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## ABSTRACT

This paper examines the macroeconomic model developed in the book of Polly Reynolds Allen and Peter B. Kenen on Asset Markets, Exchange Rates, and Economic Integration and discusses a number of problems concerning the modelling of interdependent economies under fixed and flexible exchange rates.

Book Review of

Asset markets, exchange rates, and economic integration.

By Polly Reynolds Allen and Peter B. Kenen. Cambridge:  
Cambridge University Press, 1980.

by

Pentti J.K. Kouri

The book of Allen and Kenen consists of two parts. The first part develops in great detail a familiar portfolio balance model of an open economy, and applies it to study the short run and long run effects of different disturbances and policies. The second part develops a model of two countries facing a large third country, and applies that model to analyze policy co-ordination under alternative monetary arrangements. The authors do not hide their ambition to develop a 'synthesis' of the theory of exchange rate regimes and capital market integration, or as they quote Haberler in the introduction, "an updated version of Meade's classic treatise."

The one country model, whose development and discussion take the first 293 pages of the book, is by now familiar to students of international finance. Several others have developed similar models in recent years, as Allen and Kenen recognize in their footnotes. In their prototype model Allen and Kenen assume an open economy with three goods and three assets. Regarding the labour market, they follow Hick's early classification and make two alternative assumptions: a Keynesian assumption of nominal wage rigidity and unemployment on the one hand, and a classical assumption of flexible wages and full employment on the other.

The model of asset markets contains three assets: money, domestic currency bonds and foreign currency bonds. Foreign residents are assumed not to hold domestic currency denominated bonds, while the supply of foreign currency denominated bonds is assumed to be infinitely elastic at an exogenously given interest rate. Demand for the three assets by domestic residents is assumed to depend only on domestic and foreign interest rates, and the total value of the holdings of these three assets, or wealth. Income does not appear as a determinant of money demand in the prototype model, nor does the value of equity claims on domestic capital. No distinction is made between nominal and real interest rates, nor are exchange rate expectations considered in the basic model. There is, however, a separate chapter that introduces expectations and speculation. As regards the supplies of the three assets, the total supply of foreign assets can change only through current account surpluses or deficits because of the assumption that foreign residents do not hold domestic assets. Similarly, the total supply of domestic assets -- money and bonds -- can change only through budget surpluses or deficits. The central bank can, however, change the supplies of the three assets to the private sector by means of open market operations or foreign exchange market intervention.

Because of the absence of income in the asset demand functions, the short run LM schedule is horizontal in the Allen-Kenen model. Thus, the model has a recursive structure which greatly simplifies the analysis: given the total supplies of domestic and foreign assets and their allocation between the central bank and the private sector, as determined by monetary and exchange rate policies, the domestic bond market and the foreign exchange market determine the domestic interest rate and the exchange rate. If the central bank pegs the exchange rate, the stock of its foreign exchange

reserves becomes the equilibrating variable. If it chooses to peg the domestic interest rate, the portfolio of domestic bonds held by the central bank becomes the variable that equilibrates the domestic bond market. If the central bank wants to fix the nominal money supply, it can do that too, both under flexible and fixed exchange rates by engaging in appropriate sterilization operations. In fact, there are two degrees of freedom in the financial markets and the central bank can freely choose any two monetary targets.

The domestic and foreign interest rates, the exchange rate and the value of liquid wealth are all determinants of domestic consumption, and through this channel influence domestic output, prices and the trade account. There is no Laursen-Metzler effect on consumption because consumption is assumed to be homogenous of degree one in income and wealth. Investment demand is ignored in the model, and the stock of physical capital is assumed to be fixed and unmarketable. The allocation of domestic consumption among a domestic export good, a nontraded good and an import good, is assumed to depend only on relative prices. Foreign demand for the domestic export good is assumed to be inelastic with respect to the relative price of domestic exports.

Fiscal policy is specified in terms of government expenditure and lump sum taxes, with the stock of government debt treated as a constraint on policy. In a separate chapter Allen and Kenen develop a Blinder-Solow type version of their model with the stock of debt endogenous, and tax revenue a function of income.

