

International Co-ordination of Macroeconomic Policies: A Review

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I Introduction

In the last 30 years, there has been a significant increase in the interdependence of the industrial market economies. World trade has grown at unprecedented rates and, especially since the early 1970s, world financial markets have become more and more integrated. This experience has altered the environment within which macroeconomic policy is made. Governments and central banks are now more than ever aware of the international repercussions of domestic policy, as well as the effects on the domestic economy of outside policies. Despite this growth in economic interdependence, macroeconomic policy is for the most part still determined by sovereign governments to satisfy national objectives. This fact raises the question of whether what is good policy for a single economy is also good for its trading partners. Do individual governments, acting independently at the national level, choose policies with undesirable features at the global level? Would governments do better by co-ordinating their macro policies?

There has been considerable interest in these questions in recent years, by both theoretical and policy-oriented economists, with numerous calls for increased interna-

national co-ordination of macroeconomic policy, generating a developing literature on the welfare effects of policy co-ordination. A large part of this interest probably stems from the experience of the early 1980s, when the US combination of tight money and expansionary fiscal policy was perceived to be exceptionally damaging to the prospects for recovery in the European economies. However, there are many other examples of situations where it was widely believed that the macroeconomic policies of the world's large economies were seriously 'out of sync'.¹

This paper reviews the issues involved in international macroeconomic policy co-ordination. While co-operation between governments takes place at many levels, such as in the International Monetary Fund (IMF), General Agreement on Tariffs and Trade (GATT) and the European Community (EC) etc., there has been much less experience with direct international agreements on discretionary monetary and fiscal policies. Yet the theoretical literature, utilizing the techniques of game theory, has mainly examined the benefits of this type of macroeconomic policy co-ordination. Thus, as in many areas in economics, there is some difficulty in directly applying theoretical prescriptions to actual policy

situations.

We begin with a general survey of post-war experience which has a bearing on policy co-ordination. Direct policy agreements at the supra-national level have been rare. Nevertheless, the institutions of international trade and finance have constrained the choices of national economic policies to some extent, thereby achieving co-ordination of a kind. In addition, there has been a growth in the frequency of high-level contacts between policy-makers, the economic summits being the most visible of these. These venues allow for the exchange of information and the airing of grievances, if not always for direct policy agreements.

A later section of the paper presents the theoretical arguments for macroeconomic policy co-ordination. When large countries make policy choices in an interdependent world, they are involved in a situation of strategic decision-making. In these situations economic theory suggests that the outcome may be significantly different depending on whether or not there is co-operation among decision-makers. Non-co-operative policy-making imposes 'spillover' effects on other countries, which at the global level results in an inefficient equilibrium. Most theoretical literature predicts welfare gains for all countries from policy co-ordination, although there are some exceptions.

Welfare gains may exist in theory. This does not establish that they are significant in practice. Because the theoretical literature ignores the costs of setting up co-operative institutions, it is not at all clear that potential gains in these models establish a case for co-ordination. We present a number of qualifications based upon recent studies which suggest that the gains to co-ordination are small. In some plausible circumstances, moreover, they may even be negative.

Despite this qualification, it remains the case that economic interdependence forces policy-makers to recognize the international dimensions of their actions. In a final section of the paper, we evaluate the

prospects for policy co-ordination, accepting that it is likely to be carried out to a limited extent only. A good approach to international co-ordination we argue, would be for the US to maintain a balanced path of monetary and fiscal policies, with the response of other economies being somewhat less important. This relates to a more general point concerning the interpretation of existing macroeconomic policy-making. If governments are following inefficient policies at the national level then the potential benefits from improving domestic policy may be more important than those arising from international co-ordination.

At the outset we should mention an important distinction between forms of economic co-operation. Most structural features of the international economy, such as the world trading system, depend for their survival on implicit co-operation between nations, e.g., GATT. These structures are probably far more important for world welfare than any gains from the co-ordination of macroeconomic policies. Nevertheless, in this essay we concentrate solely on the issues involved in co-ordinating the latter types of policies. Apart from the obvious requirement of restricting our field of analysis in a manageable way, an argument for this limited focus might be made on the grounds that in the current international environment, governments have far more discretion with respect to monetary and fiscal policies than to the broader types of structural policies.

There is one important qualification to this argument. Erratic monetary and fiscal policies, such as in the recent US experience, can cause significant real exchange rate misalignments and trade imbalances that bring forth protectionism in politics, thereby threatening the trading environment itself. To the extent that this threat is real, and protectionism relatively irreversible, this just underlines the importance of the co-ordination of macro-economic policies between countries.

