe harbor in troubled times, its velocity would fall as uncertainty about the health of the economy increased and motivated a transfer of funds to M1. Because uncertainty is difficult to define, measure, or model, incorporating uncertainty into economic models used in predicting velocity behavior also is troublesome. For still another example, the introduction of a deposit account with limited transactions features that was not included in M1 could change M1 velocity behavior if the new account drew funds away from M1. A development like any of these examples could make M1 velocity behavior unpredictable.

Positive and accelerating M1 velocity growth in the second half of 1983 may have signaled the return of more normal patterns of velocity behavior and been instrumental in the reevaluation of the policy role of M1. The growth of M1 velocity was 1.5 percent in the third quarter and 4.1 percent in the fourth. Because the latter is comparable to growth observed in the first quarter of recoveries, the possibility that the sharp decline in M1 velocity in 1982 is related to the delay in the emergence of patterns normally observed in a recovery and expansion is being considered. Whether financial deregulation or uncertainty about the future of the economy changed the behavior of M1 velocity in the past few years is at the heart of the controversy surrounding the October 1982 decision to deemphasize M1 in monetary policy. The next section looks at

recent efforts to detect such developments.

The Federal Reserve's response to the unusual M1 velocity behavior

The Federal Reserve took several steps in 1982 and 1983 to change the emphasis it had placed on M1 in its policy deliberations. At its October 5, 1982, meeting, the Federal Open Market Committee (FOMC) decided that it would place "much less than the usual weight on . . . [M1] movements during this period and that it would not set a specific objective for its growth."⁹ In subsequent reports to Congress in 1983, the FOMC raised and widened the annual growth ranges for M1 and continued to point out that M1 was being monitored rather than targeted.¹⁰

The decision to deemphasize M1 was based on both short-term and longer term factors thought likely to affect M1 velocity. Three short-term factors concerned the FOMC in early October 1982. First, a large volume of all savers certificates would mature that month. These funds would most likely be placed temporarily in demand deposits and NOW accounts while more permanent investments were being selected. As the resulting temporary increase in M1 would reflect no increase in spending intentions, the appropriate policy response would be to allow the additional M1 growth even though it contributed to above-target growth. It would be difficult, however, to determine how much of the growth in M1 could be attributed to maturing all savers certificates. Second, beginning in

⁹ "Record of Policy Actions of the Federal Open Market Committee," *Federal Reserve Bulletin*, Board of Governors of the Federal Reserve System, December 1982, p. 764.

¹⁰ See *Monetary Policy Objectives for 1983, Summary Report* and *Monetary Policy Objectives for 1983, Midyear Review*, Board of Governors of the Federal Reserve System, February 16, 1983, and July 20, 1983, respectively.

December, depository institutions would be authorized to offer money market deposit accounts (MMDA's), interest-earning accounts free from interest rate ceilings and with limited checking privileges. These accounts, which would not be included in M1, were expected to draw funds from M1. The extent of the drain, however, would be difficult to predict. Third, financial deregulation would continue in January 1983 with the introduction of the Super NOW account — an account similar to the MMDA but with unlimited checking privileges. Because of this distinction, Super NOW's would be included in M1 and were expected to attract funds to M1. Again, the magnitude of the effect on M1 was difficult to predict.¹¹

Beyond these expected short-term effects of financial deregulation on M1 velocity, the Federal Reserve suspected that another longer term influence might already be affecting M1 velocity in October 1982. After slowing slightly in early summer, M1 growth had increased rapidly in August and September. Some of this growth was thought to be attributable to a buildup of precautionary balances in M1 as the often-predicted recovery failed to materialize — a short-term influence. More important, the nationwide introduction of NOW accounts in 1981 was thought to have increased the market rate sensitivity of the demand for M1. If NOW account balances were affected more by changes in market rates than either demand deposits or currency, the faster growth of NOW account balances than other components of M1 in recent years increased the interest sensitivity of M1 velocity.¹² The dip in M1 velocity in 1982 could

have been due partly to a greater than expected buildup of NOW account balances as short-term interest rates fell in the summer and fall.

One explanation for why NOW accounts might be more interest-sensitive involves the opportunity costs of holding funds in the different components of M1. Because interest is paid on NOW account balances, the opportunity cost of holding transactions balances in NOW accounts is less than in holding noninterest-bearing demand deposits or currency. It follows that a change in market rates affects the opportunity cost of holding NOW account balances proportionately more than the opportunity cost of holding demand deposits and currency. For example, if the rate paid on NOW account balances is 5.25 percent, a drop in short-term market rates from 10.25 to 8.25 percent reduces the opportunity cost of holding NOW accounts from 5 to 3 percent — a reduction of 40 percent. On the other hand, the opportunity cost of holding currency and demand deposits is reduced from 10.25 to 8.25 percent — a reduction of less than 20 percent. If holdings of NOW account transactions balances are as responsive to changes in opportunity cost as currency and demand deposits, a change in market rates affects NOW account transactions balances proportionately more than currency and demand deposit holdings.

