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Editor's Note

In economics, the questions are always the same but the answers (sometimes) change. How to prevent and resolve sovereign debt crises has long been an important topic for the IMF's work, and it has gained renewed prominence with recent crises in emerging markets as well as the debate on a possible sovereign debt restructuring mechanism and other approaches to creditor coordination. *Sovereign Bonds and Public Debt Management* summarizes IMF research on a variety of sovereign bond features, including indexation mechanisms, currency composition, maturity structure, and collective action clauses.

Article I of the IMF's Articles of Agreement states that one of the IMF's purposes is to facilitate the expansion and balanced growth of international trade. Thus the summary on *International Trade* provides an update on recent research on another topic that has been with us for a long time and permeates all aspects of the IMF member countries' economic policy and performance.

The country study in this issue focuses on *Sweden*, the economics of the welfare state, and the aerodynamics of bumblebees.

—Paolo Mauro

Research Summaries

Sovereign Bonds and Public Debt Management

By Torbjörn Becker

Managing the public debt to minimize its costs and risks to society is key to debt sustainability, efficiency, and intergenerational welfare trade-offs. Appropriate debt management can also help promote a country's securities markets. This article reviews recent IMF research on sovereign bond features and public debt management practices aimed at reducing the likelihood of crises, improving risk sharing, and fostering financial development. (continued on page 2)

International Trade

By Stephen P. Tokarick

Thirty years ago, it was not uncommon to analyze economic developments within or across countries without much reference to international trade. That's no longer the case. Globalization has prompted many countries to attach greater importance to the role of international trade in the process of economic development. World trade flows have grown faster than GDP over the last several decades, making it virtually impossible for individual countries to escape the consequences of world developments. This article selectively surveys recent IMF research on trade issues in three broad areas: (1) the effects of trade and trade policies; (2) the relationship between trade, growth, and inequality; and (3) the effects of trade liberalization in financial services. (continued on page 5)

In This Issue

IMF's New Economic Counsellor

Raghuram Rajan will be the IMF's next Economic Counsellor and Director of the Research Department, succeeding Kenneth Rogoff, who is returning to academia in the fall of 2003. Rajan's most recent appointment was as Professor of Finance at the University of Chicago Graduate School of Business. Rajan, 40, and an Indian national, has been the Program Director for Corporate Finance at the National Bureau of Economic Research, a Director of the American Finance Association, an Associate Editor of the *American Economic Review*, and a consultant at the U.S. Federal Reserve Board, the World Bank, the IMF, and several financial institutions. In January 2003, he received the American Finance Association's inaugural Fisher Black Prize—an award given to a person under 40 who has contributed the most to the theory and practice of finance.

Sovereign Bonds and Public Debt Management

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In many countries, the debt managers' primary objective of securing funds to finance the government deficit is complemented by objectives of minimizing the costs and risks of the debt portfolio, and promoting financial development and efficient markets. The main focus of the public debt management (PDM) literature is on how debt managers should select instruments and maturities to minimize costs and risks, though it also discusses several of the other objectives. This summary opens with a brief overview of theoretical models of optimal debt portfolios and the empirical support for such models. Later, it discusses issues related to promoting well-functioning securities markets and some practical considerations for debt managers, before concluding with a short discussion of legal features of bond contracts.

Theoretical models on the optimal choice of instruments and their maturities usually focus on hedging motives and time inconsistencies or signaling considerations. The models typically assume that government (noninterest) expenditure and the tax base follow exogenous (stochastic) processes and that the distortions from taxation grow quadratically with the tax rate. These assumptions lead to the standard tax smoothing objective of PDM. The instruments in the portfolio are chosen such that the real value of interest payments on the debt portfolio is negatively correlated with the primary deficit to avoid changes in the tax rate. Optimal portfolio shares are therefore a function of the variance-covariance structure of the shocks in the model—typically shocks to inflation, the exchange rate, and the tax base.