II The Historical Experience of Policy Co-ordination

The Bretton Woods agreement of 1944 set the scene for international policy co-ordination in the post World War II era. The aims of the agreement were to provide a stable system for international balance of payments adjustment, and to avoid the competitive depreciations which had plagued the 1930s. All member countries' exchange rates were to be fixed relative to the US dollar, and the dollar in turn had a fixed parity in terms of gold. The central institution of Bretton Woods was the IMF. The IMF was given the power to make short-term adjustment loans to countries with reserve shortages. A member country could realign its currency only in the case of 'fundamental disequilibrium'. Although the IMF was at the centre of the agreement, it had no powers to enforce policy decisions on member countries. The main hope was that the discipline of maintaining the fixed parity would bring about policy co-ordination.

Things did work this way for a relatively long time. Most currencies were convertible by the early 1960s. With the exception of the Canadian dollar, which was floating over the period 1950–1962, there were few realignments of major currencies before the British devaluation of 1967. With the exception of the US, member countries did constrain their monetary policies to maintain exchange rate parity.

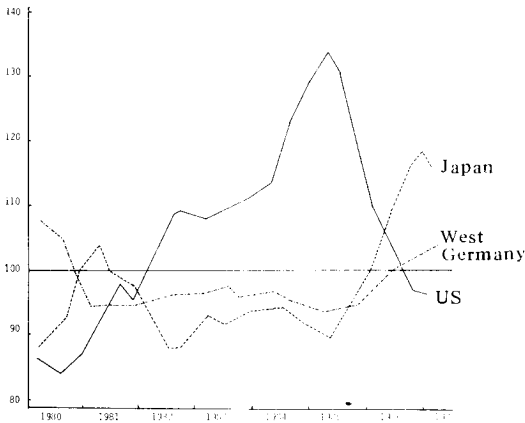
There were some major flaws in the Bretton Woods system, however. Policy co-ordination in Bretton Woods took the form of adjusting domestic monetary policies in accordance with balance of payments surpluses or deficits. The IMF was to provide short-term financing for payments imbalances. Perhaps the biggest flaw was the *lack* of discipline it imposed on US monetary authorities. The dollar became the reserve currency, and during the 1960s, the US ran large balance of payments deficits causing a 'dollar glut'. Confidence in the dollar weakened progressively, and by the end of the decade there were calls for a

devaluation against gold. A series of exchange rate crises took place at the same time as it became obvious that currencies were seriously misaligned. The increased degree of international capital mobility during the 1960s allowed for overwhelming speculative pressure against central banks, making it impossible to defend exchange rate parities.

Academic economists began to extol the merits of flexible exchange rates. They argued that the Bretton Woods system was asymmetric in the sense that deficit countries (aside from the US) had to take disciplinary action to protect reserves, while surplus countries were unwilling to allow the domestic monetary expansion necessary to achieve balance of payments adjustment. A flexible exchange rate would achieve balance of payments equilibrium automatically, avoiding a prolonged and painful period of adjustment. In the Bretton Woods system the exchange rate, once pegged, took on an undue psychological importance which led central banks to go to extreme lengths to defend it. This could bring with it a host of distorting financial restrictions. More important, the nature of the system forced European countries to import US-created inflation. Flexible exchange rates would allow a country to follow an independent monetary policy and thereby its own inflation rate (or indeed a stable price level).

The Bretton Woods system collapsed in 1971 due to the lack of US monetary discipline. After an abortive attempt to re-establish a new set of parities, most currencies were floating by 1973, and since then there have been no serious attempts to move back to a system of fixed rates. Some major currency blocks exist, though. One example is the European Monetary System (EMS), set up in 1978 to establish a set of parities between the European countries (with the exception of Britain), and which to date has been relatively successful.

The move to a flexible exchange rates system was expected to remove the necessity for co-ordination, and to allow for



(Indices 1976–85 = 100)
 SOURCE: IMF, World Economic Outlook, 1987
 Relative normalized unit labour costs.

Figure 1 Indicators of real effective exchange rates, 1980–87

greater policy autonomy. The experience of flexible exchange rates has produced some surprises in this regard, however. What was not clearly recognized at the time was that free international capital flows generally invalidate the conclusion that floating exchange rates insulate an economy from foreign disturbances. If anything, the 1970s and '80s saw an increase in interdependence between industrial countries. The major unanticipated feature of the new system was the very large variability in both nominal and real exchange rates. Far from converging to stable equilibrium levels, exchange rates showed great short-term volatility, as well as persistent long-term fluctuations around trend.

Figure 1 describes the paths of real exchange rates for the US, Germany and Japan for the 1980–87 period. Real exchange rates are market exchange rates adjusted for national price levels. If strict purchasing power parity holds, so that the domestic currency price of any foreign good is equal to the price of that same good in the domestic economy, the real exchange rate should be unity (in the figure it is normalized at 1976 = 100). A rise in the real exchange rate indicates that domestically produced goods are becoming more expensive than the domestic currency price of for-

eign goods, and thus indicates a loss in competitiveness for domestic export firms and import competing firms.

