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To: Members of the Executive Board

From: The Secretary

Subject: Summaries of Working Papers (WPs)  
Issued During July-December 1988

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INTERNATIONAL MONETARY FUND

External Relations Department

Summaries of Working Papers

Compiled by the Editorial Division

Approved by Azizali F. Mohammed

January 11, 1989

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"The Impact of Macroeconomic Policies on Income Distribution:  
An Empirical Study"  
by Mario I. Blejer and Isabel Guerrero

This paper studies the experience of the Philippines in the 1980s, focusing on the effects on income distribution of the stabilization program initiated in 1983. Although more attention has been devoted recently to these issues, there is still a dearth of quantitative evaluation of the distributional consequences of macro-policies. The paper addresses this need by looking into the experience of the Philippines and, after developing a simple analytical framework, presents evidence on the distributional impact of macroeconomic variables. It is shown that underemployment and inflation are strongly regressive as is government expenditure, reflecting perhaps the specific composition of public spending during the period. Productivity levels, the real interest rate, and the real exchange rate proved to be progressive instruments, since the gains in these variables improved the relative income shares of the poor.

As a whole, the Philippine experience seems to indicate that "good" policies also have a distributional payoff. Reducing inflation, avoiding real exchange rate overvaluation, and attaining positive real interest rates all have a desirable incidence, while indiscriminating expansionary fiscal policies, with no attention to public expenditure composition, will probably result in a higher skewness of the distributional curve.

"Fiscal Restraint, Demographic Change and Social Services in Israel,  
1985-87, and Application of the Methodology to Latin America"  
by Yaakov Kop

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Given the policy priority of curbing inflation, this paper analyzes the development of government social expenditure in Israel during the economic stabilization period beginning in July 1985. Specific reference is made to the changing needs for such expenditure arising from the change in Israel's demographic structure; actual expenditures are compared with those that appear "demographically warranted." The results suggest that there have been a real cut in direct services and a sustained real increase in social security transfers. The paper evaluates the significance of budget developments for the three major publicly provided services: education, health, and income maintenance.

One of the lessons that might be learned from the Israeli experience is the strategy of budget cuts. As shown in this paper, if measured properly--taking into account demographic structure--the direct services were cut, on an age-adjusted per capita basis, by some 15 percent. Such a reduction would be quite difficult to introduce formally or explicitly. The implicit strategy applied restraint to total expenditure for some two to three years, to produce a real erosion in services per recipient arising from growth in the size of beneficiary groups.

That the applied analytical framework may be useful for other countries is demonstrated by a partial application to six Latin American countries. According to the simulation results of the study, even though the increase of the elderly-dependency ratio is more than offset by the declining child-dependency ratio, there will be an overall increase in the dependency-related expenditure (and in total social expenditure). Thus, in most of the countries surveyed, even though there is a decline of some 20 percent in the overall dependency ratio, the need for social services may increase more than the rate of population growth.

These results are based on pure demographic change. For a comprehensive evaluation, more information is needed, inter alia, on the institutional structure of social services, the adequacy of the present quantity and quality of services, rates of enrollment, and the ratio of health services coverage.

**"Input Controls in the Public Sector: What Does Economic Theory Offer?"**  
**by David B. Heymann**

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Governments in a number of countries have moved recently to allow public sector managers more discretion in choosing the input mix with which they produce their agencies' outputs. These moves will produce efficiency gains only if agency managers have some interest in minimizing costs or maximizing output. This paper seeks to determine whether agency managers do have this interest, and if they do not, how they can be induced to become interested in these matters.

The paper surveys the relevant literature on public choice and on the theory of bureaucratic behavior, including Niskanen's theory that the bureaucrat is a budget maximizer. It applies the principal-agent theory (in which a principal engages an agent to perform services on his behalf) to the public sector, concluding that this theory provides a satisfactory general framework for analyzing the problem and is useful in yielding policy implications.

Input controls can deal with the agency problem in the public sector. The main rationales for controlling inputs are the "moral hazard" rationale for those inputs yielding personal benefits to the bureau manager in addition to their contribution to the bureau's output and the absence of a cost of capital, giving managers no incentives to take into account the consequences of their decisions.

The following lessons emerge from the paper. First, how much decision-making power to delegate to agency managers should be decided by the government, as principal. Second, the optimal degree of delegation is likely to vary from agency to agency. Third, in addition to input controls, ex post monitoring and relating salaries and tenure to performance can also help resolve moral-hazard problems. Imposing a cost of capital and removing the future spending implications of superfluous staff members by giving managers the power to reduce staff size are further ways of dealing with the problem of agency managers using too low a discount rate.

"Criteria of External Sustainability"  
by Jocelyn Horne

This paper analyzes how the sustainability of the current account of the balance of payments is to be assessed with a view to developing operational criteria for multilateral surveillance. The discussion adheres to a theoretical framework linking saving-investment imbalances, current account determination, and budget constraints. A broad concept of external sustainability is adopted that emphasizes policy sustainability, that is, whether a current account imbalance and a given exchange rate can remain indefinitely on paths projected on the basis of present policies and assumed private sector behavior. The definition may be specified to a particular country or time by applying normative economic criteria.

The main contribution of this analysis is a demonstration of how external imbalances may be forecast in a consistent way that incorporates a mechanism for achieving sustainability. In the theoretical example presented, one such mechanism is a switch from an expansionary fiscal policy (that will generate an unsustainable current account deficit) to policies that will balance the budget. A numerical example based upon the theoretical model illustrates how forecasts incorporating such a mechanism differ from those ignoring it. The paper also derives an index of external unsustainability that reflects the probability of future policy changes expected by private agents. This index is systematically related to the chosen level at which the ratio of external debt to GNP is stabilized and to structural parameters that determine the current account position. Thus, the index may serve as a warning signal of a deteriorating external situation and an indicator of the need for urgent policy response.

Related operational criteria of external sustainability are also discussed, including purchasing power parity, baseline projections, and medium-term scenarios based on global macroeconomic models.

**"The Currency Composition of Foreign Exchange Reserves"**  
**by Michael P. Dooley, Jose Saul Lizondo, and Donald J. Mathieson**

This study examines the determinants of the currency composition of foreign exchange reserves for both industrial and developing countries during the period 1976-85. The empirical results indicate that the currency composition of reserves has been influenced by each country's exchange rate arrangements, its trade flows with reserve currency countries, and the currency of denomination of its debt-service payments. A developing country tended to hold a greater proportion of its foreign exchange reserves in assets denominated in a particular reserve currency if its exchange rate was pegged to that currency, if a large share of its exports and imports was with the country issuing the reserve currency, and if a higher proportion of the interest payments on its external debt was denominated in this reserve currency. The currency composition of foreign exchange reserves for industrial countries was also influenced by exchange rate arrangements, although the effects were strongest for those countries that participated in cooperate agreements (e.g., the European Monetary System) that tended to hold relatively higher shares of U.S. dollars. In addition, the shares of an industrial country's exports and imports to the reserve currency countries had significant influences on the proportion of reserves held in different currencies.

This evidence is consistent with the view that the currency composition of a country's net foreign asset position is managed more cheaply by altering the currency of denomination of assets and liabilities that are not held as reserve assets. While transactions costs in currency markets are low, it appears that they are high enough that central banks find it optimal to avoid holding reserve assets in one reserve currency that must be converted into another reserve currency before being used to make payment. This, in turn, suggests that inferences about the stability of preferences for net currency positions on the part of governments cannot be drawn from an analysis of reserve holdings in isolation from the rest of the government's financial portfolio.

"International Effects of Tax Reforms"  
by Jacob A. Frenkel and Assaf Razin

This paper highlights the significance of open-economy considerations in the analysis of tax reforms. It focuses on domestic and international consequences of revenue-neutral conversions between income and value-added tax systems.

The principal conclusion of this investigation is that the direction of changes in the world rate of interest, the domestic tax-adjusted rate of interest, domestic and foreign investment, growth rates of consumption, and other key macroeconomic variables consequent on revenue-neutral tax reforms depends on whether the country adopting the tax reform runs a surplus or a deficit in the current account of its balance of payments. For example, a conversion from an income to a value-added tax system lowers the world rate of interest if the country adopting the reform runs a surplus in the current account of its balance of payments, but raises the world rate of interest if its current account is in a deficit.

The paper also examines the implications of such reforms in the presence of direct foreign investment and considers alternative specifications of tax treatments, one based on the source of income, and the other on the country of residence of the taxpayer. It demonstrates the robustness of the key propositions to these alternatives.



**"Agricultural Trade and Protection in Asia"**  
**by Dean A. DeRosa**

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This paper examines the structure of agricultural trade and nominal protection of agriculture in Asia. In particular, against the background of increasing global interest in liberalizing agricultural trade and of the opportunities for expanded trade presented by the vast and growing Asian market, the paper surveys, by using information compiled by the United Nations Conference on Trade and Development and the World Bank, the dimensions of agricultural production and trade in the region and investigates the variety and frequency of restrictive import measures enforced by Japan and several major developing Asian countries.

While consideration of the differences in economic structures and the commodity patterns of agricultural production and trade across Asian countries provides insight into the importance of agriculture in Asia and the dimensions of agricultural trade in the region, the principal findings of the study concern the nature and extent of barriers to imports of foods and agricultural raw materials erected by the Asian economies. Most widely applied are tariffs and quantitative restrictions. Hong Kong and Singapore impose virtually no controls, however, and Japan and Korea tend to impose lower average tariff rates and to apply nontariff barriers with less frequency than most other Asian economies.

The structure of agricultural protection varies from country to country and is difficult to interpret without information about underlying national agricultural policies. Nevertheless, the data indicate that several low- and middle-income countries enforce relatively low levels of protection against imports of basic foodstuffs, especially cereals, while high-income countries tend to impose relatively high levels of protection against food commodities.

Finally, the paper reports the results of an exploratory analysis, based on detailed information about the commodity patterns of agricultural trade and protection in Asia, that investigates which Asian countries might have mutual interests in reciprocal reductions of tariffs or quantitative restrictions on imports of agricultural commodities. The results suggest that appreciable scope exists for successful negotiations to liberalize agricultural trade between low- and middle-income Asian countries. Similar gains might be achieved by unilateral trade liberalization, but policy-makers are likely to find it more feasible to engage in reciprocal negotiations for political reasons. Additionally, if import barriers are reduced on a most-favored-nation basis, reciprocal negotiations have the advantage that agricultural trade would be expanded to a greater degree and the resulting economic benefits enjoyed more widely by Asian countries.

**"Growth-Oriented Adjustment Programs: A Conceptual Framework"**  
**by Mohsin S. Khan and Peter J. Montiel**

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There is widespread agreement that increasing the rate of economic growth has to be an integral element in any adjustment strategy. The absence of a well-defined framework for "growth-oriented adjustment," however, makes the task of designing a policy package that will simultaneously eliminate the macroeconomic imbalances in the economy and raise the growth rate a difficult one. Attempts to specify possible frameworks are contained in a number of academic papers, in the papers presented at the Bank-Fund symposium on growth-oriented adjustment programs, and in the recent report of the Group of Twenty-Four.

This paper examines the properties of a simple operational model that combines growth and adjustment. The principal building blocks of this integrated framework are the monetary analysis that has become identified with Fund programs and the growth analysis utilized by the Bank to establish consistent projections across countries and to determine external financing needs. Despite its simplicity, the merged model is able to address many of the basic issues that would arise in the design of growth-oriented adjustment programs. A number of comparative-static exercises are carried out with this model, examining the effects on growth, inflation, and the balance of payments of changes in such variables as domestic credit, the nominal exchange rate, public and private saving, the demand for money, total factor productivity, and foreign capital inflows.