The problem can be turned around to ask, What is the optimal instrument? Barro (1995) shows that perfect tax smoothing can be achieved by issuing perpetual debt contingent on the primary deficit. Since the government finances all current and expected future deficits today, all shocks to the budget and interest rates are perfectly hedged. This type of instrument also prevents unsustainable debt dynamics in the future. Severe moral hazard problems would prevent the use of debt contingent on the primary deficit. Thus, the debt manager has to rely on indirect hedges to reduce the variability in tax rates: Barro (1995) suggests that debt indexed to the tax base or GDP would be a partial move toward the optimal instrument. Borensztein and Mauro (2002) develop the case for adding GDP-indexed bonds to the debt managers' toolbox to foster international risk sharing and reduce the likelihood of debt crises. The authors argue that the premiums on such bonds compared with plain vanilla instruments could be small, because cross-country growth rate risks are largely diversifiable.

The government's ability to issue nominal debt as a hedge can be limited by uncertainties about the government's preferences for inflation and the lack of commitment devices that prevent inflation surprises. Price-indexed debt or foreign-currency-denominated debt may thus be issued despite their tendency to make the deficit more volatile and default more likely (Drudi and Prati, 1997; Goldfajn, 1998).

Becker (1999) and Jeanne (2003) modify and extend the standard model. Becker adds the potential costs of bailing out the private sector and shows that both the level and composition of private sector debt influence the optimal public debt portfolio. Jeanne presents a model where the currency composition of debt is chosen to minimize the probability of default. He shows that the less credible monetary policy is, the more foreign-currency-denominated debt will be issued—a theoretical prediction that he finds to be supported by cross-country data.

A number of papers have looked at the empirical support for the theoretical results. Goldfajn (1998) finds that changes in the use of inflation-indexed bonds in Brazil are consistent with theoretical predictions, whereas the increase in foreign currency debt is not. De Fontenay, Milesi-Ferretti, and Pill (1997) discuss the role of foreign currency debt in public debt management in a number of OECD countries and document a positive association between the share of debt in foreign currency and the yield spread between domestic and foreign currency borrowing. Drudi and Prati (1997) present empirical evidence that foreign-currency-denominated debt reduces inflation differentials but increases default premiums. Detragiache and Spilimbergo (2003) suggest that the observed correlation between short-term debt and crises may simply reflect countries' difficulties in issuing long-term debt when crises look likely. They thus introduce a note of caution to earlier proposals that had suggested that policymakers should discourage short-term borrowing.

Additional objectives for public debt management include promoting well-functioning securities markets and providing instruments for monetary policy. Price (1997) presents arguments for inflation-indexed bonds that go beyond cost and risk minimization of public debt. De Broeck, Guillaume, and Van der Stichele (1998) conclude that moving away from relationship financing and introducing options and futures on government bonds contribute to more efficient bond markets. Arnone and Iden (2003) suggest that primary dealers help improve debt markets. Rossi (1998) argues that the cost of debt can be reduced by avoiding debt auctions at times when news about important macroeconomic variables is to be released.

Practical guidelines for debt managers have been produced by the IMF and the World Bank (2001). Drawing on an extensive set of country studies, the *Guidelines for Public Debt Management* note that a host of country-specific factors, such as fiscal policies, monetary policies, and the degree of financial sector development, are important in determining appropriate PDM arrangements. Cassard and Folkerts-Landau (1997) stress the importance of transparency and accountability and make a case for independent debt management offices with clear benchmarks for performance evaluation.

Several papers deal with the special challenges that face debt managers in low income countries, emerging markets, and Islamic countries. Bangura, Kitabire, and Powell (2000) provide practical advice for debt managers in low income countries, including on how to create an appropriate institutional framework and improve data collection. Gray and Woo (2000) argue that the costs and risks of external borrowing for emerging markets are often understated. De Mello and Hussein (2001) provide evidence that the currency composition of public debt in a number of emerging market countries is not optimal. Sundararajan, Marston, and Shabsigh (1998) discuss the use of instruments with returns contingent on the performance of projects—similar to equity—that are especially interesting for Islamic countries.

Books from the IMF

Sweden's Welfare State: Can the Bumblebee Keep Flying?

Subhash Thakur, Michael Keen, Balázs Horváth, and Valerie Cerra

The Prime Minister of Sweden, Göran Persson, once compared the Swedish welfare state to a bumblebee. Given its "overly heavy body and little wings," aerodynamicists marvel at how the bumblebee, which should not be able to fly, does. Similarly, he implied, economists (the butt of the joke, as usual) marvel at the success of the Swedish welfare state.