Basic economic theory suggests that the real exchange rate would be determined by comparative structural features of economies, such as relative cost and demand variables. Thus we might expect the real exchange rate to converge to some fairly stable level, reflecting these factors, with the nominal exchange rate on average adjusting to differential national inflation rates.

The experience has been otherwise. The large swings in real exchange rates evident from the figure indicate that there were major changes in cost competitiveness, for instance the US suffered a 25 per cent loss of competitiveness in the 1984–86 period. Likewise, in more recent times, the Japanese economy has experienced a loss in competitiveness. Moreover, there is little evidence that these swings are self-correcting, or that real exchange rates are approaching stable equilibrium levels.

There is a widespread belief that the large real exchange rate fluctuations arose because of imbalances in policy stances among major economies. This belief led to a renewed interest in policy co-ordination. However, co-ordination now takes the form of direct communication between finance ministers and heads of state at economic summit meetings, rather than the automatic discipline of the fixed exchange rates era.

Economic summit meetings began in 1975. Their membership is comprised of the seven major industrial countries: US, Germany, Japan, France, UK, Canada, and Italy. A number of explicit policy 'deals' have been made at these summit venues, although in normal times they serve only as a platform for consultation and airing of grievances. The Bonn summit of 1978 concluded an agreement between the US, Germany, and Japan. In return for the US agreeing to raise the price of oil to world levels, thus stemming a large trade deficit, Germany and Japan agreed to reflate at a

faster rate.

As the 1980s progressed, the main problem for international policy co-ordination was the issue of fiscal imbalances. The high US fiscal deficits raised great concern among the European economies, still attempting to emerge from the 1981–82 recession. At numerous summit meetings attempts have been made to come to grips with this issue. In February, 1987, a meeting of Finance Ministers in Paris led to an agreement that called for some fiscal expansion in Japan and Germany in return for a US commitment to reduce its budget deficit. The success of this agreement remains to be seen. In fact it might be argued that these countries merely agreed to take actions which they would have followed on their own anyway.

Apart from the summit meetings, there are various other venues for discussion of international policy co-ordination, such as IMF, GATT, and the Organisation for Economic Co-operation and Development (OECD). None of these have any executive power. Thus, despite the growth in economic interdependence between countries in the last decade, there is no system of well-defined 'rules of the game' for policy co-ordination as there was in the Bretton Woods era.

A final comment about the possibility for co-ordination in practice should be made. When we look at the formation of policy within any one country, we realize that decisions are made in response to various pressure groups and political priorities. Even at the national level, policy is constrained tightly by these forces. Thus we should not expect a great deal of flexibility in policy in response to international pressures. The freedom of action necessary for international co-ordination is inevitably going to be circumscribed by domestic considerations. Putnam and Herring (1986) develop this point in an analysis of the Bonn 1978 summit agreement, where they argue that the US part of the agreement was possible only because its directives coincided with the desires of certain domestic

political pressure groups.

III The Theoretical Case for Co-ordination

While the historical experience with active policy co-ordination has been slight, academic interest has mushroomed. Basic insights from the theory of games have been applied to strategic interaction between countries. Models have been developed to show the inefficiencies of independent, sovereign policy-making and the potential benefits for all parties of choosing policies co-operatively.

The premise behind these models is that governments are large actors in the international economy. Their policy decisions affect world demand, interest rates and exchange rates. Thus the fiscal or monetary policies of one government have effects on the economic welfare of other countries. These represent 'spillover' effects of national policies. A government, when choosing an optimal mix of policies, will select the configuration of demand, interest rates, and exchange rates to do the best it can for itself. It will not take into account the effects these actions have on foreign welfare, however. The foreign government will behave identically. In a global equilibrium, because all governments ignore spillovers caused by their actions, policy outcomes generally will be inefficient. A different set of policies could be chosen which would actually make all countries better off. However, the potential gains can only be exploited by mutual co-operation. There are no gains to one country adjusting its policy on its own. It will only gain from the reduced 'spillovers' from the rest of the world in a co-operative agreement.

A simple example illustrates this. Imagine that the policy-maker wishes to produce a high level of income, as well as a zero current account balance. These objectives are likely to be in conflict, as an expansion (fiscal) which raises income will worsen the current account. A domestic expansion will also raise foreign income, but will *improve*

the foreign current account, thus allowing more freedom for the foreign government to expand and raise employment. Because the domestic government ignores the consequences of its policy choice on the foreign economy, at the point where it chooses its optimal fiscal policy a marginal expansion would *raise* foreign welfare. The same holds true for the foreign economy. Then if both governments expanded simultaneously, both could have high employment without current account imbalances, making both better off. Acting individually, however, neither will take the initiative to expand as the cost in terms of the current account deficit is too great. The result is that both countries follow excessively contractionary policies, and income and employment in both countries are too low. Neither has an incentive to deviate from these contractionary policies. This situation is referred to as a 'non-co-operative equilibrium'.