The model examined in the paper is only a start in the direction of building a generalized framework for analyzing growth and adjustment in developing countries. It is very simple, and one can conceive of a large family of models of varying complexity that could be considered relevant for designing growth-oriented adjustment programs. The simplicity of the model is a virtue from an operational standpoint, however, particularly in the cases of countries in which data are limited and of uneven quality.

"Issues in the Design of Growth Exercises"  
by Ernesto Hernandez-Cata

This paper deals with analytical and empirical issues in the design of growth exercises. These exercises are viewed as attempts to relate, within a quantifiable framework, medium-term objectives for the growth of national income to key macroeconomic variables, particularly policy variables. The paper focuses on the influence of capital formation, saving, and total factor productivity in the process of economic growth. It also examines conceptual and empirical problems involved in accounting for growth.

The paper extends the framework for growth exercises outlined in the recent Group of Twenty-Four Report to deal explicitly with the cost of borrowing from abroad and the servicing of external debt. Considerable importance is placed on the distinction between domestic output and national income. The paper suggests that the objectives of macroeconomic policy should be defined in terms of national income, because this concept excludes that portion of domestic output devoted to external-debt service. An important conclusion is that the extent to which inflows of foreign saving can be relied upon to finance higher domestic investment and growth is likely to be limited, particularly in the present environment in which the external debt of many developing countries is seen to be excessive. In those circumstances, more vigorous growth of national income will be achieved primarily by raising national savings and improving the performance of productivity.

The paper adopts a supply-side perspective: it does not deal with cyclical fluctuations in output, but instead concentrates on the behavior of potential GNP. It examines the links between fiscal and structural policies and the growth of productive capacity through the effect of these policies on productivity, domestic saving (both public and private), and the cost of capital. The paper also analyzes the implications of lags and uncertainty about the effects of policies and examines the differences and interactions between structural and fiscal policies. It concludes that fiscal and structural policies generally should be viewed as complementary rather than substitutable.

"Liberalization, Crisis, Intervention: The Chilean  
Financial System, 1975-85"  
by Andres Velasco

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This paper surveys the evolution of the Chilean financial system from 1975 to 1985, analyzes the causes and the consequences of the major crisis in the system during 1981-83, and examines the measures adopted to restore the system to normalcy.

In the mid-70s, Chile initiated a program of liberalization of its financial system by privatizing commercial banks, abolishing interest rate ceilings and nonmarket allocations of credit, eliminating barriers to entry, and gradually freeing international capital flows. As a result, total financial assets and the range of financial instruments and institutions expanded rapidly. The response of domestic savings and private investment was initially slow, but began to improve after 1978, although this progress was temporarily interrupted by the crisis.

In the post-reform period, domestic real and nominal interest rates remained stubbornly high. The paper surveys several hypotheses to explain this phenomenon and suggests that conditions in the domestic credit market were probably more important than international factors in explaining the interest rate behavior. The demand for bank credit remained strong, owing to pressures to continue lending to troubled borrowers, to roll over scheduled principal payments, and to capitalize interest. Since the supply of credit was not adequately responsive, reflecting in part the remaining restrictions on capital mobility, interest rates remained high. This phenomenon was accentuated by the interlocking ownership patterns that facilitated the channeling of a sizable portion of loans to banks' own enterprises and by other factors that permitted excessive risk taking.

In the early 1980s, terms of trade and interest rate shocks affected the private sector, already weakened by a lengthy period of high domestic real interest rates and an overvalued exchange rate. As a result, substantial portions of banks' portfolios became nonperforming. The authorities eventually intervened in 16 financial institutions, and granted substantial emergency credit. Such measures contained the propagation of the crisis, but the resulting liquidity expansion contributed to rapid reserve losses in late 1981 and 1982.

The crisis led to a massive restructuring of the Chilean financial system. Certain institutions were liquidated and others recapitalized. Banks were able to improve their position by selling nonperforming loans to the Central Bank, by accessing a wide range of subsidy programs, and by rescheduling loans to private sector borrowers. The package restored stability to the financial system, but the cost was a large increase in commercial bank liabilities to the Central Bank and a large transfer of interest subsidies through the Central Bank. In the years since the crisis, bank legislation has also been overhauled; the new law tightens capital requirements and bank supervision, while restricting the scope of state deposit insurance.

**"Determinants of the Spread in a Two-Tier Foreign Exchange Market"**  
**by Robert P. Flood and Nancy Marion**

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The theoretical literature on two-tier foreign exchange markets has grown much faster than has the applied literature on the topic. The theoretical literature has largely concentrated on predicting how foreign and domestic shocks influence the spread between the exchange rates in the commercial and financial tiers of the exchange market. The present paper had its beginnings in an empirical study of the two-tier market in the Belgium-Luxembourg Economic Union (BLEU). It finds that none of the typical theoretical predictions held up as an explanation of the spread. In particular, it discerns no domestic policy variables that significantly explain the spread.

This finding led to a reformulation of the two-tier market theory to make it consistent with the results. The paper reports some of the preliminary results of the reformulation and suggests that if domestic agents are risk neutral, no domestic policy variables are predicted to influence the spread.

The two-tier market spread is an asset-market distortion that induces domestic asset-market participants to avoid net international asset purchases. With risk-averse (as opposed to risk-neutral) market participants, the required distortion can in principle depend on market participants' planned consumption streams. These planned streams can, in turn, depend on domestic policies. It is through this intertemporal profile of consumption that most of the literature obtains its predictions about the effects of policy on the spread.

The assumption of risk neutrality removes the planned consumption stream from the asset-pricing decision and therefore removes the consumption profile as a channel through which domestic policy might influence the spread. The results are consistent because the consumption profile is policy's only channel of influence on the spread.

Even if the paper is not exactly correct about risk neutrality, its results have wide applicability since per capita consumption profiles are notoriously insensitive to macroeconomic policies.

"Empirical Analysis of High-Inflation Episodes  
in Argentina, Brazil, and Israel"  
by Peter Montiel

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Many observers have noted that the rate of inflation in high-inflation countries has exhibited a "plateau" configuration, that is, it has taken discrete jumps and then remained stable for extended periods. Although the combination of accommodative policies and widespread indexation may account for the persistence of inflation, it is also important to understand the nature of the shocks that move the system from one inflationary plateau to another. Opinions on the causes of the jumps in inflation have tended to coalesce around a fiscal view that stresses excessive money creation to finance fiscal deficits and a balance of payments view that focuses on the interaction of nominal exchange rate changes with various types of indexation.

This paper analyzes the causes of these jumps in inflation in the context of the high-inflation episodes that led up to heterodox attempts at stabilization in Argentina, Brazil, and Israel. It attempts an empirical distinction between the fiscal view and the balance of payments view of the causes of high inflation by computing historical decompositions of these episodes based on vector autoregressions. The advantage of this particular methodology is that it does not require the specification of a structural model, but rather relies on reduced form relationships linking current values of endogenous variables, such as the price level, to lagged values of other relevant variables, such as base money and the exchange rate. In all three cases, the results indicate that shocks arising from nominal exchange rate devaluations played the dominant role in triggering an acceleration of inflation.

**"Trade Reform under Partial Currency Convertibility:  
Some Suggestive Results"**  
**by Jagdeep S. Bhandari**

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This paper examines the consequences of external liberalization in the context of a simple macroeconomic framework, with particular attention paid to the preferred sequence of liberalization. To this end, it presents and discusses a model of an open economy characterized by restrictions in the form of nominal tariffs, as well as repression in the external financial sector. The latter is modeled by incorporating prior restraints on free currency convertibility that are imposed by the use of a multiple-tier exchange rate regime. The paper recognizes that, in reality, actual convertibility restrictions are substantially eroded by inter-market transactions (leakage) on account of both legally compelled and fraudulent transactions. Thus, specified proportions of both export and import items are assigned de jure to the financial exchange market. In addition, given a relatively depreciated financial (commercial) exchange rate, exporters (importers) find it profitable to circumvent exchange regulations by illegally surrendering (acquiring) export receipts (import exchange) at the more favorable financial rate. The magnitude of such fraudulent transactions is related to the existing exchange rate spread and to the perceived penalty costs associated with such cross-transactions.

The results of the paper indicate that a decrease in the domestic tariff rate leads to nominal financial appreciation coupled with price deflation, which in turn stimulates domestic output. Because the commercial exchange rate is pegged, the price deflation leads a fortiori to commercial real depreciation. The behavior of the financial real exchange rate is, however, contingent upon the existing degree of de jure exchange market restrictions and upon penalty costs associated with fraudulent transactions. Following domestic tariff reform, the more probable outcome is financial real depreciation rather than financial real appreciation.

The results of the model also indicate that there is no necessary presumption in favor of the commonly advocated "current account first" sequence of external liberalization; in fact, in some cases it may be preferable to institute trade reform after some measure of external financial reform has already been achieved. In general, the choice between competing reform sequences depends upon the relative weights attached by the policy maker to domestic or to external targets. When external targets are of sufficient importance, the preferred order of liberalization is of the "capital account first" type. By contrast, the "current account first" variety should be chosen if the policymaker's objective function is limited to domestic price-output targets.

"International Coordination of Fiscal Policies:  
A Review of Some Major Issues"  
by Vito Tanzi

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In recent years there has been a great impetus toward policy coordination. This movement has been promoted by the "misalignment" of policies among major industrial countries, the growing recognition that the economies of the world are much more interdependent than they were in the past, and the externalities associated with unilateral policies.

This paper's first section deals with these aspects and concludes that in normal circumstances coordination of economic policy would improve economic performance although the magnitude of the improvement is disputed.

The second section of the paper focuses on the necessary conditions for an actively coordinated fiscal policy aimed at demand management on a global scale rather than at correcting fiscal imbalances in particular countries. The requirements for successful coordination of this sort are quite rigorous. The first basic requirement would be a jointly agreed and reliable forecast. The second would be agreement among countries, and within countries, on the main objective of economic policy. If one country emphasizes employment while another emphasizes price stability, coordination will be more difficult to achieve. Third, the policymakers who participate in the meetings at which coordination agreements are reached should be able to control the relevant policy instruments. Fourth, the policymakers must agree on a model that relates changes in policy instruments to changes in policy objectives. Furthermore, the model must give realistic answers. Fifth, the most politically powerful country must have the best policies. The paper discusses the difficulties of satisfying these various requirements.

The third section surveys the fiscal situation in the Group of Seven countries and concludes that the fight against fiscal disequilibrium is not yet over since in several of these countries fiscal deficits remain high and debt-to-GDP ratios are still growing. Because of the asymmetry of fiscal actions, and because of demographic changes, it is argued that the best form of fiscal coordination is one in which all countries aim at putting their fiscal houses in order.



"Economic Interdependence and the International Implications  
of Supply-Side Policies"  
by Vito Tanzi and A. Lans Bovenberg

It is increasingly recognized, especially in a more integrated world economy, that structural policies have important implications that transcend national boundaries. This paper explores how growing international economic integration has affected the conduct of structural policies. It argues that the internationalization of markets has increased the urgency to reduce domestic distortions through appropriate structural policies for two major reasons. First, the world economy will fail to reap the full benefits from liberalizing international markets unless the removal of domestic distortions accompanies the globalization of markets. In particular, the internationalization of financial markets has tended to raise the welfare costs associated with domestic distortions. Second, as the integration of world markets has proceeded, structural policies have become increasingly important in affecting domestic demand and in determining the success of policies aimed at raising domestic absorption.