It turns out in fact that aerodynamicists have a pretty good idea of how the bumblebee flies. In the same spirit, *Sweden's Welfare State: Can the Bumblebee Keep Flying?* tries to understand how the Swedish economic system has delivered such a high quality of life for its people. The book asks whether the Swedish state can continue to do so while facing demographic pressures in an increasingly globalized world, and what lessons the Swedish experience holds for other countries.

Reflecting the broad range of ways in which the government affects the Swedish economy, *Sweden's Welfare State* covers a breadth of topics, including the macroeconomic framework adopted in the 1990s; the impact of the welfare state on growth; labor market interventions; the effect of tax and spending policies on incentives to work, save, and invest; and the consequences for fairness and the relief of poverty. The picture that emerges is of a complex interplay among institutions, incentives, and social consensus. Sweden faces challenges that are real but—with measures of the kind proposed in the book—can be weathered to "keep the bumblebee flying."

Finally, in the context of the debate on the relative merits of a sovereign debt restructuring mechanism and contractual approaches, many studies have asked whether the legal features of sovereign bond contracts have important implications for crisis resolution. (The case for a sovereign debt restructuring mechanism has been made by Krueger, 2002. For an extensive survey of the literature, see Rogoff and Zettelmeyer, 2002.) In particular, research has focused on collective action clauses (CACs) in bond contracts, where the benefit from less costly restructuring has to be weighed against the risk of more frequent defaults. Eichengreen and Mody (2000) and Eichengreen, Kletzer, and Mody (2003) have argued that, for low-rated borrowers, the moral hazard concern would dominate, but for high-rated borrowers, the opposite is true, and they provide empirical support for this hypothesis. Becker, Richards, and Thaicharoen (2001), however, find no evidence of CACs increasing borrowing costs for either high- or low-rated borrowers.

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International Trade

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Effects of Trade and Trade Policies

Does trade reform—often seen as a key component of structural reform—tend to improve welfare and growth? Does it also help the reforming country's trading partners? A number of studies have demonstrated that trade barriers are quite costly to the countries that impose them. Wang (2001) investigated the impact of tariffs and nontariff barriers (NTBs) on imports of manufactured goods across 70 countries. He finds that a 1 percentage point increase in a tariff rate reduces imports by 2 percent, and that NTBs also significantly reduce imports. Tokarick (2003) used a general equilibrium trade model to show that the cost of support provided to farmers in Organization for Economic Cooperation and Development (OECD) countries is substantial. He finds that if all OECD countries removed support to their agricultural sectors—both tariffs and subsidies—world welfare would increase by about US$100 billion (in 1997 dollars), with about 92 percent of these gains going to the advanced countries themselves. Li (2003) finds that trade liberalization has an important impact on real exchange rates. Real exchange rates generally depreciate after a country opens to trade, although there is evidence to suggest that noncredible liberalizations lead to real-exchange-rate appreciations.

A number of studies have evaluated the progress in trade liberalization on a regional basis. For the Caribbean region, Egoume Bossogo and Mendis (2002) find that greater integration among countries in the Caribbean common market (CARICOM) has stimulated both intraregional trade and trade between CARICOM countries and those outside the region. For the Middle East and Africa, the picture is a bit different. Al-Attrash and Yousef (2000) find that there is considerable scope for expanding intra-Arab and Arab trade with the rest of the world, using a gravity model. Blavy (2001) reaches a similar conclusion regarding trade in the Mashreq region (Egypt, Jordan, Israel, Lebanon, and Syria). Subramanian and Tamirisa (2001) find that Africa, especially Francophone Africa, is underexploiting its trading opportunities, that is, trading less than would be predicted from a gravity-type model.

One way that advanced countries have often tried to spur development in poor countries is to grant trade preferences to these countries, often in the form of lower tariffs applied to their exports. Mattoo, Roy, and Subramanian (2002) examined how the African Growth and Opportunity Act (AGOA), which offers trade preferences to certain African exports to the U.S. market, would affect Africa. They concluded that the benefits to Africa could be large, but these benefits would be diminished by the onerous rules of origin that are part of AGOA.