As an illustration of the workings of the Allen-Kenen model, consider the effects of an open market purchase of government bonds by the central bank under fixed exchange rates. The short run effect is to lower the

domestic interest rate, to increase the money supply and to reduce the stock of international reserves. The interest rate reduction increases domestic demand, increases the domestic price level and turns the current account into a deficit. Over time the current account deficit reduces the total stock of foreign assets, as well as the wealth of domestic residents, thus causing the domestic interest rate to increase. This increase in the rate of interest reduces domestic demand and thereby the current account deficit. In the goods markets, the decline in the stock of foreign assets reduces domestic consumption directly by reducing foreign interest income as well as the total stock of wealth. The decline in domestic absorption, and the associated decline in domestic prices, in turn improve the trade account. At the same time, however, a reduction in the stock of foreign assets reduces foreign interest income and thus worsens the current account. In order for the current account adjustment process to be stable, the positive (negative) trade account effect of a reduction (increase) in the stock of foreign assets must be greater than the negative (positive) effect on the interest service account. For most of their analysis Allen and Kenen rule out the problem of instability by assuming that the government fully offsets foreign interest earnings by foreign transfer payments abroad. This simplification is responsible for many of their steady state results.

Assuming stability, there is an automatic current account mechanism at work in the Allen-Kenen model, as in all portfolio balance models, which is not the same as the specie-flow mechanism emphasized by the monetary approach to the balance of payments. Indeed, the central bank can determine the nominal money supply both in the short run and in the long run, and yet, a stationary balance of payments equilibrium can be



reached in the Allen-Kenen model, provided that certain conditions on the parameters are met. The reason is that the current account adjustment mechanism does not rely only on the liquidity effect but also on the wealth effect. These two are not the same in portfolio balance models, unlike in simple monetarist models in which money is the only liquid asset.

To go back to the effects of an open market operation, the Allen-Kenen model implies not only short run, but also long run non-neutrality: although the domestic interest rate tends to increase after the initial decline following an open market purchase, it does not return to its initial level but remains permanently lower. This non-neutrality, which is well known, arises because of the existence of nominal government bonds, not offset in private portfolios by future tax liabilities. The non-neutrality does not disappear even with complete price flexibility. Thus, the 'offset coefficient' is less than one both in the short run and in the long run.

Because of the assumption that foreign interest earnings are completely offset by tax financed government transfer payments, the steady state level of domestic output and prices is, however, independent of monetary policy, as well as of the foreign interest rate. The level of output and prices depends only on fiscal policy, export demand and allocation of consumption between imports and domestic goods. The asset market equations and the 'zero saving' or portfolio balance condition determine the domestic interest rate, the stock of foreign bonds, the stock of wealth, the stock of money, and the stock of central bank reserves. The only link between goods markets and asset markets in the steady state is that the stock of wealth is an increasing function of private disposable income. Without the assumption of offsetting transfer payments, the steady state solution would be much more complicated.

Under flexible exchange rates the exchange rate and the domestic interest rate equilibrate the financial markets at each point in time given the stock of foreign assets inherited from past surpluses or deficits in the current account. To illustrate the adjustments that take place in the process to stationary equilibrium, consider again the effects of an open market purchase. The short run impact effect is a reduction in the domestic interest rate, and a depreciation of the domestic currency. Both of these have an expansionary effect on aggregate demand for domestic output and therefore lead to an increase in domestic output and prices. In order that depreciation be expansionary, it is necessary that the Marshall-Lerner condition holds. The expansionary effect of monetary policy is greater under flexible exchange rates than it is under fixed exchange rates: the interest rate effect is greater and in addition there is the exchange rate effect.

As is well known in the literature, the effect of expansionary monetary policy on the current account is ambiguous. On the one hand, increase in domestic output and prices worsens the current account; on the other, depreciation improves it. If the first effect dominates, the long run effect of monetary policy on output as well as on the exchange rate is greater than the short run effect. If the expenditure shift effect dominates, the long run effects will be smaller than the short run effects. The exchange rate, in particular, will then 'overshoot' in the short run.

Under flexible exchange rates, current account adjustment involves the exchange rate as well as the domestic interest rate, and the stock of wealth. An increase in the stock of foreign assets because of a surplus in the current account leads to a reduction in the domestic interest rate, an increase in the price of foreign currency, and an increase in

wealth. In order for the adjustment process to be stable, it is necessary that the net effect of the above changes on the trade balance is negative and greater than the positive effect of a higher stock of foreign assets on foreign interest income. The Marshall-Lerner condition is a necessary but not a sufficient condition of dynamic stability.