After describing the effects of recent investment incentives in the United States on the rest of the world, the paper investigates the international transmission of structural policies more generally. A country that independently pursues supply-side reforms is likely to attract capital from abroad and to worsen its external accounts, especially if these reforms raise the after-tax return on domestic capital or increase the fiscal deficit. At the same time, other countries typically experience capital outflows, which may expose the costs associated with distortions in their economies.

As regards the international coordination of structural policies, various difficulties (in formally coordinating policies) reduce the scope and desirability of coordinating reforms in particular areas. However, there is a greater need and scope than at present for coordinating trade and tax policies. With respect to taxation, countries could make a greater effort, for example, in homogenizing the taxable base for corporate income taxation, the tax treatment of interest income and expense, and the taxation of energy.

The paper concludes with some implications for structural policy in the Federal Republic of Germany. It suggests that particular structural policy measures there can make an important contribution to the international macroeconomic adjustment process by reducing the German investment-savings imbalance. Such measures have become more urgent and desirable in view of structural policy developments in other industrial countries.

"Is Debt Relief in the Interests of the Creditors?"  
by W. Max Corden

The paper reviews the arguments on whether debt relief benefits creditors collectively. Debt relief is defined as a change in the contractual stream of payments agreed to by the creditors which also benefits the debtor. It includes not just reduction of interest or principal but also rescheduling, restructuring, and concerted lending. Hence, this paper is an attempt to explain the actual rather than the hypothetical impact of relief.

The paper starts with a general argument against debt relief, namely, the "ceiling" argument based on the fact that repayment capacity is uncertain: reducing contractual debt reduces the ceiling of possible payments and, if capacity to pay turns out to be higher, creditors would lose.

Some arguments in favor of relief that might qualify the ceiling argument are then discussed. The first is the "incentives" argument already expounded in an earlier paper: adjustment effort or investment designed to raise capacity to pay might increase as a result of relief since a high contractual debt in relation to capacity to pay is like a 100 percent tax on effort or investment. The second argument in favor of debt relief is the "investment-capacity" proposition: debt relief increases the debtor country's capacity to invest, and the higher investment will raise capacity to pay in the future, with some of the rewards going to the creditors.

Third, there is the "debt-forestalling" argument: sufficient relief may discourage default, and repayments after relief may be greater than if there had been partial default. This argument hinges on the likelihood that default penalties would be avoided with relief. The provision of relief well ahead of the time when default might take place can be motivated by a desire to reduce endogenous uncertainty resulting from prospective bargaining, or to reduce negotiating costs.

Finally, the free rider problem is discussed: debt relief may be in the collective interest of creditors but may nevertheless not take place to the optimal extent. It can be overcome through collective action of banks in negotiating committees, through enforcement threat or persuasion by governments, and possibly through a market solution.

"Government Pay Policies and Structural Adjustment"  
by Christian Schiller

Government pay policies have important implications not only for aggregate demand, but also for efficiency and productivity in the civil service. The latter aspect of government pay policies has received growing recognition in recent years, in particular in many countries experiencing the pressure of budget constraints on the government wage bill and simultaneous expansion of government employment.

At least three structural issues need to be addressed by policy-makers with respect to pay and productivity in the public sector: the trade-off between personnel expenditure and other expenditure (such as that for supplies and maintenance); the trade-off between expanding government employment and paying adequate salaries, so that corruption, moonlighting, and absenteeism are discouraged; and the establishment of a pay system that is conducive to good performance of government employees. After reviewing the elements that constitute a typical government pay system--a hierarchy of grades, salary scales, a system of fringe benefits, and regulations that govern advancement up a pay scale and promotion to a higher grade--the paper discusses in more detail three structural features of government pay systems.

First, the assessment of what pay is proper for civil servants should not be based on the narrow concept of the base salary, since fringe benefits frequently account for a large part of total compensation of a civil servant. The economic implications of pay supplements may be different from those of the base salary. The paper argues for a pay system in which the base salary structure is the main component, but is complemented by a cash-oriented pay supplement system to account for individual factors not captured in the base salary system.

Second, in government pay systems, individual pay increases are typically awarded more or less automatically at regular intervals with only a loose link to performance. The paper reviews the pros and cons of strengthening the merit orientation of government pay systems.

Third, the internal relativities of pay systems are, inter alia, affected by the way the pay scales are adjusted for inflation. Flat-amount adjustments or, more commonly, a higher percentage increase for those in the lower ranks lead to a compression of the internal pay structure. This compression has been a feature of government pay policies in many countries in recent years. Partly in response to this, some countries have designed special pay schemes with a view to attracting and retaining high-level personnel.

Finally, the paper argues that a pay system must be regarded as an interconnected set of relationships, in which pressure on one element may trigger adaptive responses elsewhere in the system. Therefore, to be effective, pay policies must always encompass all elements of the pay system.

"Macroeconomic Interdependence under Capital Controls:  
A Two-Country Model of Dual Exchange Rates"  
by Pablo E. Guidotti and Carlos A. Vegh

Capital controls have been a familiar feature in industrial countries in recent history. Furthermore, they have played a key role in the context of the European Monetary System (EMS) and constitute an important issue in the current movement to eliminate barriers to capital flows within the EMS.

Not much study has been devoted to how capital controls affect the transmission of monetary and fiscal disturbances. This paper develops a two-country, cash-in-advance model, in which capital controls take the form of dual exchange rates. It emphasizes the response of the world economy to different macroeconomic disturbances under both perfect capital mobility and capital controls. This approach highlights the key features introduced by capital controls.

Under perfect capital mobility, permanent changes in policy, such as an increase in government spending or a devaluation, have no real effects abroad. The capital markets instantaneously redistribute the world money supply, thus eliminating the need for any further adjustment. Under dual exchange rates, however, capital markets are prevented from performing this role. Therefore, the redistribution of the world money supply has to be effected through the current account and can only be accomplished over time. Any policy disturbance, then, has real effects abroad. In particular, domestic and foreign consumption, and domestic and foreign real interest rates, respectively, always move in opposite directions during the adjustment period.

"External Adjustment and the Strong Yen:  
Recent Japanese Experience"  

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by Robert Corker

Japan's current account surplus grew steadily in the first half of the 1980s and by 1985 amounted to 3 1/2 percent of GNP. The rise in the surplus took place against a background of improving Japanese competitiveness. Since late 1985, however, the yen has been appreciating sharply in effective terms, more than reversing these earlier gains in competitiveness. The effective loss of competitiveness has had an immediate and dramatic impact on real trade flows: import volume growth picked up strongly while export volume growth halted abruptly. Nevertheless, the nominal current account surplus remained high during 1986-87 because of a strengthening of the terms of trade.

This paper investigates the adjustment of Japan's current account between the fourth quarter of 1985 and the end of 1987 through means of a conventional model of trade- and services-account transactions. The parameters of the estimated model are stable during this period, thus providing evidence that Japan's current account has been adjusting to the strong yen according to normal historical relationships. This conclusion is supported by an examination of the model's forecast errors in the period of the rising yen: the errors are found to be small in the context of near \$90-billion surpluses. Finally, the model is simulated to measure the effects of the realignment of exchange rates since the fourth quarter of 1985 on Japan's current account. The current account surplus would have been substantially larger during 1986-87 as a percent of GNP had there been no exchange rate realignments. Measured in terms of U.S. dollars, however, the current account might have been lower in 1986 because of the usual J-curve effects.

**"Italian Household Demand for Monetary Assets and Government Debt"**  
**by C. Andrea Bollino and Nicola Rossi**

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In Italy a consistent historical pattern has been observed in which household financial surpluses approximately balance the public sector's increasing deficits. The corresponding need for financial intermediation, despite the limited development of the Italian capital market, has given a predominant role to credit institutions. High and variable rates of inflation in the mid-1970s and the consequent collapse of the bond market further expanded intermediation by the banking system, leading to the absorption of the economy's financial assets into bank deposits. Nevertheless, in the late 1970s an explosion in the public sector borrowing requirement, the unavailability of the bond market to finance the deficit brought on by inflation, and the evolution of monetary policy fostered an unprecedented accumulation of short-term, floating-rate government securities in household portfolios.

Focusing on household asset demand, this paper addresses two issues. First, it asks whether the "effective" stock of money should also include, besides deposits and currency, such financial instruments as short-term government securities. Second, it assesses the responsiveness of the demand for government securities to the inflation rate.

The empirical results suggest the following tentative conclusions. First, in generating liquidity, bank deposits substitute for short-term and floating-rate government securities. Although not negligible, the degree of "moneyness" of short-term and floating-rate government debt does not endanger the meaning of such traditional monetary aggregates as M2. At the same time, however, the pattern of substitution among financial instruments allows the aggregation of all short-term and floating-rate government securities.

Second, it appears that inflation encourages asset substitution to a very limited extent and leads to a fall in the demand for government securities. Conventional measures of government deficits should consequently be adjusted to account for inflation.

"Capital Mobility and Monetary Policy in Colombia"  
by Robert Rennhack and Guillermo Mondino

This paper develops a model of financial markets in Colombia during 1977-85 to examine the authorities' control over domestic interest rates and the money stock as well as the effects of the crawling peg on exchange rate expectations and domestic interest rates. The paper presents estimated equations for the demand for money and net foreign assets to measure the amount of private capital inflow (outflow) for each unit of contraction (expansion) of net domestic credit of the Banco de la Republica.

The results suggest that the authorities possessed some control over the money stock in the short run, mostly because of the existence of capital controls, but most of this control was eroded once asset demands adjusted to their desired levels. There was evidence of imperfect substitution between domestic and foreign assets, providing open-market operations with some long-term control over the stock of money. The expected rate of depreciation was not closely linked to the crawling peg, implying that an acceleration in the rate of crawl would not necessarily have driven up domestic interest rates.

"Export Pricing Behavior of Manufacturing:  
A U.S.-Japan Comparison"  
by Kenichi Ohno

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Differences in the export pricing behavior of American and Japanese manufacturing industries have recently evoked considerable attention. Typical American firms are said to set prices according to domestic cost while, in pricing their goods in dollars, Japanese exporters tend to pass through only a fraction of exchange rate fluctuations.

To explain differences in pass-through, this paper adopts the framework of variable markup over cost, in which a two-input (tradable and nontradable) cost function is directly estimated. It also allows for business cycles and for possible slow adjustment and price discrimination between the domestic and export markets, while it covers a large part of both U.S. and Japanese manufactured exports. It estimates simultaneously the four U.S. and Japanese domestic and export price equations.

Although the result varies with each industry, average pass-through of Japanese products is found to be lower than that of American products when evaluated according to export weights. The largest Japanese manufacturing industries clearly tend to adjust export prices (in domestic currency) to the exchange rate. No such tendency is detected for the major U.S. exports.

Japanese exporters also discriminate between domestic and export prices. As the yen rises and falls, deviations from the law of one price occur systematically. Again, there is no evidence that U.S. manufacturers do the same. Tests that use Japanese price data indicate that Japanese firms react more to a yen depreciation than to a yen appreciation. There is no overall indication whether they are more sensitive to large exchange rate changes than to small changes.

One salient feature of this bilateral comparison is that, in all industries that were considered, Japan has a higher rate of productivity growth than the United States. The leading edge of Japanese manufacturers over American manufacturers ranges from 1.2 percent to 3.3 percent a quarter. There is no clear indication that productivity differentials have narrowed substantially in the 1980s.



"Economic Structure, the Exchange Rate, and Adjustment in the Federal Republic of Germany: A General Equilibrium Approach"  
by Thomas Mayer

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When efforts to redress international economic imbalances among major industrial countries began in 1985, emphasis was placed on macroeconomic policies and exchange rate changes. As room for maneuver in these policies diminished, however, and the adjustment remained far from complete, the focus has shifted recently to structural policies.