The research staff of the Board of Governors of the Federal Reserve explored the possibility that the nationwide introduction of NOW accounts in 1981 had made M1 velocity more sensitive to market interest rates.¹³ New equations were estimated for each of the major

¹¹ Because the introduction of Super NOW's would not affect M1 growth in 1982, the FOMC was less concerned about this development than the maturation of all savers certificates and the introduction of MMDA's.

¹² In December 1980, NOW account balances totaled less than \$15 billion, less than 4 percent of M1. By December 1982, these balances exceeded \$85 billion, more than 17 percent of M1.

components of M1 — currency, demand deposits, and other checkable deposits.¹⁴ In addition, the effects of disaggregating demand deposits into household and business components were explored. This research indicates that the demand for other checkable deposits is more sensitive to changes in market interest rates than demand deposit holdings. Disaggregation of demand deposits into household and business components also appears to help account for the public's demand for M1.¹⁵ The new specifications explain M1 velocity in 1982 and the first quarter of 1983 much better than the old equations.

If the velocity of M1 has, in fact, become more sensitive to changes in short-term market interest rates, the relationships between M1 and the goal variables of policy have most likely changed. More time may have to pass, however, before enough data are available to ascertain thoroughly the effects of financial deregulation on M1 velocity. This line of research, though preliminary, suggests continued difficulty in the strict use of M1 targeting.

Other views of M1 velocity in 1982 and 1983

Others have argued that M1 velocity in 1982 and 1983 was predictable. These analysts believe the Federal Reserve used an inaccurate model of velocity behavior and that

¹³ See Flint Brayton, Terry Farr, and Richard Porter, "Alternative Money Demand Specifications and Recent Growth in M1," Board of Governors of the Federal Reserve System, May 23, 1983.

¹⁴ NOW account balances are the major component of other checkable deposits.

¹⁵ Another study that found benefits from disaggregating demand deposits into household and business components is reported by Lawrence J. Radecki and John Wenninger, "Shifts in Money Demand," *Quarterly Review*, Federal Reserve Bank of New York, Summer 1983, pp. 1-11.

deregulation and financial innovation have not significantly affected M1 velocity. At the same time, however, their views regarding the policy implications of the Federal Reserve's decision to deemphasize M1 tend to conflict. Some believe the Federal Reserve was right in not overreacting to the unusually rapid growth of M1 in late 1982 and early 1983. Others believe the decision to deemphasize monetary targeting led to excessive monetary growth with potentially serious consequences for inflation.

The staff of the Federal Reserve Bank of San Francisco has argued that the decline of M1 velocity in 1982 was predictable and attributes the decline to a drop in inflation and short-term interest rates in 1982.¹⁶ The decline in M1 velocity in the first half of 1982 is ascribed to a fall in inflationary expectations that depressed output. The decline in the second half is attributed to an increase in desired money holdings as short-term market rates fell.

This explanation conforms to economic events in 1982. By most measures, inflation moderated in the first half of that year, while market interest rates remained relatively high. To the extent that inflationary expectations reflected this decline in inflation, real interest rates (market rates minus expected inflation) rose. Because increases in real interest rates have a depressing effect on interest-sensitive sectors of the economy, the decline in inflation in early 1982 may have depressed output, thus lowering velocity. In the second half of the year, a sharp decline in market interest rates substantially reduced the opportunity cost of holding transactions balances. The faster growth of M1 in the second half of 1982 and

¹⁶ See Michael W. Keran, "Velocity and Monetary Policy in 1982," *Weekly Letter*, Federal Reserve Bank of San Francisco, March 18, 1983.

the attending fall in velocity could have been attributable to the decline in short-term rates.

A monthly money market model developed by the San Francisco bank explains M1 velocity in 1982 quite well.¹⁷ Separate equations have been estimated for currency, demand deposits, and other checkable deposits. The demand deposit equation includes the change in bank loans, an additional variable to those found in the conventional money demand equation. This variable reflects the bank's view that transactions balances act as a buffer stock between receipts and spending. Changes in demand deposits, as loans are extended or called, are assumed not to be offset immediately because of costs involved in adjusting demand deposit balances.

The success of the San Francisco model in tracking M1 velocity in 1982 apparently can be attributed to an interest sensitivity of money demand higher than most other models. This property might be due to the recent period over which the model is estimated — August 1976 to December 1981 — or it might be due to the change-in-loans variable in the demand deposit equation. Results of model simulations conducted by the San Francisco bank's staff not only support their hypothesis that M1 velocity was not erratic in 1982, but also suggest that financial deregulation of the past few years has not affected the interest sensitivity of M1 velocity. The latter conclusion was reached by observing only minor changes when data from the past few years is excluded in estimating the model. This is in marked contrast to the Federal Reserve Board staff's explanation that an increase in the interest sensitivity of M1

¹⁷ See John P. Judd, "The Recent Decline in Velocity. Instability in Money Demand or Inflation?" *Economic Review*, Federal Reserve Bank of San Francisco, Spring 1983, pp. 12-19.

velocity is the cause of much of the decline in M1 velocity in 1982.