This particular example captures the essence of the 'locomotive' theory of global expansion propounded by US policy-makers in the late 1970s. At the time the US was expanding very rapidly but suffering current account deficits. Germany and Japan were reluctant to expand. The US argued that balanced recovery required expansion in all major economies. This required policy co-ordination among countries.

While this example suggests that in the absence of policy co-ordination governments will tend towards excessive contraction, the conclusion is not general. The particular characteristics of the global policy inefficiencies of non-co-operative behaviour depend upon the objectives of governments and the nature of international market transmission mechanisms. Canzoneri and Gray (1985) categorize different types of non-co-operative policy equilibria by the nature of 'spillover' effects between countries. If spillover effects are negative, i.e. an expansionary policy in one country reduces welfare for the other, non-co-operative equilibrium will tend to display excessive expansion rather than contraction.

They suggest that this case may best describe the 1930s, when many countries engaged in competitive devaluations of their currencies. Exchange rate policies in the 1930s could be essentially described as a 'beggar thy neighbour' phenomenon. The mechanism is described in the classic Mundell-Flemming model. A devaluation raises demand for the home good and reduces demand for the foreign good. In this case, all countries would have gained from a co-ordinated fiscal expansion rather than competitive devaluations.

It is also possible that there are asymmetries among countries in the transmission mechanism. If wages are highly indexed in Europe, but not in the US, it is likely that European monetary policy has negative spillover effects on US output, but US policy raises European output.² In a non-co-operative equilibrium then, European monetary policy is too expansionary while US policy is too contractionary. Co-operation will lead to a reversal of this situation.

If one country acts as a leader in the strategic policy game, it will take into account *ex ante* the reaction of other countries to its policy. It may then always do better for itself, but this may or may not lead to a better outcome for the other country. Canzoneri and Gray suggest that in the 'locomotive' model above if a single country, such as the US, acted as a leader, it would expand to a point above the non-co-operative equilibrium knowing that the other country (Europe) would respond with an expansion of its own. In this case both will be better off, although not as well off as if they had explicitly co-operated.

The benefits of co-operation in these models do not depend upon similar objectives for the two parties. Even though countries such as the US and Germany may have very different attitudes towards inflation, there are still mutual gains to be had from policy co-ordination. How co-ordination is to be achieved is a much more difficult question. There are both bargaining problems, associated with allocating the global sur-

plus from co-ordination, as well as enforcement problems, associated with ensuring that each country sticks to its part of the agreement. Both are likely to be non-trivial. The important feature of a non-co-operative equilibrium is that it is incentive compatible. Each country is doing the best it can, acting independently, and no country has an incentive to alter its policy stance. A co-operative equilibrium does better, but any one government has an incentive to 'cheat' on the agreement, provided that others carry out their part of the bargain.

An important reason for governments to behave co-operatively is the repeated nature of the relationship between themselves and other governments. While it may make sense to cheat on a once-only agreement, cheating is much less tempting if it damages the policy-maker's reputation for future agreements. Governments may then stick to agreements in order to establish a good reputation. Thus the inefficiencies of non-co-operative behaviour may be exaggerated in the one-period games described above.

The type of policy co-ordination described by these models involves direct agreements on the direction and magnitude of each country's monetary or fiscal stance. For reasons seen in the previous section, it is unrealistic to expect agreements of this complexity and detail to be made on a regular basis. It may thus make more sense to evaluate the working properties of certain international monetary or fiscal regimes which may constrain the degree of non-co-operative behaviour. Canzoneri and Gray show that in certain circumstances a fixed exchange rate regime with one country as leader can raise welfare for all countries. However, fixed exchange rates may have other difficulties. We address these in the final section.

One of the assumptions behind the inefficiency arguments described above is often overlooked. If countries are so small that their influence on the world economy is negligible, then on the principle of the

efficiency of competitive markets there will be no negative policy externalities, and therefore no need for policy co-ordination. This is probably the case for most countries in fact. We see in the next section that at the international level the individual market power of even the largest industrial economies may be fairly small. Nevertheless, it is hard to argue that an economy the size of the US can be thought of as insignificant in world markets.