With regard to the Federal Republic of Germany, the view has gained strength that trade liberalization, as well as deregulation of goods, services, and labor markets, would make a major contribution to the external adjustment of this economy by increasing its responsiveness to exchange rate changes that have already taken place. The present paper examines this hypothesis by investigating the effects of structural rigidities and protectionist practices on the adjustment process in the Federal Republic of Germany. The analysis is conducted in the form of an illustrative quantitative exercise in which the effects of an exogenous appreciation of the deutsche mark are examined under different structural policies.

In the first case, characterized by severe structural rigidities, the contractionary effects of the appreciation (i.e., the loss in exports, output, and employment in the exposed industries) dominate the expansionary effects (i.e., the increase in output and employment in the nontraded goods sector) so that GDP and employment fall, and the external surplus declines only little. In the second (and polar opposite) case of free movement of goods, services, and factors, the expansionary effects of the appreciation become more prominent as supply and demand respond much more readily to the relative price changes. Allowing for a likely increase in real domestic demand, both real GDP and employment are significantly higher, and the external surplus falls considerably.

"Temporary Import Tariffs, the Real Exchange Rate,  
and the Current Account"  
by Sebastian Edwards

This paper deals with the effects of temporary protection on real exchange rates and the current account. Countries with external payments difficulties have often resorted to protectionism; temporary impediments to trade--in the form of import tariffs or quotas, for example--are frequently imposed to improve the current account or to change the behavior of the real exchange rate. These protectionist policies, however, often fail to achieve their objectives; in spite of higher import tariffs, the current account balance does not improve. Traditional trade theory has explained this phenomenon by claiming that demand for imports and exports is sometimes inflexible. These explanations, however, fail to recognize that the current account basically responds to intertemporal considerations, and that the impact of any policy measures must operate via the country's savings or investment decisions.

In this paper an intertemporal general equilibrium model is developed to analyze how temporary import tariffs affect the current account and how the equilibrium real exchange rate evolves. The model encompasses two periods, three goods--exportables, importables, and nontradables--and consumers that maximize intertemporal utility, while producers maximize the present value of profits. In this setting a temporary tariff affects the equilibrium real exchange rate both in the current and future periods, but the direction of this effect is a priori unclear. In fact, contrary to popular belief, a temporary tariff can cause a real exchange rate depreciation in the current period that is later reversed, while a temporary import tariff can worsen the current account in the period when it is imposed. These results indicate that policymakers should be particularly careful when using temporary protection for balance of payments purposes. Not only will these policies result in welfare-reducing inefficiencies, but they may very well fail to achieve their intended objective of improving the current account and competitiveness.

"The Potential Role of the SDR in  
Diversified Currency Portfolios of Central Banks"  
by Carlos Medeiros and Simon Nocera

During the last few years, large movements in the exchange rates of major currencies have stimulated monetary authorities to diversify their international reserves across a number of currencies. Reserve managers evidently intend to reduce the exposure of their reserve portfolios to fluctuations in exchange rates. Within this context, the question arises about how large a role the SDR can play in diversifying the currency composition of the reserves held by Fund members and thereby in reducing their exposure to exchange rate risk.

As a reserve asset that is itself a diversified portfolio of currencies, the SDR would appear well designed to minimize changes in the value of official reserves associated with exchange rate fluctuations. It can do so because the coefficient of correlation for the total return on assets denominated in the five component currencies is generally less than one. Consequently, movements in the total returns on one of the component currencies will be partially or fully offset by smaller, divergent movements in the returns of the remaining currencies.

The empirical analysis in this paper is based on a historical series of returns constructed by simulating short-term investments in assets denominated in the five component currencies and in the SDR from January 1, 1980 to July 31, 1987. These results show that during this period the risk-adjusted rate of return on the SDR was often higher than on investments denominated in the other five currencies. In addition, a number of efficient portfolios are computed and attention is focused in particular on those portfolios with the lowest variance in their return, in accordance with the plausible assumption that central banks are averse to risk. In most cases, the SDR is found to be a major component of these portfolios, further confirming that the SDR can reduce the exposure to exchange rate risks of international reserve portfolios of central banks.

"A Working Model of Slump and Recovery from Disturbances to Capital-Goods  
Demand in a Closed Non-Monetary Economy"  
by Edmund S. Phelps

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It is suspected that some long swings in economic activity (such as the 1930s depression and the 1980s depression in much of the world) are largely the result of non-monetary mechanisms that have not yet been sufficiently appreciated. A "real" theory of the "business cycle" that is fundamentally classical has been refined in the present decade, but this kind of non-monetary theory may not be a plausible explanation of the peculiar features of the 1980s slump or, for that matter, of the Great Depression. A contrasting type of non-monetary model, often called structuralist, seeks to explain low-frequency employment fluctuations by the long time needed to completely adjust prevailing labor contracts to the shifts in labor demand caused by shocks in the structure of costs or demand.

The structuralist model developed in the present paper pictures depression and recovery in a closed economy when a shock in time preference (for the stock of public debt, or for labor supply) causes the real interest rate to jump and the demand-price of capital goods to drop on impact. The effects are then analyzed of the consequent layoffs in capital-goods-producing operations on the path of real wages and the path of the capital stock, and the resulting evolution of the interest rate and of employment. An implication of the model is that an increase in public debt or in consumers' propensity to spend is contractionary in the long term, once the initial "Keynesian" demand effects have worn off, as capital-stock and real-wage adjustments raise interest rates in a sort of aftershock.

"Tourism in East Caribbean Countries"  
by Hiroshi Shibuya and Susan Ye

Tourism is an important industry for the East Caribbean countries (ECC) and in some has become the leading source of foreign exchange earnings. This paper studies recent developments in ECC tourism and reviews government policies to support tourism. Despite certain data constraints, this paper presents and analyzes a consistent data set across the region, estimates income and price elasticities of tourist arrivals, and projects the growth of ECC tourism.

The share of ECC tourist arrivals in the Caribbean region changed little between 1970 and 1980, but has risen since that time. The recent economic recovery in industrial countries and the decline in the real price of air travel owing to falling oil prices have helped to raise the growth of tourism in the ECC in the past several years. As the common currency of the ECC countries is pegged to the U.S. dollar, the depreciation of the dollar vis-a-vis European currencies also has been a contributing factor.

A model is constructed to estimate the income and price elasticities of stayover arrivals in the ECC. The income elasticity is estimated to be 1.0 in the short run and 2.7 in the long run. The price elasticity is estimated to be minus 0.3 in the short run and minus 0.8 in the long run. Based on these estimates and projections for real incomes and prices, the long-term growth of stayover arrivals in the ECC is projected to be about 8 percent a year.

Although the model performs well in predicting recent stayover arrivals, because of data limitations it omits several factors that may be important in the determination of stayover arrivals. For example, the model does not take into account the effects of changes in competitive positions owing to developments in the countries of the region or of changes in government efforts to support tourism. Therefore, developments in these and other potentially important factors may give rise to a growth rate of ECC tourism that differs from the projection of the model.

"Voluntary Debt Reduction: Incentives and Welfare"  
by Elhanan Helpman

Many proposals exist for the solution of the international debt crisis. Prominent among them is a call for voluntary debt reduction. Proponents argue that voluntary debt reduction can benefit not only debtor countries but also creditors. They claim that debt reduction will stimulate investment in debtor countries and thereby enhance the ability of these countries to repay debts. The resulting greater capacity to service debt will more than compensate the creditors for any initial losses.

This paper shows that debt reduction may raise or reduce investment, depending on the degree of international capital mobility and on attitudes toward risk. In addition, multiple equilibria may exist at different investment levels. Therefore, the scope for voluntary debt reduction depends on the degree of capital mobility, on attitudes toward risk, on whether the debtors are at a low or high investment equilibrium, and on the face value of debt. Understanding these links helps to identify circumstances in which debt reduction is in the collective interest of the creditors.

Even when debt reduction is in the collective interest of creditors, however, the question remains whether they will provide it without cooperation. In order to deal with this issue, the paper develops a non-cooperative game in debt reduction and characterizes its equilibria. In the absence of multiple equilibria, debt reduction is an equilibrium outcome whenever the creditors benefit from it collectively, and the face value of debt is sufficiently large. The implication is that voluntary debt reduction may be expected even in the absence of cooperation. On the other hand, circumstances exist--related to multiple equilibria that differ in investment levels--in which the lack of cooperation is harmful because it prevents a switch to a high investment equilibrium. In these circumstances, cooperative debt reduction can induce the switch to a high investment equilibrium and thereby benefit the debtor and the creditors alike.

**"Pension Policies in the OECD Countries: Background and Trends"**  
**by Robert Holzmann**

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Concerns about restructuring old-age income provisions and reforming public pension schemes are an OECD-wide phenomenon. This paper highlights the background of the reform debate and the central features of the ongoing reform process.

There are two main reasons why all 24 OECD member countries are either considering implementing or have already implemented reforms of their public pension schemes. First, the social and economic framework in which retirement schemes operate has changed substantially in recent decades, and this development has led, as a reaction, to considerations of reform. The paper broadly summarizes the changes in the socioeconomic framework under budgetary, economic, and social headings. The budgetary scope can be discerned from the increase in public expenditure for old-age income, rising as a percentage of GDP from 4.4 percent in 1960 to almost 9 percent in 1985. The economic pressures for restructuring retirement programs are based on their assumed negative impact on economic performance and, in particular, on labor and financial markets. The social changes requiring reform relate to increased female participation in the labor force, rising divorce rates, and changes in the family structure. The second main pressure for reform arises from anticipation of future developments, mainly of a demographic nature. On the basis of current demographic projections, all OECD countries can expect a significant shift in the age structure between now and the second quarter of the next century. The problems attendant on an aging population will be exacerbated in many countries as the social security systems themselves mature.

The paper surveys the numerous reforms that have been undertaken and that are currently contemplated. It summarizes the tendencies of these reforms in four broad conclusions. First, there is no move to abolish current public pension systems, but only a desire for reforms within the existing approach. Second, there is a tendency to give greater importance to basic income support for the elderly. Third, the approaches to reform are largely characterized by a double strategy that emphasizes both social adequacy and individual equity. Fourth, the reform considerations aim at a redistribution of the sources of old-age income, namely labor earnings, transfers, and capital income.

"Money Demand in the United States"  
by Liam P. Ebrill

In recent years, the U.S. Federal Reserve has been relying less on monetary aggregates and more on a broad range of economic and financial variables in conducting monetary policy. This trend was further emphasized in 1987 when the Federal Reserve decided to cease specifying an annual growth range for M1, the variable that had been viewed historically as the most reliable monetary aggregate in indicating changes in nominal income growth. This paper discusses and evaluates some of the factors underlying these changes.

Performance of velocity models is examined first. Various explanations for the pronounced reversal since 1981 of the previous steady upward drift in M1 velocity are considered, including the recent rapid pace of regulatory reform in financial markets. Also discussed is the possibility of using a different monetary aggregate to resolve the velocity riddle. In particular, the suggested use of M1A, which excludes interest-bearing deposit accounts, is evaluated. Evidence purporting to demonstrate the superior targeting ability of M1A is found to be inconclusive.

In light of the breakdown in simple M1 velocity models, the paper then presents illustrative estimates of more fully articulated money demand equations. The primary focus is on the estimation of the demand for real M1 balances. The results suggest that an "error correction" model may be an appropriate representation of real M1 demand. The forecasting accuracy of the resulting equation is such, however, as to suggest that the demand function for M1 may still be subject to shifts owing to the continuing process of financial reform and innovation. The regression results also confirm that the interest elasticity of demand for M1 has increased. This implies an increased sensitivity of M1 demand to unanticipated shocks, reducing the value of that aggregate as an intermediate target.