Although the relatively high interest sensitivity of money demand in the San Francisco model may have contributed to its successful accounting for M1 velocity behavior in 1982, the same feature may have been a handicap in predicting 1983 M1 velocity behavior. The model overpredicted M1 velocity growth in the first two quarters of 1983 and substantially underpredicted M1 velocity growth in the third quarter.¹⁸

Some of the policy implications of the results obtained with the San Francisco model are different from those derived from the board staff's research. If, as the San Francisco staff maintains, the velocity of M1 was predictable throughout the past three years of financial deregulation, the reliability of M1 as a monetary policy guide has not been impaired. If this is so, more emphasis should be placed on M1 in the conduct of monetary policy, particularly if M1 velocity behaves more normally in the period ahead. On the other hand, the analyses of the staffs of both the San Francisco bank and the Federal Reserve Board suggest that the rapid growth of M1 in 1982 and the first quarter of 1983 did not reflect increased spending plans and, therefore, was not inflationary. Research by the San Francisco bank's staff indicates that the growth of M1 will have to slow substantially in the years ahead to hold the underlying rate of inflation near 5 percent.¹⁹

¹⁸ In searching for an explanation for the mixed performance of the San Francisco model, researchers have raised theoretical and statistical questions about the way the change in loans variable enters the demand deposit equation. The ability of the model to account for 1982 M1 velocity behavior and the conclusion that the interest sensitivity of M1 velocity was not materially affected by the financial deregulation of the past few years are both susceptible to what appear to be logical changes in the way the change in loans variable enters the demand deposit equation.

In evaluating the predictability of M1 velocity, other critics of the Federal Reserve's decision to deemphasize M1 have proposed alternative definitions of velocity that they believe were more predictable in 1982 and 1983 than the conventional measure.²⁰ For example, Milton Friedman and others suggest current nominal GNP divided by the money stock two quarters past.²¹ The reason for this new measure, sometimes called leading velocity, is the tendency for changes in M1 to precede changes in nominal GNP by six to nine months. Thus, changes in M1 today should be related more closely to changes in nominal GNP two quarters from now than they are to changes in current nominal GNP.

Unfortunately, lagging M1 two quarters in calculating its velocity provides little insight into the puzzling behavior of conventional M1 velocity in 1982 and early 1983. The leading velocity measure followed much the same pattern as the conventional measure from early 1960 through 1981, growing at an average annual rate of about 3 percent.²² Unlike the conventional measure, however, leading velocity declined only slightly from the fourth quarter of 1981 to the fourth quarter of 1983. This decline, particularly its duration, is a significant change from past behavior. Furthermore, an analysis of the behavior of leading

velocity in the quarters neighboring the troughs of the seven most recent recessions (reported for the conventional definition in Table 1) reveals leading velocity to be no less puzzling in the most recent period. In the first quarter of the current recovery (the first quarter of 1983), leading velocity grew at an annual rate of 1.8 percent. In the second and third quarters, leading velocity fell 0.4 and 2.8 percent, respectively. For the six preceding recoveries, the corresponding growth rates had averaged 10.0, 6.3, and 3.9 percent, respectively.

Other redefinitions of velocity have been prompted by sharp swings in inventory investment at turning points of business cycles that tend to exaggerate the variability of M1 velocity. John Tatom suggests that since inventory fluctuations are hardly susceptible to control by monetary policy, final sales (nominal GNP minus inventory investment) divided by M1 may be more appropriate than the conventional measure of M1 velocity for assessing monetary policy.²³ Although this measure appears to have departed less from the historical norm in 1982 and early 1983 than the conventional measure, some discrepancies remain. More generally, this approach to explaining M1 velocity by redefining the measure is questionable. Some redefinition could probably be found to "explain" any episode of unusual behavior of the conventional definition.

More substantive than these efforts to redefine M1 velocity is an approach that entails direct statistical modeling and simulation of M1 velocity behavior.²⁴ Rather than infer velocity behavior from statistically estimated

¹⁹ See John P. Judd and Rose McElhattan, "The Behavior of Money and the Economy in 1982-83," *Economic Review*, Federal Reserve Bank of San Francisco, Summer 1983, pp. 46-51.