The descriptions of the above models, and certainly the conventional wisdom among economists, has been that policy co-ordination among governments can never be bad, and in most circumstances will be beneficial. Governments can do at least as well, and probably better, by co-ordinating. This conclusion has been overturned in a couple of recent papers (Rogoff, 1985; Kehoe, 1986). These papers show that all governments may find themselves worse off if they co-ordinate policies! This paradoxical result stems from the fact that governments in certain circumstances are not only involved in a strategic game vis-à-vis foreign governments, but also against their own public. The example of Kehoe may be used to illustrate this. He deals with the classic problem of the capital levy extended to two trading economies. That problem is explained as follows. Imagine that the government had to finance a given level of spending. It may do this by taxing income from labour or capital. In an ex-ante period, investors are choosing how much capital to purchase, and clearly this will depend upon the tax rate on capital. Ex ante then, the government should find it optimal to announce taxes on both labour and capital, balancing out the distortions caused by each form of tax. Ex post however, once investment has been made, the capital stock is sunk, and the government faces a qualitatively different problem. With capital being a fixed stock, a tax on capital is a tax on pure rents, from the perspective of the ex post period. Consequently the government, if it cannot commit to the ex ante optimal tax, will tax only capital to the full

amount desired, and tax labour at a zero rate. Once capital is sunk, all income from it is pure rent and it is optimal to tax that rather than labour income. However, if the government actually follows this ex post policy, investors, having foresight about future government taxes, will cut back their capital investment drastically. The government finds itself worse off than if it had stuck to its original set of tax rates on both activities. Thus if the government finds that it cannot commit its actions in advance, it ends up worse off.

Kehoe then extends this to a two-country environment. He shows that if capital is mobile between countries ex post, governments will compete among themselves for capital. This international competition acts as a constraint on the total ex post levy that is put on capital, and thus minimizes the negative effect on each country's capital stock. Now however, let these two governments co-operate on capital tax rates. Each will then choose the same tax rate, ex post, and they will co-operatively agree to impose a high levy on income from capital. This of course leads world investors to choose a very low capital stock. The end result is that the fall in world investment can be so great as to reduce the welfare of both countries. In other words, the tax policy co-ordination makes everyone worse off. If governments cannot commit to an optimal set of policies ex ante, co-ordination does not always pay.

IV Empirical Evaluation of the Benefits of Co-ordination

Despite the theoretical qualifications described in the previous section, international policy co-ordination is still actively promoted in some policy circles. Unfortunately, the theoretical models give no indication of the magnitude of the possible gains from co-ordination. In this section we describe two recent studies which examine empirical aspects of co-ordination based on the use of international macroeconomic models. Both lead us to be much less sanguine about the benefits of policy co-ordi-

nation than the standard theoretical models would suggest.

Oudiz and Sachs (1984) address the question of the welfare benefits of international co-ordination of monetary and fiscal policy between the US, Japan, and Germany. They use estimates of international linkages from two models: the Japanese Economic Planning Agency (EPA) model, and the Federal Reserve Board's Multi-Country Model (MCM), for the early 1980s. They compare a non-co-operative equilibrium where each country pursues optimal policies taking foreign policies as given, with a co-operative equilibrium where policies are chosen by all countries together. They obtain estimates of the welfare benefits to each country of co-operation. Their major conclusion is that these welfare benefits are very small within the particular macroeconomic models used. The benefit to the US of co-operation would be at most half a percent of GNP. The benefits to Germany would be about the same, and to Japan somewhat higher. While these gains are not infinitesimal, they certainly do not support a claim that policy co-ordination alone would have pulled the global economy out of recession in the early 1980s.

The methodology of Oudiz and Sachs is interesting to examine, as it represents the first attempt to quantify the gains to co-operation, taking seriously the theoretical models. They take projections from the two macroeconomic models for the 1984–86 period, assuming no major policy changes. These are called the 'baseline' projections. Each government is assumed to have a utility function which depends upon three targets; the deviation of output from its trend level, inflation, and the ratio of the current account to GNP. Each government has two instruments; the money stock, and the level of government spending. The baseline projection for the three targets in each country is assumed to be a non-co-operative equilibrium, i.e. it is assumed that each government is independently choosing the observed money stock and government spending level to maximize its utility function.

Table 1
Exports and imports as share of country's GNP, 1982

Country	Trading partner		
	United States	West Germany	Japan
United States	%	%	%
Exports	...	0.3	0.7
Imports	...	0.4	1.3
Japan			
Exports	3.4	0.5	...
Imports	2.3	0.2	...
West Germany			
Exports	1.8	...	0.3
Imports	1.8	...	0.8

SOURCE: Oudiz and Sachs (1984).

Given this, and the policy multipliers at the baseline, one can implicitly solve for the relative welfare weightings given by each country to output deviations, inflation, and the current account surplus. They then assume that each government has a quadratic utility function in each of the three targets and given the derived welfare weights, the parameters of the utility function can be explicitly solved for. Once we have these parameters, we can solve for a co-operative equilibrium by choosing money and government spending to maximize the joint product of all countries' utility functions.