With regard to the other monetary aggregates, the estimated equation for real M1A demand resulting from the particular empirical strategy used in this paper is not well behaved--it implies explosive behavior in the sense that if M1A demand is greater than desired in a given period, then demand will increase in the next period. The estimated equation for the demand for real M2 balances, on the other hand, is well behaved. Nevertheless, there are questions about the use of M2 as an intermediate target variable owing to an inability accurately to control it.



**"Commodity Prices as a Leading Indicator of Inflation"**  
**by James M. Boughton and William Branson**

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This paper argues that primary commodity prices can be a useful leading indicator of inflation in industrial countries. Because the prices of most primary commodities are determined in flexible auction markets, they may have a tendency to respond relatively quickly, especially in response to monetary disturbances. Empirical tests using data for the large industrial countries support this hypothesis, although one must be careful to interpret the relationships correctly.

The tests presented in this paper lead to four main conclusions. First, there is a tendency for changes in commodity prices to lead those in consumer prices, at least when the data are denominated in a broad index of major-country currencies. In particular, turning points in commodity-price inflation frequently precede those in consumer-price inflation for the large industrial countries as a group. Second, there does not appear to be a reliable long-run relationship between the level of commodity prices and the level of consumer prices. Third, the inclusion of commodity prices significantly improves the fit of regressions of an aggregate (multi-country) consumer price index. Overall, however, the results do not seem to be sufficiently stable to improve post-sample forecasts, although the prediction record improves in the most recent period. Fourth, estimation of alternative commodity-price indexes, in which the weights are chosen so as to minimize the residual variance in aggregate inflation regressions, does not appear to offer significant advantages over a conventional export-weighted index.

"Monetary Policy Strategies"  
by Robert P. Flood and Peter Isard

The paper reconsiders some basic issues that arise in designing and implementing a strategy for monetary policy. Among the main points are the following:

1. Under the unrealistic assumption that both the authorities and the private sector know the macroeconomic structure, can observe all relevant economic variables accurately ex post, and have accurate ex ante information about the probability distributions of disturbances to the economy, the optimal strategy is a "state-contingent" rule, that is, one in which the policy instrument settings are contingent on the state of the economy, rather than the type of non-state-contingent targets that countries have adopted in the past. To the extent that the authorities' incentives to adhere to the rule are not time consistent, the optimal state-contingent rule can be made credible through institutional mechanisms to ensure precommitment to the rule by the policy authorities.

2. The resolution of credibility problems and the design of an optimal strategy become more complicated when there is considerable uncertainty about the economic structure and the nature of disturbances. On the one hand, there may be important potential gains from allowing the central bank to make use of the latest available information in its attempts to stabilize the economy. On the other hand, when the environment includes seldom-experienced events that are not amenable to any codification of policy reactions ex ante, the optimal state-contingent procedure for adjusting policy instruments on a timely basis in response to such events could neither be defined precisely nor monitored effectively, and would thus allow the authorities to be time inconsistent.

3. While the problems associated with complicated state-contingent strategies in an environment of considerable model uncertainty have led some economists to propose the adoption of simple policy rules, a mixed strategy of combining a simple rule with discretion may be preferable both to rigid adherence to the rule and to complete discretion. Such a mixed strategy would call for the authorities to follow a precisely defined (but simple) rule in "normal circumstances" and to override the rule only under certain types of conditions.

4. Institutional mechanisms that penalize central banks for exercising discretion in "normal circumstances" might be important for resolving credibility problems under a mixed strategy, just as they might be for precommitting the authorities to adhere rigidly to a rule in all circumstances.

5. In the context of a mixed strategy involving a simple rule that can be overridden under certain types of conditions, the arguments against some types of monetary rules lose their force.

"The Financial Reform in Finland"  
by Richard K. Abrams

In the 1970s, Finnish monetary policy operated through quotas on borrowing and indirect controls on bank lending. By the 1980s, however, a gray market had emerged that reduced the effectiveness of interest rate ceilings and credit controls at the same time that international integration eroded the effectiveness of capital controls. Rather than seeking to regulate the gray market, the Bank of Finland attempted to integrate it into the financial system, which required moving to an indirect, market-oriented monetary control system. This move forced the elimination of interest rate ceilings and the ending of credit rationing. The reform also required the creation of an efficient and active money market, which did not exist in a meaningful sense before 1986. The Bank of Finland created such a market by encouraging the development of the domestic certificate of deposit (CD) market. With the growth of this market, the Bank was able to downgrade its call money rate and, to a lesser extent, the base rate and to carry out policy through the CD market.

The main beneficiaries of the reform were borrowers whose access to bank credit had formerly been restricted because of rationing or who had been shut out of the market altogether because of interest rate ceilings. These beneficiaries included newer, smaller firms as well as quickly expanding firms. Banks also benefited since they were able to extend credit to all borrowers at market interest rates, while they were able to raise large amounts of funds at below market rates through their cartel on tax-exempt household deposits.

This reform was attended by a loss of autonomy in the conduct of monetary policy. Although the loss should not be blamed on the reform, the authorities appear to have had the choice of letting the regulated markets be dominated by the gray market or pursuing the reform and accepting some loss in monetary autonomy. Had they not acted, the gray market would probably have expanded, moving increasingly into channels outside the Bank of Finland's control. Had this occurred, not only would much of the financial system have become unregulated, but arbitrage between markets would have minimized any benefits from any remaining regulations.

With the end of rationing, household borrowing surged. Higher nominal interest rates did not discourage borrowers because previously the effective marginal interest rate had often been infinite. Reducing the benefits of tax deductions on interest payments would have slowed the surge in the demand for credit by raising the real after-tax interest rate on borrowing.

"Trade Dependency, Bargaining and External Debt"  
by Joshua Aizenman

This paper analyzes factors determining the effective repayment on outstanding debt in the presence of partial defaults, as well as the feasibility of renewed investment. It considers a multi-sector, two-period model of the world economy comprising developing and industrial countries. The industrial nations are characterized by a relative abundance of capital and less dependency on international trade. The developing nations can produce their final output by using several technologies with different degrees of substitutability between foreign and domestic intermediate products.

A large initial debt overhang may motivate a partial default by the developing countries that will initiate negotiation between the two blocks of countries. The threat associated with such bargaining is the loss of international trade if no agreement is reached. This threat is applied to the model to derive the outcome of bargaining over the effective repayment. The larger the sector in which there is little substitutability between domestic and foreign products, the greater the trade dependency of the developing nations, weakening their bargaining power and therefore increasing the amount they must repay. A strategy of outward growth has the cost of increasing trade dependency, but also has the benefit of making external finance more available.

Under certain conditions it will be beneficial for both blocks of nations to renew marginal resource transfers, conditional on targeting the investment on projects that will increase the trade dependency of the developing countries. This may occur if the developing nations repay less in exchange for allowing investment in trade-dependent sectors. If the marginal productivity of capital in the developing nations is high, the beneficial effect associated with the increase in future repayment generated by the investment in the trade-dependent sector will justify a renewed resource transfer to those nations (subject to the appropriate conditionality). A way to alleviate the monitoring problems associated with the needed conditionality is to execute the renewed resource transfer through a direct investment. Such investment will be targeted on the more trade-dependent sectors. Consequently, the move to a bargaining regime brought about by a partial default emphasizes the importance of direct investment as one of the few remaining channels for external finance of new investments.

**"Policy Reform, Shadow Prices, and Market Prices"**  
**by Jean Drèze and Nicholas Stern**

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This paper develops a framework for applying the theory of public policy to an economy with distortions, particularly those resulting from price rigidities and quantity rationing. Where market prices do not reflect social opportunity costs, the assessment of policy must incorporate shadow prices that reflect the full repercussions of having less of a given good (this involves a model) and a criterion for evaluating these repercussions.

Defined in this way, shadow prices become a useful analytical tool not only for project evaluation but also for the theory of optimal policy and of policy reform, and for structuring thinking and data gathering on applied problems. Since shadow prices cannot be defined without specifying government behavior (tax and commercial policy, redistribution policies, quotas, rationing, and so on), policy choices should be appraised using the same criteria as for projects. Policy choice and shadow prices are then determined simultaneously.

The paper applies this conceptual framework to show how changes in public finance policy can be assessed to reflect full general equilibrium repercussions. It also provides appropriate methods for calculating such "macroeconomic" social opportunity costs as shadow exchange rates, shadow discount rates, shadow wage rates, premia on savings, and so on. Finally, the framework has been applied to the analysis of two important applied problems: privatization and the reform of rationing systems. The paper emphasizes the need for systematic economic analysis and shows how structured argument can help define social opportunity costs, provide rules for their calculation, integrate cost-benefit analysis and the theory of policy, and, finally, guide our thinking and judgment on immediate policy problems.

**"The 'Gulliver Effect' and the 'Optimal Divergence' Approach  
to Trade Policies: The Case of Nepal"  
by Mario I. Blejer and Gyorgy Szapary**

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The relevant definition of its economic "size" is affected by a country's immediate environment. Though small in the world economy, a country could still act as a "giant" to its smaller neighbors, imposing on them its price structure and the consequences of its policies.

This paper examines the consequences of such a "Gulliver effect" on trade and reviews the policy options available to a small country whose economy is closely integrated with the economy of a larger neighbor that pursues trade policies with distortionary allocative consequences. The case of Nepal and India is considered. In India, the prices of tradables are influenced by its own protective trade policies, and, as a result, the protective features of these prices are "given" for Nepal, its smaller neighbor, which shares with India a long open border.

Whatever the merits of India's trade policies, they are not necessarily optimal for Nepal, given its different resource endowment and domestic market. Nepal's comparative advantage lies, inter alia, in its low labor cost and in having in need of protection fewer domestic industries producing capital and intermediate goods than does India. Optimally, therefore, Nepal should adopt an outward-looking, export-oriented strategy and give manufacturers access to inputs and capital goods at world quality and prices.

Nepal's situation requires an "optimal divergence" from the trade policies of India. This means that Nepal should allow the import of intermediate goods at world prices so as to provide the production of goods destined for export to third countries with higher effective protection than does India, although Nepal must reconcile itself to living with the high and dispersed effective protection rates of India for goods produced for the domestic market.

The case of Nepal illustrates that even if large countries, such as India, are price takers in the global context, they can impose externalities on the trade policies of small countries.

"A Note on the Public Choice Approach  
to the Growth in Government Expenditure"  
by Jack Diamond

Although primarily directed to clarifying factors influencing fiscal decision making, the economic theory of public choice also indirectly attacks the "Ricardian equivalence" thesis. The latter suggests that current taxpayers will take full account of the future tax liability entailed by debt financing, so that the latter will be indistinguishable from tax financing. Buchanan and Wagner (1977), among others, refute this suggestion, arguing that debt will differ from taxation in its economic impact and will increase public spending by reducing the perceived price of government services. Using a public choice approach to modeling government expenditure decisions, Niskanen has presented some empirical evidence based on U.S. Federal Government data to support the Buchanan-Wagner position.

In this paper, the evidence for the United States is re-examined using data for general government, and the findings are generalized to the other Group of Seven countries. The results are: (a) that deficit financing does appear to contribute to increased real government spending; (b) that the demand for government services as a whole does not appear to be income elastic; (c) that there is some evidence of a productivity lag in the government sectors of Canada, Japan, and the United States, but not in those of France, Italy, and the United Kingdom; and (d) that in most countries there is some partial evidence of economies of scale in the provision of government services, although these results are far from conclusive. The final section of the paper contains a general assessment of the significance of the findings and some cautionary remarks.