All of the above studies examined the effects of trade policies in a static context. Recent contributions to trade theory have emphasized that changes in trade policies can lead to dynamic gains, through changes in productivity, technological change, and induced investment. Jonsson and Subramanian (2000) studied episodes of trade liberalization in South Africa since the early 1970s. They found evidence that trade liberalization contributed significantly to the growth process by raising total factor productivity (TFP).

Visiting Scholars at the IMF, January–March 2003

Christopher Adam; University of Oxford, United Kingdom

Jushan Bai; New York University

Ernest Bamou; University of Yaoundé, Cameroon

Graham Bird; University of Surrey, United Kingdom

Michael Bordo; Rutgers University

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Fabio Ghironi; Boston College

Pierre-Olivier Gourinchas; Princeton University

Joseph Joyce; Wellesley College

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Graciela Kaminsky; The George Washington University

Yevgeniya Kornienko; National Bank of Ukraine, Ukraine

Peter Maina; University of Nairobi, Kenya

Nancy Marion; Dartmouth College

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Christopher Meissner; Cambridge University, United Kingdom

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Stephen O'Connell; Swarthmore College

Sawa Omori; University of Pittsburgh

Sergio Rebelo; Northwestern University

Andrew Rose; University of California, Berkeley

Massimo Sbracia; Bank of Italy, Italy

Christopher Sims; Princeton University

Barbara Stallings; Watson Institute, Brown University

Alex Taylor; Cambridge University, United Kingdom

Mark Taylor; Warwick University, United Kingdom

Robert Townsend; University of Chicago

Eric van Wincoop; University of Virginia

Yishay Yafeh; The Hebrew University, Israel

Trade, Growth, and Poverty

The relationship between greater openness to trade and rising income inequality, notably in advanced countries, has received a great deal of attention in recent years, partly because of the rapid increase in trade flows between industrial and many low-wage, developing countries in the 1980s and 1990s. Some researchers argue that the rapid rise in imports from low-wage countries has reduced the wages of unskilled workers relative to skilled workers in industrial countries. Tokarick (2002) decomposed the change in the skilled-unskilled wage gap in the United States between 1982 and 1996 into the portions that were attributable to changes in trade policy, factor supplies, and technology. Differences in the degree of skill-biased technical change across sectors is the main factor underlying the observed change in the wage gap in the United States; changes in trade policies had very little influence on the observed wage gap. When developments in a nontraded sector are considered, an expansion in trade, through a reduction in trade barriers, could narrow the wage gap. Bannister and Thugge (2001) study the link between trade reform and poverty and note that trade liberalization has an overall positive effect on the employment and income of the poor, but there may be winners and losers.

The relationship between trade, growth, and poverty has been the subject of heated debate in recent years. In a comprehensive survey of the literature, Berg and Krueger (2003) consider the effects of openness on both average income growth and the distribution of incomes for a given growth rate. The authors reach three conclusions: (1) a wealth of evidence supports that the principal cause of changes in absolute poverty is changes in average per capita income; (2) openness to trade is an important determinant of growth; and (3) growth associated with trade liberalization does not adversely affect the poor to any greater degree than growth in general does. Brunner (2003) argues that it is important to distinguish between the effects of trade openness on the *level* of income and on the *growth rate* of income. Using a panel data model, and instrumental variables to allow for trade and income being endogenous variables, he finds that a 1 percentage point change in trade is associated with a 1 percentage point change in average income, a finding that is significantly different from zero and robust to changes in alternative econometric specifications. Nonetheless, the estimated impact of trade on income growth is small and not robust to model specification. Rodrik, Subramanian, and Trebbi (2002) find that institutions are more important than trade or geography in influencing long-run levels of income, with the positive impact of trade felt through its role in improving institutional quality.

Trade and Financial Sector Policies

As the various crises in recent years have shown, developments in a country's financial sector can be transmitted to the real economy through financial intermediation and to other countries through international trade linkages. There is a large body of work on this issue, including Berger and Wagner (2002), Caramazza, Ricci, and Salgado (2000), and Imbs (2003). Recent IMF research on financial sector liberalization has largely focused on three issues: (1) the channels through which financial sector liberalization affect a country's financial stability, (2) the effects of financial sector liberalization on the macroeconomy, and (3) the proper sequence of liberalization of financial services with other types of liberalization. A general conclusion is that trade liberalization could complement other financial reforms by enhancing the efficiency and quality of financial services (see, e.g., Tamirisa and others, 2000).