The co-operative prescription given by the model is to undertake a co-ordinated world monetary expansion for the 1984–86 period, sacrificing some inflation for higher output gains. Paradoxically, the solution calls for a US fiscal expansion and a German and Japanese fiscal contraction. However, even with these policy alterations, the overall welfare gains are quite small; for the US the MCM model predicts a gain equal to 0.17 per cent of GNP over the three year period, while the corresponding gain in the EPA model is 0.03 per cent. The gain for Japan is the largest, being 0.99 and 0.37 per cent respectively.

The fundamental reason for the small size of these welfare gains is made clear by Oudiz and Sachs. Despite an increasing degree of interdependence in trade, the actual trade links between these three largest in-

dustrial countries are relatively small, expressed as a percentage of GNP. Table 1 illustrates this clearly. US exports to the two other countries, expressed as a fraction of US GNP, came to only 1 per cent for 1982. Even for Japan the same fraction is only 4 per cent. Thus the links upon which policy co-ordination models are therefore built are relatively small for the major industrial countries.

Likewise, the direct policy multipliers between these countries are small. Table 2 gives estimates of the effects of monetary and fiscal expansion in each of the three countries on GNP, the inflation rate, and the current account ratio for the domestic and foreign economies. Each policy is designed to produce a 1 per cent increase in GNP for the home economy averaged over two years. The table indicates that the cross country multipliers are fairly small, especially from Japan and Germany to the US. While US fiscal expansion would raise Japanese GNP by 0.2 per cent, the equivalent expansion in Japan would raise US GNP by only 0.07 per cent.

Oudiz and Sachs point out that their estimates of the benefits of co-operation might be somewhat downward biased from the omission of other industrial economies in the model. They suggest though that even if all Europe were grouped together the welfare gains of co-operation would not be magnified by more than three, and even with this magnification, the total gains remain small.

A final interesting result of their paper follows. They find that if, instead of using the actual baseline for the US, the US baseline estimates were corrected on the assumption that the US budget deficit was significantly reduced, the benefits of co-operation from this corrected baseline are significantly reduced. In other words, if the US economy had been in a better monetary and fiscal balance in 1984–86, there would have been almost no additional gains from policy co-ordination. We return to this argument in the next section.

Table 2

Normalized policy multipliers for output, inflation, and the current account ratio, multicountry model

Country acting, and policy	Size of policy	United States			Japan			West Germany		
		GNP	Inflation rate	Current account ratio	GNP	Inflation rate	Current account ratio	GNP	Inflation rate	Current account ratio
United States										
Monetary	3.64	1.00	0.18	-0.02	0.00	-0.09	0.07	-0.18	-0.18	0.02
Fiscal	0.83	1.00	0.12	-0.40	0.17	0.01	0.02	0.29	0.04	0.04
Japan										
Monetary	2.67	0.07	0.00	0.03	1.00	0.13	-0.11	-0.07	-0.07	0.00
Fiscal	0.71	0.07	0.00	0.03	1.00	0.11	-0.09	0.01	0.00	0.01
West Germany										
Monetary	4.44	-0.11	0.00	-0.02	0.11	0.00	0.00	1.00	0.44	-0.04
Fiscal	1.03	0.10	0.00	0.04	0.05	0.00	0.03	1.00	0.22	-0.54

SOURCE: Oudiz and Sachs (1984).

While these results indicate positive but low benefits to policy co-ordination, some recent work by Frankel and Rockett (1986) is even more damaging. They start from the following observations. There are many different macroeconomic models used for policy evaluation by different countries. Many of these models have conflicting predictions for the results of policy changes. Clearly not all these models can be 'true,' and perhaps none of them is. What if governments choose co-ordinated policies when one or all of them does not use the true model in making evaluations? Will co-ordination still make them better off? Frankel and Rockett answer this in the negative, basing their results on experiments carried out with eight of the major world macroeconomic models.

Their approach is as follows. Grouping the non-US OECD economies together, they found the predicted national and international multipliers for each model for the following policy experiments: an increase in the US money supply, and an increase in the non-US OECD money supply. The models all predict that this expansion will raise output for the expanding country. However, there is wide disagreement between them on both the size and magnitude of the current account effects of monetary expansion as well as the cross-country GNP effects.

Using the same approach as Oudiz and Sachs, and with the latter's estimates of welfare weights, Frankel and Rockett then investigate the effect of policy co-ordination. In each case, the policy-maker is assumed to use one of the macroeconomic models as the estimate of the 'true' model. Perhaps surprisingly, they find that even when policy-makers disagree on the correct model of the economy, they *will* in general be able to agree on a co-ordinated set of policies which each believes will raise its welfare relative to the non-co-operative equilibrium. Each policy-maker can believe in any of the eight macro models, and any one of these models could be the true model. Thus, assuming that in all cases one of the

models is the true model, there are $8^3 = 512$ different cases to consider. A co-operative agreement is computed in the same manner as Oudiz and Sachs, and the welfare effect of this is evaluated using the particular true model in each case.