**"Nominal Interest Rate Pegging Under Alternative Expectations Mechanisms"**  
by Joseph E. Gagnon and Dale W. Henderson

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Should the money supply be controlled by pegging the nominal interest rate? Theoretical models suggest not, since such pegging can lead to price and output instability under certain assumptions about how expectations are formed and the links between output and inflation. However, once these assumptions are changed--if it is assumed, for example, that prices do not respond instantaneously to expected inflation, or if consumption is assumed to be affected by wealth--new analysis shows that nominal interest rate pegging can be consistent with stable prices and output.

The paper begins with a theoretical confirmation of the argument that, with adaptive inflation expectations, an economy is dynamically unstable when the authorities peg the nominal interest rate. However, simulation results for some econometric models seem to be inconsistent with the prediction of dynamic instability. Two possible reasons for this apparent inconsistency are considered. First, three apparently stable econometric models have nonvertical long-run Phillips curves. When the theoretical model is modified by making the long-run Phillips curve nonvertical, the resulting model may also be stable. Second, one of the apparently stable econometric models allows for wealth effects on consumption. When the theoretical model is modified by adding a similar wealth effect, the resulting model may be dynamically stable even in the presence of a vertical long-run Phillips curve.

In the mid-1970s it was shown that in a theoretical model with rational inflation expectations, the price level is indeterminate but real values are uniquely determined if the authorities peg the nominal interest rate. A different result is obtained in a theoretical model with staggered wage contracts and rational expectations. When the authorities peg the nominal interest rate, there are multiple solutions for both the price level and real variables. The difference in results arises because, in the staggered-contracts model, real variables depend on the lagged value of a nominal variable.

Money supply rules from a class with nominal interest rate smoothing are introduced into a model with staggered contracts and rational expectations. For each rule in the class, both nominal and real variables are determinate when interest rate pegging is viewed as the limit of interest rate smoothing. While different rules in the class have the same implication for the nominal interest rate, however, they have different implications for the paths of output and the other variables. This conclusion implies that designers of simulation experiments calling for nominal interest rate pegging in rational expectations models need to specify all the parameters of the money supply rule, not just the path of the target nominal interest rate.



**"The Impact of Macroeconomic Policies on the Level of Taxation  
(and on the Fiscal Balance) in Developing Countries"  
by Vito Tanzi**

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In recent years the level of taxation of many developing countries has experienced considerable fluctuations over relatively short periods. These fluctuations cannot, in many cases, be attributed to deteriorating tax administrations or to changes in the traditional determinants of tax levels, such as openness, exports of minerals, and per capita income. Other factors must consequently have played a significant role. This paper identifies these other factors as the countries' macroeconomic policies.

The paper first discusses the extent to which tax revenue is related to the level of the exchange rate and to the degree of import restrictiveness. The level of the official exchange rate is shown to have important effects on import duties, export taxes, sales taxes, and excise taxes. Import substitution policies are also shown to reduce tax revenue in the typical developing country.

The paper then discusses the connection between trade liberalization and tax revenue. It argues that a policy of trade liberalization, consisting of reduction in high import duties, imposition of (low) import duties on previously exempt imports, removal of quantitative restrictions, and devaluation will often be accompanied by important increases in revenue. Their effect on the fiscal balance will, however, depend on other considerations.

The paper takes up the issue of the impact of devaluation on the fiscal balance in the presence of a large external public debt. It challenges the conclusion of several economists that in this case devaluation inevitably worsens the fiscal balance.

A summary is presented of some earlier work by the author on the effect of an acceleration in the rate of inflation on the tax-to-GDP ratio. The absolute size of the fall in this ratio is shown to depend on the increase in the rate of inflation, the size of the collection lag, and the initial level of taxation.

Finally, the paper discusses the effects on tax revenue of financial policies. Low or negative real interest rates on domestic lending are likely to reduce the tax level by promoting the expansion of a curb market, the stimulation of capital flight, the dollarization of the economy, and the purchase of real assets.

The paper concludes that when macroeconomic policies are changing rapidly and significantly, it will be much more difficult for tax reforms to have important and identifiable revenue effects. In these circumstances, tax reform should insulate, to the extent possible, tax revenue from damaging macroeconomic developments.

**"Ricardian Equivalence and National Saving in the United States"**  
**by Liam P. Ebrill and Owen Evans**

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This paper is concerned with the impact of alternative fiscal measures on national saving. A recent research paper indicated that for each dollar of increase in tax revenue, national saving in the United States would increase by less than 25 cents, while a dollar of cuts in government purchases would have a positive national saving effect of nearly 70 cents. This result is close to Ricardian equivalence, which implies that the macroeconomic impact of fiscal policy depends primarily on the magnitude of public spending on goods and services, while the choice between tax- and bond-financing matters little. Given the present concern with the low level of national savings in the United States, such a result suggests that fiscal deficit reductions should be in the form of expenditure curbs rather than tax increases.

The paper begins by presenting the available range of theoretical frameworks within which the impact of different fiscal measures can be analyzed. It notes that the assumptions needed to validate the Ricardian equivalence proposition are restrictive. The pure life-cycle model would appear to be a more appropriate vehicle for analysis, though in some cases it may be important to recognize the existence of binding liquidity constraints.

The empirical section of the paper commences by re-examining the previous empirical findings supporting the near-Ricardian equivalence proposition and, in essence, replicates the results of the source paper referred to above. Problems exist with the methodological underpinnings of that paper, however, indicating that any inferences may be suspect. An alternative empirical specification is then adopted so as to obtain more definitive results. The equations estimated suggest that the U.S. economy may in fact be closer to the polar alternative of zero Ricardian equivalence than to that of complete equivalence.

The issue is then re-examined within the context of a complete macroeconomic model that exhibits short-run Keynesian behavior but retains long-run neoclassical properties. The results indicate that in a model of this kind, tax increases, cuts in transfer payments, and reductions in government expenditures are unlikely to have very different impacts on national saving. As a result, the choice of which measure or combination of measures to use would need to be made on other grounds.

**"Determinants of Long-Term Growth Performance in Developing Countries"**  
**by Ichiro Otani and Delano Villanueva**

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The growth performance of developing countries over the past two decades has been disappointing. Poor growth has been accompanied by a decline in the investment-output ratio in most countries, except in some oil-producing nations. Despite this decline, investment expenditures substantially exceeded domestic savings, leading to a rapid increase in foreign borrowing, a build up of external debt, and unsustainable external payment positions.

This paper follows up on a recently developed theoretical growth model capable of assessing these economic developments and the impact of macroeconomic policies on the long-term performance of developing countries by undertaking an empirical examination of their growth experiences. This examination can be useful in ascertaining the relevance of the theoretical growth model, in helping policymakers design appropriate growth-oriented adjustment programs, in setting priorities in their implementation, and in suggesting additional research aimed at the further development of growth models.

An overview of the theoretical model is followed by the empirical results based on the data averaged over 1970-85. The sample consists of 55 developing countries. The empirical findings lend support to the theoretical model's predictions on long-term growth. The fit of the equations is uniformly good, and the estimated coefficients of the equation have the right signs for all the variables; that is, the long-term growth rate of per capita real GNP is a positive function of the rate of domestic savings, the growth rate of exports, and the budgetary share of expenditures devoted to the improvement of human capital, and is a negative function of the cost of capital and the rate of population growth.

The regression results reveal different perspectives for growth experienced by developing countries. Expenditures on human capital had the most pronounced impact on growth in the low- and middle-income countries, owing perhaps to the returns on human capital being highest in the early stage of development, so that the improvement of human resources had a tangible and durable effect on labor productivity and thus on growth performance. The impact of the domestic savings rate on growth was less pronounced on the low-income group than on the middle- and high-income groups owing to the limited roles of public savings and of the banking system in channeling savings into the producing sectors in low-income countries. In contrast, the growth of exports contributed to output growth consistently in each income group.

"Government Spending and Inflationary Finance: A Public Finance Approach"  
by Carlos A. Vegh

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Governments, especially in developing countries, usually resort to using monetary policy in order to increase inflation (known as the inflation tax) as a means of raising revenue. What are the incentives that induce governments to make use of the inflation tax rather than other sources of revenue, given the well-known objections to such a method of government financing?

The paper focuses on the role played by inefficient conventional tax systems (that is, those with high collection and enforcement costs) in explaining the greater use of the inflation tax. In particular, it is assumed that the more revenues the government collects from a given conventional tax (such as the consumption tax) the higher are the collection costs per unit of revenue.

The paper shows that the inflation tax increases as government spending rises; larger revenue needs lead to a higher rate of inflation. Furthermore, the more inefficient the tax administration, the higher the increase in the inflation rate caused by a given increase in government spending. The analysis thus emphasizes the interaction between government spending and the efficiency of the tax system in understanding the inflation tax as a source of revenue.

A simulation provides additional insights. It shows that it is optimal for the authorities to choose a low inflation equilibrium. It also shows that the higher the initial level of government spending, the higher the increase in the inflation tax for a given increase in government spending. Interestingly enough, even if the inflation tax increases with government spending, the share of revenues from the inflation tax in total revenues decreases with higher public spending.

**"Exchange Rate Reform and Structural Disturbances  
in a Dual Exchange Rate Economy"  
by Jagdeep S. Bhandari**

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A great deal of attention has been devoted recently to a discussion of economies with dual exchange rates. A pervasive feature of such regimes is that there is considerable "leakage" between the two exchange markets. There seem to be two complementary reasons: first, illegal cross-operations are widespread; second, and more important, certain cross-transactions are officially sanctioned in every country that engages in multiple currency practices. Virtually none of the analytical literature on dual rate economies, however, recognizes the existence of such intermarket transactions; the few exceptions have been either unable to obtain analytical results and have thus had to resort to numerical solutions or have been unable to incorporate both types of "leakage." The present paper obtains analytical results in the context of a well-specified general equilibrium model that properly incorporates both fraudulent and authorized cross-transactions.

The framework is utilized to discuss the effects of a wide range of disturbances (such as devaluation, unsystematic allocative shifts in coverage of transactions between the exchange markets, domestic supply innovations and external inflation) upon certain domestic variables of interest, for example, price-output levels, real exchange rates, the exchange rate spread, and the level of reserves. The results presented in the paper show that the degree of compulsory cross-transactions and the penalty costs associated with illicit trade transactions substantially influence both the qualitative and quantitative results. For example, it is possible for devaluation to lead, in the short term, to a widening of the exchange rate spread and to a decline in official reserves, despite the absence of an initial worsening in the current account. Also external inflation may increase or decrease the domestic price level.

The principal message of this paper is that popular notions on the effects of devaluation or of other disturbances in a dual exchange rate economy are to be accepted with very considerable caution when the regime involves both varieties of intermarket transactions, as is inevitably the case in economies with multiple exchange rates.

**"Fiscal Expansion and External Current Account Imbalances"**  
**by Gloria Bartoli**

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This paper analyzes, in a general equilibrium framework, how fiscal policy transmits its effects to the current account of the balance of payments. Some empirical evidence is also presented, based on data from ten Latin American countries.