In two papers, Kireyev (2002a, 2002b) investigates the link between the liberalization of financial services across countries and the stability of their financial systems. He concludes that financial sector liberalization has generally promoted financial sector stability and should be seen as an efficient policy instrument for achieving a variety of macroeconomic goals. Valckx (2002) is cautionary though he reaches similar conclusions. He finds that financial sector liberalization may be associated with increased vulnerability to currency and banking crises—a short-term effect—that is attenuated over time as the effects of greater efficiency and resource allocation take hold.

Bhattacharya (2000) studies the different effects of financial sector liberalization depending on whether the capital account is open or closed. In the context of her general equilibrium model, she finds that when the capital account is open, financial sector liberalization leads to an increase in investment in the traded sector and exchange rate appreciation, while investment in the nontraded sector remains unaffected. This appreciation could offset some of the expansion in trade flows following a liberalization of trade in goods and, therefore, trade and financial sector reforms should not be undertaken simultaneously. Rather, she suggests that financial sector reform should be delayed until the traded sector can absorb the exchange rate appreciation.

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Deflation: Determinants, Risks, and Policy Options

Manmohan S. Kumar, Taimur Baig, Jörg Decressin, Chris Faulkner-MacDonagh, and Tarhan Feyzioğlu

This study presents the IMF staff's analysis of the causes, consequences, and risks of deflation. It develops a novel methodology for assessing and quantifying deflation risk and applies it to a wide range of industrial and emerging market economies. The following are the main findings:

- Deflation is seldom benign and it is difficult to anticipate. Historically, deflation generally muted growth prospects, although its most severe effects were felt mainly during the Great Depression.
- There is only a relatively small risk of global deflation or of a deflationary spiral, but, according to an *Index of Deflation Vulnerability,* there are increasing risks of a period of falling prices in some major economies and in several smaller ones. The risks occur against a background of postwar low inflation rates, large output gaps, the bursting of the equity price bubble, banking sector stresses in some economies, and declining credit growth.
- Policies can be effective in warding off deflation, but only if preemptive, forceful, and sometimes unconventional steps are taken. It is better to prevent deflation than to try to cure it, and monetary policy must take the lead. Since the risks of deflation are asymmetric, policy must be attuned to deflationary impulses in a low inflation environment. Further, because these impulses can impede the monetary transmission mechanism, aggressive action is required. At the zero bound on nominal interest rates, unorthodox measures may be needed. Stimulatory fiscal policies and structural reforms, particularly those improving credit intermediation, can play an important complementary role.

Country Study

Sweden

Valerie Cerra

The Swedish authorities responded to the lessons of the exchange rate mechanism (ERM) and banking crises of the early 1990s by introducing well-designed frameworks for monetary and fiscal policy, and by strengthening banking regulation and supervision. An economic boom in the 1990s helped restore financial sector soundness and contributed to the buildup of fiscal surpluses. Nevertheless, the Swedish welfare state faces challenges from longer-term pressures stemming from globalization, demographic transition, and integration with the rest of Europe, as well as from the threat of lower potential growth. This article summarizes recent IMF research on the key features of Sweden's policy framework and economic developments.

Sweden has long been regarded as the epitome of the modern welfare state, which is characterized by large income transfers, centralized institutions, and an activist government with a political mandate for extensive intervention in market processes. The question of whether the welfare state has had an adverse impact on growth and other aspects of economic performance remains controversial. A new book by Thakur and others (see sidebar on p. 3) analyzes the main features of the Swedish economic model and its key achievements. It also asks whether the Swedish model can survive the challenges arising from the forces of globalization, European integration, and demographics.

Sweden introduced comprehensive fiscal reforms over the decade following the banking crisis. A comprehensive tax reform in 1991 significantly broadened the tax base, markedly lowered the highest marginal income tax rates, and established a dual income tax system that separates the flat tax on capital from progressive labor taxes. A far-reaching pension reform was undertaken in recent years to address the fiscal impact of the prospective aging of the population and decline in labor participation rates in the coming decades (Arnason, 1998; Thomas, 1999b). The new pension scheme includes a public pay-as-you-go (PAYG) component with large associated buffer funds, a fully funded defined-contribution component, and an automatic balancing mechanism that ensures that the system remains able to meet its obligations with fixed contribution rates. The authorities also introduced a medium-term fiscal framework consisting of three fiscal rules: a surplus target of 2 percent of GDP for the general government over the economic cycle, nominal central government expenditure ceilings set three years in advance, and a balanced budget requirement for local governments.