²⁰ See Milton Friedman, "Why a Surge of Inflation is Likely Next Year," *Wall Street Journal*, September 1, 1983, p. 18, Robert L. Hetzel, "The Relationship Between Money and Expenditure in 1982," *Economic Review*, Federal Reserve Bank of Richmond, May/June 1983, pp. 11-19, and John A. Tatom, "Was the 1982 Velocity Decline Unusual?" *Review*, Federal Reserve Bank of St. Louis, August/September 1983, pp. 5-15.

²¹ This contrasts with the normal definition of M1 velocity in which current quarter GNP is divided by current quarter M1.

²² For such a graph, see Friedman, "Why a Surge of Inflation."

²³ Tatom endorses final sales; Hetzel uses final sales to domestic purchasers (net sales minus net exports).

²⁴ See Tatom, "Was the 1982 Velocity Decline Unusual?"

equations of the demand for M1 and other behavioral relationships, the direct approach involves substituting a reduced-form expression for nominal output growth into the equation of exchange and solving for velocity growth. This yields an equation for velocity growth in terms of M1 growth, government expenditures, interest rates, and other variables thought to affect growth in nominal output.²⁵ This expression for M1 velocity growth is estimated directly.

There has been some success in reproducing the changes in M1 velocity in 1982 and early 1983 with these reduced-form velocity equations. This success supports the proposition that M1 velocity during this period was predictable beforehand and seems to suggest that the fall in its velocity was not caused by financial deregulation. Unfortunately, reduced-form expressions cannot be used to identify and quantify individual influences. As a result, more than one explanation for a change in velocity could be consistent with an estimated reduced-form equation. Beyond that, estimation of reduced-form expressions presents some statistical problems, and the interpretation of the estimated forms may not be unambiguous. In the present case, it is easy to forget that M1 growth is most likely influenced by nominal output growth and, therefore, to assert that the recent unusual behavior of M1 velocity was caused by volatile M1 growth.

Nevertheless, the conclusion drawn from these experiments is that the decline in M1 velocity in 1982 was predictable, and that it was not the result of a shift in the demand for M1. If that is so, the rapid growth in M1 in the second half of 1982 and first half of 1983 could precede a significant worsening of infla-

tion. The obvious policy implications of the reduced-form approach are that M1 should be restored as an important determinant of monetary policy and that a concerted effort should be made to prevent a reoccurrence of such rapid M1 growth.

Summary and conclusions

For M1 to be a useful guide for monetary policy, the relationship between M1 and the ultimate goals of policy must be reliable. That is, the behavior of M1 that is consistent with the attainment of the ultimate goals of policy must be ascertainable. In short, M1 must be predictable.

Concern about the effects of financial deregulation on the predictability of M1 behavior led the FOMC to place considerably less emphasis on M1 in designing monetary policy in late 1982 and 1983 than in the previous three years. The belief that M1 was beginning to behave more predictably recently convinced the FOMC that M1 should play a more important role in monetary policy in 1984 than it had in late 1982 and 1983. And the usefulness of M1 in the conduct of monetary policy in the years ahead likely will continue to depend on the predictability of its behavior.

Some analysts are not convinced that the predictability of M1's behavior was impaired by the financial deregulation of the past few years. Thus, the FOMC's decision to reduce the emphasis on M1 in late 1982 and 1983 has generated some controversy. This article reviewed a number of efforts at assessing the predictability of M1 in 1982 and 1983. Research conducted by the staff at the Federal Reserve Board suggests that financial deregulation, particularly the nationwide introduction of NOW accounts, may have significantly increased the interest sensitivity of M1 veloc-

²⁵ Reduced form indicates that the expression for nominal GNP is implied by an unspecified model of the economy.

ity, implying that M1 velocity was unstable in 1982. On the other hand, a model constructed by the research staff of the Federal Reserve Bank of San Francisco was able to account for the behavior of M1 velocity quite well in 1982, suggesting that the M1 velocity has not been appreciably affected by the financial deregulation of the past few years. In addition, research on M1 velocity behavior with the reduced-form equation approach has been successful in reproducing some, although not all, of the 1982 velocity decline.

Determining which is the case is important for two reasons. First, M1 grew rapidly late in 1982 and in the first half of 1983 when it was deemphasized. If, in fact, the relationship between M1 and the goal variables of policy was not altered by the financial deregulation of this period, the rapid growth of M1 could have adverse inflationary consequences. Second, financial deregulation will continue. For example, the rate payable on regular NOW account balances will be deregulated before the end of 1986. If financial deregulation has reduced the predictability of M1 behavior in the past few years, it could happen again in the next few years. Assessing the effects of past financial deregulation on the predictability of M1 should aid decisions about the correct emphasis to place on M1 in the future.

It would be surprising if the considerable financial deregulation of the past few years has not affected the relationships between M1 and the goal variables of policy. The initial results of subsequent research suggest that this has been the case. Until this can be determined with more certainty, a continuation of the flexible approach to monetary targeting of the past few years seems prudent.

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