The main findings of the empirical estimates are three. First, the inflation tax, that is, one way in which the government deficit is financed, exerts a large negative effect on private savings and, hence, on the current account. Second, the equivalence of debt and tax financing of government expenditure (the so-called Barro-neutrality hypothesis) cannot be substantiated by the data. This implies a critical role of fiscal policy in the determination of external balances since a change in the taxation-borrowing mix appears to have a major influence on the current account through its effect on savings. Third, government capital expenditure crowds in private investment: it may do so because it increases productivity (when it provides infrastructure and services) or because it provides financial resources to the private sector. Therefore, government capital expenditure seems to exert a major influence on private investment that was found largely independent of foreign and domestic interest rates (providing an additional increase of 1.26 in total investment for every unit increase of public capital formation). But, since it also increases absorption, this expenditure will tend to worsen the current account, other things being equal. However, this would tend to be offset by the rise in profits, which, by increasing private savings, would improve the current account. Therefore, if projects show adequate returns, the initial negative position of the current account will be sustainable.

Various competing approaches explain the determination of the external balance: the monetary, the absorption, and the fiscal approach, as well as the traditional elasticities approach. Fund stabilization programs are seen to rely for their theoretical background on a mixture of the monetary and absorption approaches.

In recent years, a more comprehensive general equilibrium approach based on intertemporal optimization has been developed. Several models based on this approach concentrate on the role of private agents' saving and investment decisions and analyze whether present generations expand their budget constraint by taxing future generations via government budget deficits, which, in turn, create deficits in the current account. The model presented here is based on a similar theoretical framework, but it focuses on the behavior of private and public agents. An appendix presents an integrated system of financial, external, and government accounts.

"Trade Policy and Macroeconomic Balance in the World Economy"  
by W. Max Corden

The paper is concerned with the relationship between trade policy and the current account. First, it asks whether protection can be presumed to improve a country's current account given a floating exchange rate regime. Increased protection would normally lead to appreciation and can affect savings and investment in various ways. Notably, a tariff brings in revenue, which, if not spent, can reduce the budget deficit. Because of other possible effects (e.g., higher investment in protected industries), however, the presumption that the current account will improve is not necessarily valid. Furthermore, even if lowering protection abroad (say, in Japan) reduced the surplus there, this reduction would be likely to diminish the U.S. current account deficit only by shrinking U.S. investment.

If the exchange rate is fixed and the country is initially in "internal balance," protection will improve the current account because of its effects on savings and investment through the reduction in expenditure required to maintain internal balance when import restrictions are imposed.

A current account deficit may increase pressures for protectionism because of "conservative resistance,"--that is, pressure groups in the tradable-producing sectors will resist losses in real incomes. Through the real appreciation that results, protection then tends to put at a disadvantage producers of tradables who are unable to obtain adequate protection. But it is possible that conservative resistance is stimulated not so much by a current account deficit as by real appreciation--and these may not go together--or by a boom in exports from particular countries, especially if these exports are concentrated in particular products not associated with current imbalance at all?

The paper goes on to other questions. Is a current account deficit, as such, a problem? How should its possible stimulation of protectionism affect macroeconomic policy? Finally, the paper sketches various ways in which trade tensions may originate in macroeconomic developments in the future.

"The Fiscal Implications of Trade Liberalization"  
by Mario I. Blejer and Adrienne Cheasty

Besides its well-known impact on the external sector, production, and prices, trade liberalization also affects the fiscal balance. The balance may change not only because tariff revenue falls, but because liberalization-induced changes in the exchange rate and in the level and sectoral distribution of income and employment have macroeconomic effects that feed through to other elements of the budget.

Even if the liberalization produces a clear improvement in the fiscal balance in the long run, short-run effects, as well as the process of adjustment to more open trade, may be costly for the government. A temporary recession as factors shift could reduce revenue bases and could lead to pressure on the government to expand its demand and its support for shrinking sectors. Unless these temporary costs are anticipated, they could force government to reverse the liberalization.

The long-run gain to the budget from the liberalization-induced expansion of income will be realized only if the tax and transfer systems are broad, neutral, and efficiently administered. Otherwise, wide shifts in the sources and concentration of income and expenditure could erode the budget balance even in the long run.



"Debt Relief and Leveraged Buy-Outs"  
by Michael P. Dooley

A potential investor in a debtor country faces the possibility that he will be taxed in order to help pay off existing creditors. This paper develops a simple alternative to a technical literature that has recently been developed to help understand how investors, both individually and as a group, might respond to this problem.

The main conclusion is that when partial debt forgiveness could lead to more investment and ultimately to a bigger payoff for creditors as a group, investment opportunities will not always be fully exploited by market forces. Potentially profitable investment could, however, be helped along by the debtor country. What is needed in such cases is some mechanism for ensuring that creditors, or groups of creditors, who grant forgiveness are given a headstart in capturing the profitable investments that will exist after the forgiveness. This is, of course, a difficult problem since it is not easy to design institutional arrangements that provide credible assurances of this nature. A practical proposal along these lines is the next research objective.

**"Commodity Markets and the International Transmission of Fiscal Shocks"**  
**by Carmen M. Reinhart**

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In its simplest form, the "engine of growth" argument holds that economic expansion in a large country, such as the United States, lends momentum to growth in its trading partners. As this argument routinely links growth in developing countries to growth patterns in industrial countries, this paper formulates an analytical model designed to analyze these putative links.

To focus on the role that the commodity market plays in transmitting disturbances internationally, the analysis employs a three-country setting: two industrial commodity-importing countries and a developing primary-goods exporter. The manufactured goods produced in the industrial countries are consumed by households in all three countries. In the short run world commodity supplies are fixed. Over time commodity supplies adjust in response to changes in real wages in the commodity-producing country. Real wages depend on the terms of trade, which, in turn, depend on the consumption basket of consumers.

The analysis indicates that, contrary to the implications of the engine-of-growth argument, an increase in government spending that boosts output in the "home" country, say the United States, will either increase or decrease growth in the developing, commodity-exporting country, depending on consumption preferences in that country, but will unambiguously reduce the output of the second commodity-importing country.

**"The Demand for International Reserves and Their Opportunity Cost"**  
**by J.M. Landell-Mills**

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The international reserve holdings of countries should be affected by their opportunity cost in terms of returns on alternative assets. Traditional reserve literature has postulated that this should be true, but when the opportunity cost was defined as the domestic discount rate or the international bond rate (to proxy domestic returns on capital), it was found not to be significant.

In an effort to increase understanding of how reserves function, this paper reports empirical work showing that the reserve holdings of countries that also borrow on international capital markets--particularly of countries that have debt-servicing difficulties--are in fact significantly affected by the cost of holding these assets when this cost is defined as the international borrowing rate, less the rate on short-term liquid assets in which reserves are typically held. Pooled cross-section analysis on a full sample of non-reserve-center industrial and developing countries shows that the net opportunity cost measure defined above was a highly significant determinant of reserve holdings between 1978 and 1982 for all countries. Regressions run on individual country groups show that the rate was more significant for countries that were to develop debt problems after 1982 than for the others.

When the costs of a country's international reserve holdings are assessed in this way, two conclusions emerge: reserves can be costly to hold, and they are vulnerable to international financial shocks. When international interest rates rise, spreads increase, and, according to the results of this analysis, countries economize on reserves. When, in particular, the range of spreads expands, so that the less creditworthy countries face higher borrowing costs, these countries, which are shown by the analysis to be more responsive to international borrowing costs than others, will adjust reserve holdings more quickly.

"Evolution of Exchange Rate Regimes"  
by Robert P. Flood, Jagdeep Bhandari, and Jocelyn Horne

To advance the study of issues relating to the evolution of exchange rate regimes, this paper develops a simple model that attempts to explain certain aspects of recent changes in the economic environment. The analysis may elucidate why countries alter their exchange rate policy in a predictable manner, although sometimes with great reluctance and often with seeming delay.

Historical shifts in exchange rate regimes are discussed, and attention is drawn to the major trend in the 1970s toward flexible exchange rates. The paper presents an empirical investigation of the changing economic environment surrounding these regime shifts. In particular, it investigates the variation over time of real and monetary shocks and the divergence of inflation rates and government expenditures of the main industrial countries. A sharp divergence in cross-country inflation rates occurred in the early 1970s, a decade shown to be more turbulent than the 1960s and 1980s. Empirical regularities are captured in the theoretical analysis.

A theoretical model is constructed that helps explain two types of changes in exchange rate regimes. The first is an initial switch in response to an unexpected event, such as a real or monetary shock or a sudden large change in desired government spending. The second is a predicted return to the prior regime. A policymaker may switch temporarily from one regime to another although he plans to return to the prior regime at some point in the future. Such a decision may be viewed as an optimal response to variances in real, relative to monetary, movements or in desired government spending that are expected to return to their steady-state level. In both examples, the switch may be delayed because of fixed costs incurred by policymakers in restructuring the existing exchange rate regime.

**"An Analysis of Reserve Tranche Positions and Their Use"**  
**by Samir Fawzi**

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Reserve tranche positions are liquid claims on the Fund that arise partly from the reserve asset payments for quota subscriptions but mostly from the sale by the Fund of the currencies of members in strong external positions to other members with balance of payments financing needs. The reserve tranche position provides less flexibility to holders in the management of their reserves and receives a lower effective rate of return than do other reserve assets created by the Fund.

In the early 1980s, the reserve tranche positions of the industrial countries and the major oil exporters increased substantially, reflecting the large expansion in the use of Fund credit, while those of the non-oil developing countries increased marginally. By contrast, reserve tranche use has been considerably higher for non-oil developing countries as a group although some of them have not made any use of their reserve tranche positions. The use of reserve tranche positions by the industrial countries and the major oil exporters has been significantly below the proportion of their total reserves held in this form, implying that they preferred to use other reserve assets in case of a balance of payments need.

An examination of the frequency and magnitude of reserve tranche use during 1979-87 shows that such use occurred over short periods, and that once used, these reserve tranche positions could not be reconstituted for further use unless the user's currency was sold by the Fund in its operations and transactions. The examination showed further that the non-oil developing countries used their reserve tranches more frequently than other country groups; the timing of reserve tranche use was correlated positively with indicators of balance of payments need, although the relative importance of these factors varied among the major country groups; and, the amount of reserve tranche use appeared not to be greatly influenced by the magnitude of these factors. The rate of return did not significantly affect the holding and use of reserve tranche positions by members.

The fairly limited recourse to reserve tranche positions by some members may reflect other factors, including the perception that such use of Fund-related assets could be interpreted as an indication of weak balance of payments and reserve positions. In addition, there may have been a preference to use other reserve assets, possibly because of concern by some members with large quotas that encashment of their reserve tranche positions could create difficulties for the Fund's liquidity position. Such apprehension should, however, be alleviated by the precautions taken by the Fund to protect its liquidity position.

**"The Stabilizing Role of the Compensatory Financing Facility:  
Empirical Evidence and Welfare Implications"**

**by Manmohan S. Kumar**

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This paper analyzes the role of the compensatory financing facility in stabilizing foreign exchange earnings. It might be expected, a priori, that the stream of export earnings for a country using this facility would be more stable than export earnings without it. This paper subjects this expectation to empirical verification by developing and utilizing a methodology that provides an indication of the stabilizing role of the facility. The results are used to examine the impact on reserve requirements and to compute a measure of welfare gain from the facility.

Data for 79 countries (192 compensatory financing facility cases) show that the interval between the end of the shortfall year and purchases under the facility averaged less than three months. This suggests that the facility may well have had a stabilizing influence. A detailed investigation indicates that the facility led to an improvement in the stability of earnings on the order of 5 percent. While its magnitude may be considered small in absolute terms, the improvement is statistically significant, and, given that it is averaged over 11 years, it is also significant from an economic point of view. The study then examines the robustness of these results to alternative rules for adding purchases to export earnings. Although the magnitude of their effect on stabilization differs, the above conclusions remain generally valid.