The fiscal framework has contributed to outcomes that have been among the best in Europe in recent years. Its design has been the subject of much recent IMF research and policy advice. The flexibility of the rules for engaging in stabilization policy has been hotly debated in Sweden in the run-up to a referendum on membership in the European Monetary Union (EMU). Schimmelpfennig (2002) concludes that the current surplus target is set at a level consistent with sustainable public debt dynamics and offers considerable room for stabilization policy in the event that Sweden joins the euro area. Annett (2003) finds that even though the government has managed to respect the system of fiscal rules, it took advantage of favorable cyclical conditions in the late 1990s to ratchet up expenditure, partly in an attempt to restore social services that were cut back in the fiscal consolidation effort that followed the banking crisis. Most notably, a rapid rise in local government consumption was financed by a revenue boom and was thus consistent with the balanced budget rule. Subsequently, the recent downturn has begun to put the framework under strain. Schimmelpfennig (2002) and Annett (2003) argue that there is also scope for improving the design of the central government expenditure ceilings; in particular, it would be important to ensure that the margins under the ceiling are used for cyclical spending rather than for discretionary measures, and that the ceilings are explicitly linked to the surplus target. The ceilings have recently come under intense pressure because of a surge in sickness absenteeism, which is generously compensated by the government after the first couple of weeks. Mehrez (2002) documents the sharp rise in sickness leave and attributes it to the increased generosity of sickness benefits, a fall in unemployment, and other cyclical and structural factors.

The monetary policy strategy and its institutional framework were also reformed to improve monetary policy credibility, and financial sector supervision and regulation were strengthened to reduce the likelihood of any further financial crises. Swinburne (1999) discusses the design of the inflation targeting framework adopted in 1993 as the Riksbank's policy anchor, the monetary policy implications of a decision to join the EMU, and legislative changes to enhance central bank independence. He also reviews measures taken to strengthen the supervision and regulation of the financial sector and shows that indicators of financial sector soundness had improved by the late 1990s. The Swedish financial sector is dominated by large and complex financial institutions that operate across jurisdictions in the Nordic area and beyond (Johnston and others, 2003). The size, complexity, and cross-border linkages of these institutions present challenges for supervisory oversight by increasing the risks of contagion and possibly exacerbating moral hazard problems associated with policies toward institutions that are too big to fail. These challenges underscore the importance of active coordination by the affected Nordic supervisory agencies, including for consolidated surveillance, and emergency liquidity and crisis-management arrangements.

Estimates of the output gap and the growth of potential output are required for determining structural fiscal balances and also constitute important inputs for inflation targeting. Cerra and Saxena (2000) survey alternative estimation methods and provide estimates for Sweden, explaining why some methods are more plausible than others. Although the range of point estimates at the end of the sample spans several percentage points, the methods indicate qualitatively similar trends in the 1990s. In particular, the banking crisis opened up a large negative output gap, which had not completely closed by 1998. In addition, the banking crisis resulted in a permanent loss in the level of potential output. Thomas (1999a) finds that the fiscal consolidation program of the 1990s temporarily raised the rate of potential output growth by reducing the ratio of government spending to GDP.

Sweden has effective tax rates on capital income that are competitive with other countries, but tax rates on labor income rank among the highest in the OECD (Thakur and others, 2003). Thomas (1998a) estimates that tax wedges have had adverse effects on the labor market. He finds that increases in payroll and total labor taxes reduce hours worked and raise unemployment by 0.5 percent and 0.3 percent, respectively. Growing tax wedges in the 1980s are estimated to have contributed to a rise in latent unemployment, which was masked by increasing public sector employment until the deep recession of the early 1990s. Thomas (1998b) suggests that the switch from a centralized wage bargaining system to industry-level bargaining in the late 1980s may have also contributed to a steep rise in unemployment after the crisis by reducing the sensitivity of real wage growth to cyclical conditions.

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