The assumption of offsetting transfer payments not only contributes to the stability of the balance of payments adjustment process but, as with fixed exchange rates, it sharpens the steady state results. The portfolio balance condition and the equilibrium conditions for money and domestic bonds now determine the domestic interest rate, the nominal stock of wealth and nominal private disposable income. Equilibrium conditions for the goods markets then determine the prices of domestic and foreign products, the exchange rate and the distribution of nominal income between output and prices. It follows immediately that steady state nominal GNP is independent of all foreign variables except for the foreign interest rate, and that the balanced budget government expenditure multiplier in terms of nominal GNP is one.

Allen and Kenen use their model to go over in detail a number of exercises with different types of policy experiments and disturbances. These exercises are undoubtedly useful for students in international finance but the pages are tedious reading. Page after page the reader has to work with the raw material, through matrix inversions and computations of characteristics' roots. There obviously is a tradeoff and each author has to make the choice. On balance, however, the Allen-Kenen book would have benefitted if more emphasis would have been given to economic analysis and discussion of the results rather than on the manipulation of the model.

There are a number of issues that should have been discussed more carefully just in terms of the model. For example, what happens if the stock of government debt happens to be zero, or the stock of foreign assets negative as in the case in many small countries. The model breaks down then -- the demand for money and the equilibrium exchange rate are negative. Inclusion of income in the demand for money function solves the first problem but as is well known, negative stock of foreign assets still causes problems as far as exchange rate determination is concerned in asset market models.

There is also the question what is a domestic bond. If domestic residents issue a foreign currency denominated bond, is it domestic or foreign? Surely, one has to distinguish assets not only in terms of their currency of denomination but also in terms of the nationality or other characteristics of the issuer. Although the residents of a small country are price takers as investors, they are not price takers as borrowers in the sense that they could borrow unlimited amounts at a given interest rate in the international capital market. The important shortcoming of the aggregative portfolio balance model of the type assumed by Allen and Kenen is that the supply of assets by the private sector is netted out. The only intermediation that takes place is that between the private sector on the one hand, and the government and the foreign sector, on the other. In a study of capital market integration such aggregation is inappropriate because domestic residents are not in the same situation in the international capital market in their capacity as borrowers as they are in their capacity as lenders.

Another important issue that has been emphasized in recent work is the effect of exchange rate changes on domestic inflation with wage indexation and imported raw materials. Allen and Kenen do not really discuss the problem of inflation, or of disinflation, since they assume either fixed nominal wages or full employment. They do not discuss either another 'static' alternative, namely the case of fixed real, rather than nominal wages.

There is no distinction between real and nominal interest rates, nor any recognition of anticipatory behaviour in the foreign exchange market, except in one chapter that discusses speculation in the foreign exchange market.

The idea that the foreign exchange market can be viewed as an informationally efficient speculative market is recognized only in one footnote reference to the literature. In the main body of the text the authors suggest that goods markets disturbances are felt in the foreign exchange market only gradually as current account surpluses or deficits change the supply of foreign assets. This is fine if one wants to isolate one aspect of exchange rate dynamics, but surely a 'synthesis' of exchange rate theory cannot rest on the assumption of static or lagging expectations.

There are two semantic issues that need to be raised. The first is the use of the term 'monetary' or 'money market equilibrium'. These words are sloppily used in the literature, and Allen and Kenen are not careful in their use either. There is no 'money market', and certainly, when there are three or more assets, the LM schedule cannot be interpreted as an equilibrium condition of any market. The domestic interest rate is determined in the bond market and the exchange rate in the foreign exchange market. When these two markets clear the demand for and the supply of money are also

equal, but in disequilibrium the relevant excess demand, which drives the interest rate, for example, is excess demand for credit (excess supply of bonds), not excess demand for money. In a monetary economy there are, in general, 'N markets' in which goods, services, assets, or other monies can be bought with or sold for money; there is no one 'money market'. In popular use 'money market' refers to the short term credit market where money can be borrowed. The LM schedule does not, however, represent equilibrium in the bond market, except in the simple two asset model in which the bond market equilibrium schedule and the LM schedule are the same by the wealth constraint.

A further confusion arises from the use of 'monetary equilibrium' to mean long run portfolio balance. As such the concept has nothing to do with the demand for or the supply of money, but rather it has to do with savings behaviour and long run demand for wealth.