The study also examines the economic significance of the decline in instability through a detailed analysis of the difference likely to have been made to the countries' reserve requirements. A demand function for international reserves, with instability as an explanatory variable, is estimated for a large sample of countries, and from this it is deduced that the compensatory financing facility could have led to an average saving of 7 percent in reserves. A second exercise uses a standard welfare framework to analyze the welfare gain to countries from reduced earnings instability. This gain consists of the benefit from reduced instability as well as the concessional rate of charge on purchases from this facility. Although the results are sensitive to assumptions regarding the countries' degree of risk aversion, it appears that on average there was a gain to the members.

**"Exchange Rate 'Fundamentals' Versus Speculation: The Case of Lebanon"**  
**by Christopher M. Towe**

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The Lebanese exchange rate underwent an extended period of decline from the end of 1982 to the end of 1986, depreciating at an average annual rate of some 50 percent in nominal effective terms. Over the first 11 months of 1987, the Lebanese pound depreciated at an annual rate of over 85 percent, but, from November 1987 to June 1988, strengthened, surprisingly, by nearly 50 percent. This paper analyzes how much the pound's decline and subsequent rise can be ascribed to market reaction to fundamental economic variables and how much to speculation on the pound's future value.

This distinction is important for formulating policy. In the one case, undesired appreciation or depreciation call for addressing the fundamental variables deemed relevant in determining the exchange rate. If, instead, speculative forces independent of the authorities' economic policies determine the exchange rate, the appropriate response will depend on the perceived costs of speculation and the authorities' credibility in enforcing a given exchange rate.

The paper attempts to resolve this issue in the case of Lebanon by first estimating a structural exchange rate for the pound. The results indicate that the pound's behavior during 1983-87 is largely explained by the excessive growth of pound-denominated liquidity. Tests of the residual impact of speculative forces were conducted by comparing the estimates for the structural equation based on data up to September 1988 with those based on data up to April 1988. Further tests were conducted on univariate and multivariate time-series models of the exchange rate. The results were largely uniform in their support of the hypothesis that the depreciation of the pound up to November 1987 was a result of a rapid growth in domestic currency liquidity, rather than speculation.

**"Tax Policy and National Savings in the United States: A Survey"**  
**by A. Lans Bovenberg**

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This paper explores how tax policy affects saving in the United States and examines the issue of which policy instruments are most effective in raising the level and improving the quality of U.S. national savings. Analysis of the tax treatment of private savings tends to support the view that, while its effect on the level of private saving is relatively small and uncertain, its effect on the composition of savings and investment is significant.

The income tax system in the United States discriminates among different types of saving and investment and largely exempts several forms of capital income from taxation. This differential tax treatment has distorted the allocation of savings among owner-occupied and rental housing, other durable consumer goods, intangible corporate assets, and various types of nonfinancial business assets. Taxes have also affected the external current account balance because they influence the share of foreign and domestic saving that is invested domestically.

High inflation rates at the end of the 1970s exacerbated many of these allocational effects of differential tax treatment. Whereas the Tax Reform Act of 1986 and lower inflation rates have mitigated some of these effects, the growing integration of world financial markets has tended to strengthen the distortionary impact of differential tax treatment.

The empirical and theoretical literature suggests that tax policy affects the level of personal saving most significantly through income and wealth effects rather than through intertemporal substitution effects. The 1986 Tax Reform Act may decrease private and corporate saving by raising corporate tax payments and encouraging firms to pay out a larger share of their profits as dividends.

The paper observes that raising public saving by reducing the fiscal deficit is the most direct and efficient way to increase national savings in the United States. It also suggests a number of tax measures that would not only increase public saving by raising government revenue but would also enhance the efficiency of private savings and investments through favorable incentive effects. In particular, the revenue share of consumption taxes, especially those on durable goods and energy, could be raised. While the income tax could be maintained as a component of the tax system, its structure could be improved both by integrating personal and corporate taxes and by indexing and broadening the income tax base.



"Equilibrium in a Non-Interest Open Economy"  
by Abbas Mirakhor

This paper addresses the question of macroeconomic equilibrium in an economy in which there are no interest-bearing assets, the rate of return to surplus funds invested on a profit-sharing basis cannot be determined ex ante, and the only nonmoney assets available are those representing ownership claims to capital stock (equity shares). Based on well-known models, three sets of long-run equilibrium conditions are derived for a closed economy, for an open economy with trade in goods only, and for an open economy with trade in both goods and equity shares.

The long-run equilibrium in the closed economy is shown to depend on the market rate of return to equity and profit rates. For the open economy, it is shown that the introduction of trade in goods alone does not, in and of itself, change the long-run equilibrium of the economy. However, when trade in equity shares also is allowed, the equilibrium is affected. In the most general case, it is demonstrated that the direction of capital flows depends on the differential between the domestic and foreign rates of return to equity shares. Finally, it is shown that, under a fixed exchange rate regime, much of the adjustment induced by exchange rate changes will be channeled through the asset account. In general, the paper demonstrates that the absence of interest-bearing assets need not hamper either the workings of the economic system or the macroeconomic analysis of such a system.

"Are All Summary Indicators of the Stance of Fiscal Policy Misleading?"  
by G.A. Mackenzie

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Summary indicators of the fiscal stance regularly calculated by both the Fund and the OECD are used in appraisals of demand-management policy. These indicators and the flow-of-funds deficits on which they are based have been the object of two distinct lines of criticism in recent years. The first argues that the standard flow-of-funds deficit is too narrowly defined; one critic, in particular, has argued that the deficit should include changes in the public sector's net worth from whatever source, including relative price effects on the value of public assets. The other line of criticism argues that the deficit, however adjusted or defined, is devoid of economic significance, because it does not properly measure the impact of fiscal policy on savings and capital formation. This impact results from the changes fiscal policy brings about in the distribution of wealth between generations.

The paper summarizes and appraises these two lines of criticism. As an illustrative example of the implications of broadening the deficit to include relative price effects on the public sector's net worth, the paper discusses the case for and against including, in the measure of the deficit, changes in the value of crude oil reserves in the public domain. For some purposes it could be useful to include such changes, but it is also clear that their inclusion could be misleading, so that the best course would be to present an estimate of the impact on public-sector net worth of the change in the value of the reserves as a piece of complementary information. At least in the case of crude oil and other mineral reserves, it may be possible to make a reasonable estimate. For many public-sector assets, such estimates would be arbitrary at best. Even if estimates can be made, it is unclear why they should be included in the flow-of-funds measure of the deficit from which summary indicators would be derived.

The second line of criticism depends crucially on the assumption that a change in current income of households has no effect on consumption if it does not alter household wealth. Ricardian equivalence is assumed to apply, so that a tax cut now will be financed by a tax increase later. Consumption is affected only if different generations are unequally affected by fiscal policy: it would be increased if the wealth of older generations is increased and that of younger generations reduced, because the marginal propensity to consume of the first group will be less than the second. The weakness of this line of criticism is its dependence on extreme assumptions about human behavior and the absence of liquidity constraints. Nonetheless, summary fiscal indicators can be misleading and need to be used with caution.

**"The Macroeconomic Effects of IMF-Supported Adjustment Programs:  
An Empirical Analysis"**  
**by Mohsin S. Khan**

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In the past decade there have been a number of empirical studies examining the effects of Fund-supported adjustment programs on key macroeconomic variables, such as the current account and the overall balance of payments, inflation, and the rate of economic growth. Such evaluations play an important role in the design of programs since the lessons they yield--positive and negative--are incorporated into the thinking and operations of the Fund. The objective of this paper is, first, to survey the studies produced both within and outside the Fund and, second, to provide new estimates of the effects of programs using a comprehensive data set covering most of the developing countries that had programs with the Fund during 1973-86.

The survey of the literature showed considerable diversity in the approaches that have been used in evaluating programs, and also in the results obtained. If the proper standard for measuring program effects is to compare the macroeconomic outcomes under a program with the outcomes that would have emerged in the absence of a program, or under a different set of policies, that is, when compared with the counterfactual, then none of the approaches generally employed so far is fully satisfactory. By and large, the evidence provided by these studies on program effects is fairly inconclusive--with a small majority indicating that programs lead to an improvement in the current account and the overall balance of payments, and no distinct pattern evident in the cases of inflation and growth performance.

More clear-cut evidence emerges from the independent tests that are undertaken in the paper. These tests, which are based on statistical methodology that is closer to the counterfactual criteria, show that in the first year of the program there is typically an improvement of the balance of payments and the current account balance, a reduction in inflation, and a decline in the growth rate. When comparisons are made over a two-year period, the positive effects of programs on the balance of payments, the current account, and inflation are strengthened, and the negative effects on growth reduced. Programs also appear to have been more effective in improving the external balance and inflation in the 1980s as compared with the 1970s, and the costs in terms of reductions in growth have been relatively smaller.

**"Model Uncertainty, Learning, and the Gains from Coordination"**  
**by Paul R. Masson and Atish R. Ghosh**

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The issue of model uncertainty and policy coordination is re-examined in this paper, using estimated variants of the two-country, rational expectations model developed by Oudiz and Sachs. Stochastic simulations to evaluate the ex post gains from coordination are performed. Policy-makers are assumed not to know which of the models is correct, but to set policy (in either a coordinated or uncoordinated fashion) using expected utility maximization.

In one case, policymakers are assumed not to change their view as to the correct model; in this case, policy coordination may produce a large fall in welfare. It is also true that activist uncoordinated policies may have negative consequences; the best policy may be an exogenous money target and freely flexible exchange rates. In the second case, policy-makers learn from observed data on macroeconomic variables and update their view as to the correct model. The existence of learning is shown to rule out the most serious negative consequences of model uncertainty for policy coordination. As a result, under reasonable conditions, policy coordination should emerge as the best of the three alternatives, at least when the "true" model is unchanging.

"Optimal Intertemporal Taxation on Consumption and  
the Term Structure of Government Debt"  
by Howell H. Zee

In the modern literature on the determination of government debt, two distinct strands of investigation can be discerned. The first relates to the size of debt and the second to its term structure. This paper develops a basic neutrality result concerning the term structure of debt under optimal intertemporal taxation on consumption in an economy with fixed intertemporal prices. This result has important policy implications for small open economies in the choice of an optimal, time-consistent form of taxation.

Until recently, it was assumed that the term structure of debt did not matter, as long as no market imperfections, such as capital rationing, existed. The current literature on the subject has demonstrated, however, that this presumption might not be correct. The time-consistency problem has to do with the fact that optimal policies, as viewed by governments at different dates, may not coincide, even when there is full information and the governments share a common, unchanging, objective function. The reasons for the occurrence of time-inconsistent policies in certain classes of models, particularly those dealing with monetary economies and those involving capital accumulation, are by now well understood. In a monetary economy, a government always has an incentive in any given period to spring a surprise inflation, the nature of which cannot be taken into account by the optimization calculus of governments in prior periods. In an economy with capital, it can be shown that optimal capital-income taxation is time inconsistent because of the durable and supply-inelastic characteristics of the capital already in place.

The most provocative aspects of the literature involve, however, the finding that the time-consistency problem can occur even in a barter economy without capital and the discovery that the problem can be solved--that is, an optimal policy can be made time consistent by an appropriately determined term structure of government debt, provided that interest rates are responsive to changes in the structure of debt maturity. An important implication of this result is that for small open economies facing given world interest rates, optimal policy cannot be made time consistent by debt restructuring.

This paper shows that, under a variety of circumstances, these economies can avoid being trapped in the time-consistency quandary by adopting a tax on consumption rather than on wage income (the common form of taxation assumed in the time-consistency literature). When this result applies, the neutrality of the term structure of debt is restored, and the tax-smoothing theory of debt determination is reaffirmed.