If a country knows the true model it will always benefit from co-operation. But if it does not, then Frankel and Rockett find that in a very large number of cases it will lose. For instance, of the 512 cases considered, the US gains from co-ordination in 289, loses in 206, and has no gain or loss in the rest. Thus, in almost half the possible cases the US would lose from policy co-ordination. Similar figures apply for the other countries.

In a more recent paper (Frankel, 1988), Frankel extends the argument by breaking the potential uncertainty that policy-makers face into three categories: 1/ Uncertainty about the actual position of their own and others economies at any point in time, 2/ uncertainty about the appropriate welfare weights to assign to the various objectives, and 3/ uncertainty about the appropriate model of the economy. He argues that the combination of all these sources seriously undermines the case for explicit co-ordination of fiscal and monetary policies. The actual international effects of a set of co-ordinated policies may be very different from and even in the opposite direction to those predicted.

However, by the same token, he suggests that more implicit co-ordination of the 'educational' and 'information swapping' kind that takes place at summit meetings and the regular consultations between finance ministers and central bank governors may be very beneficial precisely because of the large degree of imprecision in the policy-making problem. While not necessarily resulting in precise agreements on co-ordinated policies, these venues allow for policy-makers to learn about and potentially improve their own domestic economic management. We discuss this further in the next section.

V The Future of International Policy Co-ordination

What are the prospects for macroeconomic policy co-ordination? Clearly a literal application of the theoretical results on the benefits of co-ordination would be very misleading. There is no international policy-making body with executive power. This suggests that national policies will never be streamlined in the way these models suggest. At the Bretton Woods agreement in 1944, Keynes proposed a plan for what was effectively a world central bank. The plan was rejected then, and the prospects for any such institution now are effectively nil. Co-ordination can only proceed then on the basis of the continued self-interest of countries whose politicians respond almost exclusively to a domestic constituency.

We have documented above the limited types of co-ordination that are common among countries. Information exchange at summit meetings and regular consultation through international institutions such as the IMF and OECD will remain important, but can never really have much of an input into the decision process itself. Nevertheless it is easy to underestimate the value of clear information and sound advice in economic policy-making.

The use of discretionary 'deals' between countries seems to be becoming more common, but by its very nature this process is hard to institutionalize. It could well be argued that these deals themselves are the result of unbalanced policy at the national level. In this respect they may be even less important for the growth of regular structures for policy co-ordination.

Many proposals have been made for international monetary reform, principally by moving towards some type of managed or fixed exchange rates (see Frenkel, 1987). In the context of policy co-ordination, this would institute a 'rule-based' system which would hopefully circumscribe the conduct of national policies so as to achieve greater policy harmonization. The great variability in real exchange rates has led economists to

look back more affectionately at the fixed exchange rates period. Proponents of these schemes see the flexible exchange rate system itself as being responsible for the high variability of real exchange rates, and argue that managed exchange rates would avoid the welfare costs of real exchange rate variability. However, a fixed rates system will only enforce co-ordination as long as individual countries are willing to play by the rules. Perhaps the problem was not with the exchange rate system itself but with the major policy imbalances between countries, coupled with the large supply shocks of the 1970s and '80s. According to this view, a managed exchange rate system would have broken down anyway when faced with such problems. It seems hard to imagine that the US would have abandoned either its tax and spending policies or its monetary disinflation program in the early 1980s in order to protect a fixed exchange rates system. Thus it is likely that the basic ingredients for a fixed rates system are not there.

There is a further problem with fixed exchange rates, one that was experienced even towards the end of the Bretton Woods era. With the ease of international capital mobility, it may not be possible to maintain a given parity without the use of capital controls to contain speculative pressures. In fact the experience of the EMS supports this. Many European countries have used capital controls to protect their EMS parities.

Still another objection to a fixed exchange rate system is that it would not necessarily enforce co-ordination in fiscal policies. High budget deficits have been at the root of the international policy problem in the 1980s. Some analysts would argue that large movements in budget deficits are inconsistent with fixed exchange rates (Feldstein, 1986) although other evidence fails to support a direct link between exchange rates and budget deficits (Evans 1987). It seems at least questionable whether a managed exchange rate regime, if workable at all, could on its own enforce policy harmonization.