The second semantic issue that comes up in the Allen-Kenen book concerns 'capital market integration'. They define capital market integration in terms of cross interest rate elasticities of asset demands, or the degree of substitutability between assets. This is a misleading definition. Thus, consider 'goods market integration'. Suppose that we have two countries, one producing steel and the other producing wheat. Would we say that markets in the two economies are integrated only if steel and wheat are close substitutes? Surely not. Markets are integrated when steel sells for 'more or less' the same price in the two countries -- in other words, transport costs, tariffs and other impediments to trade should be small.

The elasticity of substitution between steel and wheat is not a sufficient consideration either if we are interested in the extent of

integration between the two economies -- or the importance of trade between them -- as we know from transfer theory. For example, if the spending patterns on steel and wheat were the same (and demand functions were homothetic in the two countries), the relative price of the two products would be independent of the distribution of income between the two countries and for most purposes we could treat the world economy as one economy. Relative prices would then play no role in current account adjustment: 'transfers' would be effected directly through adjustments in absorption.

The same considerations apply to asset market integration, too. Capital market integration does not require that an American farm be a perfect substitute for a German steel plant in portfolios, or that German mark or U.S. dollar claims be perfect substitutes; only that the same asset be sold for more or less the same price in the two countries.

Elasticities of substitution between assets are, of course, important in determining the magnitude of price changes caused by shifts in demand or supply. With differences in asset preferences, they are also important in determining the effects of wealth transfers through the current account on asset prices and rates of return. But, it is important to emphasize that such wealth transfers matter only if asset preferences indeed differ systematically across countries.

These considerations are directly relevant for the second part of the Allen-Kenen book in which they develop a model of two countries facing

a large third country and analyze alternative monetary arrangements between the two countries. The two countries, North and South, are modelled basically as in part I with some simplifications, needed to make the algebra manageable. In particular, the authors assume that North and South are 'symmetric' both in goods markets and in asset markets. for example, Northern marginal propensity to import from the South is assumed to be equal to Southern marginal propensity to import from the North. In effect, North and South are assumed to be mirror images of one another.

Allen and Kenen use their model to study policy co-ordination under alternative monetary arrangements between North and South. One possibility is that North and South fix their bilateral exchange rate and let their currencies float jointly vis-a-vis the currency of the large third country. Given the rigidity of nominal wage rates, such arrangement makes the realization of full employment in North and South impossible by means of monetary policies alone (except by coincidence) unless no restrictions are placed on the distribution of reserves between North and South. If capital is not perfectly mobile it is possible, in principle, in the Allen-Kenen model for North and South to have monetary independence and thus to obtain an interest rate configuration which assures full employment in both regions. But, as they note, pursuit of independent monetary policies is likely to entail unacceptably large shifts in the distribution of reserves. As capital mobility becomes 'perfect' between North and South, they have no other choice but to co-ordinate their monetary policies. They have to agree both on the target and on the instrument of monetary policy since there is only one instrument, whether the total money supply or the North-South interest rate. As Allen and Kenen note, in this situation North and South



might as well go all the way to a monetary union if they prefer to keep the bilateral exchange rate fixed. The problem is, however, that with wage rigidity one instrument is not enough to achieve two targets -- full employment in both regions. There are only two solutions. One is to assign fiscal policy to regional employment targets. The other is to let the exchange rate float freely between North and South.

Allen and Kenen are meticulously careful in analyzing these and many other options but they do not discuss some of the basic issues. By assuming either complete nominal wage rigidity, or full employment, they assume away the basic problem. Can the world economy adjust to changes in comparative advantage or in demand more efficiently through exchange rate changes or through changes in relative nominal wages? If one assumes that nominal wages are fixed, the answer is obvious. There is no other alternative but floating rates. Assignment of fiscal policy to full employment cannot be an efficient solution, nor can it be efficient to assign commercial policy to regional employment targets. The fiscal policy solution would imply, for example, that a region experiencing a permanent decline in world demand for its products would have a permanently higher level of public expenditure and taxation.

A central issue is whether with capital movements and speculation, and with the inflationary effects of devaluation, the exchange rate mechanism still introduces some flexibility into the international adjustment process. To analyze this issue one has to come to grips with the behaviour of the labour market and with the dynamics of inflation.

Allen and Kenen have chosen to stay within an old-fashioned Keynesian, or Meadian, framework enriched by a careful specification of asset markets

in analyzing the problems of macroeconomic policy in an interdependent world economy. What they have achieved is impressive, but there is a long way to go still before we have a 'synthesis' that would help us to formulate policies that would bring the world economy back to a path of steady growth with full employment and price stability.