Whatever plan for policy co-ordination is put forward, the main issue it must deal with is the predominant role of the US in the world market economy. The studies cited above all show much stronger effects of US macroeconomic policies on Europe and Japan than of these countries' policies on the US. If US policy-makers could be induced to adjust their actions so as to take the rest of the world into account, then the policies of Europe and Japan may be of small importance for successful international co-ordination. The external effects of the policies of any one of the EEC countries, or even Japan, may be so small as to be ignored in world capital and goods markets. This leads to the obvious question whether the US can be given any incentive to behave in this fashion. Under the Bretton Woods system, the US essentially acted as a world Central Bank. By all accounts it did not do very well at this.

Fischer (1987) has suggested that the best that any government could do for international policy co-ordination is to keep its own economy in shape. This accords with the viewpoint that the main policy conflicts of recent times were not related to differing policy tastes or national attitudes towards inflation versus unemployment in face of world shocks, but rather arose from episodes of fiscal and monetary mismanagement, especially in the US. The models of policy co-ordination outlined in Section III assume that each government is maximizing national welfare in isolation. The only gains from adjusting policies are strategic; a country gains only if other countries also adjust their policies. To many this would seem a particularly questionable conclusion. It is not at all inconceivable that monetary and fiscal authorities choose inappropriate and inefficient policies even from a domestic point of view. There are then obviously gains to be had even from unilateral measures to correct these policies. In many cases we could imagine that these gains would be spread to the international level. A clear example would be US monetary/fiscal policy mix in the early

1980s and the potential benefits to the rest of the world from adjusting this. Frankel (1988) attempts to quantify this argument by looking at the effect of countries unilaterally switching to the 'correct' model for choosing policies independent of others policies. He estimates that the gains to other countries from unilateral policy-improving adjustments by one country will actually be far more beneficial than any strategic gains from explicit international policy co-ordination.

VI Summary and Conclusions

The conclusions of our Review may be summarized briefly as follows. If we know the correct structural model of the economy the theoretical results demonstrate that there may be gains from co-ordination. However, the empirical results suggest that the gains are small under normal circumstances – which of course are the circumstances that such models deal with. Under uncertainty moreover, even these small gains become problematical. Even if there is no disagreement about which model to use, but there is some uncertainty about the parameters of the model, there may be advantages to decentralized policy. There may be averaging effects which could reduce the variance of outcomes. And of course if co-ordination leads to an increased inside lag for policy actions, that could make performance worse, on average. If there is uncertainty regarding the structure of the models, policy co-ordination can easily lead to worsened economic performance.

There are significant asymmetries across countries, particularly across large and small countries. As a result, whatever gains from co-ordination there are could probably be achieved by co-ordination among a small group of large countries.

Under normal circumstances, establishing a stable policy framework over the medium term is probably to be preferred to activist stabilization policies. Of course this reduces, if not eliminates, the need for any co-ordination. However, there are gains

from what we would call international co-operation as opposed to co-ordination. There are important gains from exchanging information regarding forecasts and policy intentions, ideally including forecasts ex post of policies – forecasts of economies including the effects of the planned policy actions. The gains here we believe would be much more important for small countries than for large. Those of us who participate in developing projections of the Canadian economy know that a US macroeconomic forecast is an essential first input into the construction of a Canadian forecast. Vice versa is of course not the case.

Establishing and maintaining standby co-operative arrangements may facilitate international policy co-ordination in a crisis situation. Under those circumstances we would argue that the gains from co-ordination are probably *large*. Examples include coping with a financial market crisis such as occurred on Black Monday in October, 1987. In such situations, there exists a large degree of uncertainty in financial markets. A clear and co-ordinated policy stance can help to reduce this uncertainty, shoring up confidence, and thereby stabilize markets. This is probably a good description of the actual international policy response to Black Monday.³

The economic gains from international co-operation on trade and trade-related policies via GATT and other institutions, are of much greater importance than the possible economic gains from macroeconomic policy co-ordination. But co-operation on macroeconomic policies may help to protect the international trade environment. Currency misalignments and other symptoms of macroeconomic imbalances are best corrected by macroeconomic policy adjustments, not by adopting restrictive trade policies.

The role for co-ordination then is still operative but less glamorous than theory would suggest. The communication and learning inherent in the regular meetings between policy-makers can help to dispel uncertainty and achieve a convergence of

opinion on appropriate policies to follow at a national level. In addition, from a purely political viewpoint, the presence of international pressures can be used to gather momentum at the domestic level to make necessary corrections in macroeconomic policies.⁴

Notes

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- 1 See an historical discussion in Fischer (1988).
- 2 See Branson and Rotemberg (1980).
- 3 An obvious rejoinder is that the crisis would not have happened without the prolonged absence of co-ordination between the major economies in the preceding years. However, this in itself does not diminish the case for co-ordination as an immediate response to a crisis.
- 4 An alternative view is given in Feldstein (1988). He argues that the process of international co-ordination can be used by politicians to delay or avoid making the required but politically unpopular adjustments in policy, in the hope that foreign countries will take more of the burden of adjustment.

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