Interregional Income Determination: A Graphical Analysis for Interdependent Economies

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Over the years, Hicks-Hansen *IS-LM* analysis has become an integral part of macroeconomic theory and an almost indispensible pedagogical tool for analyzing the effects of stabilization policy [1]. One area of inquiry where it has received little formal attention or analytical use is that of regional income analysis and analysis of regionally oriented stabilization policy (hereafter referred to as ROSP) [2]. Given this fact and given that a number of authors have discussed the issue of ROSP [3], it seems quite relevant (a) to develop formally *IS-LM* analysis within an interregional framework and (b) to demonstrate how this framework may be used to analyze the nature of ROSP. It should be noted

1. See any standard macroeconomics textbooks ; see, for example, R. G. D. A l l e n, *Macroeconomic Theory*. New York, St. Martin's Press, 1968 ; M. J. B a i l e y, *National Income and the Price Level*. New York, McGraw-Hill Book Company 1962 ; T. F. D e r n b u r g and D. M. M c D o u g a l l, *Macroeconomics* Third edition, McGraw-Hill Book Company, 1968 ; or J. P. M c K e n n a, *Aggregate Economic Analysis* (Third edition). New York, Holt, Rinehart, and Winston.

2. As evidence of this neglect, see H. O. N o u r s e, *Regional Economics*. New York, McGraw-Hill Book Company, 1968 ; A. T. P e a c o c k, « Towards a Theory of Interregional Fiscal Policy », *Public Finance*, Vol. XX (1965), pp. 7-17 ; H. W. R i c h a r d s o n, *Regional Economics*. New York, Praeger Publishers, 1969 ; H. S i e b e r t, *Regional Economic Growth : Theory and Policy*. Scranton, Penn., International Textbook Company, 1969.

3. Related to this issue, see for example E. E n g e r m a n, « Regional Aspects of Stabilization Policy », in R. A. M u s g r a v e (editor), *Essays in Fiscal Federalism*, Washington, D.C., The Brookings Institution, 1965, pp, 7-62 ; R. B. G o l d, « Interregional Factor Transfers and Regional Unemployment », *Journal of Political economy*, Vol. 76 (1968), pp. 246-251 ; C. G. H a r r i s and M. C. M c G u i r e, « Planning Techniques for Regional Development Policy », *Journal of Human Resources*, Vol. 4 (1969), pp. 466-490 ; J. P. H u t t o n and D. H a r t l e y, « A Regional Payroll Tax », *Oxford Economic Papers*, Vol. 20 (1968), pp. 417-426 ; N. K a l d o r, « The Case for Regional Policies », *Scottish Journal of Political Economy*, Vol. 17 (1970), pp. 337-349 ; and R i c h a r d s o n, *op. cit.*

that the analysis of the economic interaction among regions (countries), such as Metzler's classic paper [4], has generally been confined to discussion of trade flows entirely. Those papers which have incorporated the effects of interregional (international) capital movements have been framed within the context of an « atomistic » region (country), one which is adequately small that repercussions of its policies on the « world » economy, and thus back on itself, are negligible. Although this assumption simplifies the analysis immensely, it does so at the expense of relevance for « large » economic areas. The purpose of this paper is to construct a framework which may be used to analyze interregional income determination among interdependent economies and which incorporates interregional financial capital flows as well as interregional trade flows. It is hoped that by using the *IS-LM* mode of analysis, the model may appeal to a wider audience than would be the case if merely mathematical techniques were adopted.

Section I below develops *IS-LM* analysis within a two-region economy where interregional trade and interregional financial capital flows are permitted and where a central (federal) government is empowered to apply various forms of ROSP. Section II illustrates the workings of the model by analyzing the effects of two specific forms of ROSP. Concluding remarks are found in the final Section.

I

The economy within which we develop regional *IS-LM* analysis is assumed to be comprised of two Regions, Region 1 and Region 2. The commodity market [5] for Region 1 is given by

4. L. A. Metzler, « A Multiple-Region Theory of Income and Trade », *Econometrica,* Vol. 18 (1950), pp. 329-354. See also L. A. Metzler, « A Multiple-Country Theory of Income Transfers », *Journal of Political Economy,* Vol. 59 (1951), pp. 14-29 and the comments by R. N. Cooper, « Macroeconomic Policy Adjustment in Interdependent Economies », *Quarterly Journal of Economics,* Vol. 83 (1969), pp. 1-24. It should be noted that the present analysis differs from Cooper's in several important respects. For example, our approach here is basically graphical, whereas Cooper's is mathematically oriented. Here, the price level in each of the economies is an important variable, while the Cooper paper assumes prices to be constant. The present paper also includes a larger number of functional relationships than the Cooper paper and is thus rigorous. In addition, our functional relationships for the most part include larger numbers of variables.

5. For simplicity, taxes are ignored. On the one hand, leaving taxes out of the model does not alter the basic conclusions or analysis ; on the other hand, the omission of taxes markedly simplifies the notation.

(1) $C_1 = C_1(Y_1)$,

(2) $I_1 = I_1(i_1)$.

(3) $G_1 = G_1^*$,

(4) $X_{12} = X_{12}(Y_2)$,

(5) $X_{13} = X_{13}(Z)$,

(6) $M_{12} = M_{12}(Y_1)$,

(7) $Y_1 = C_1(Y_1) + I_1(i_1) + G_1 + X_{12}(Y_2) + X_{13}(Z) - M_{12}(Y_1)$,[6]

where C_1 is Region 1's real consumption, Y_1 its real income, I_1 its real investment, i_1 its interest rate, G_1 its local government spending (in real terms), X_{12} its exports (in real terms) to Region 2, X_{13} its exports (in real terms) to the central government[7], M_{12} its imports (in real terms) from Region 2, Z exogenous factors (to Region 1) which influence central government purchases of goods and services from Region 1, and Y_2 is Region 2's real income. Equation (7), is the condition for commodity market equilibrium in Region 1.

The money market for Region 1 is given by the following :

(8) $M_S^1 = f(i_1, i_2, Z')$,

(9) $Md^1 = L_1(Y_1, i_1)$,

(10) $M_S^1/p_1 = L_1(Y_1, i_1)$,

6. We make the usual assumptions here regarding the commodity market variables ; in particular, we assume

$$1 > C'_1(Y_1) > M'_{12}(Y_1) > 0$$
$$I'_1(i_1) < 0$$
$$1 > X'_{12}(Y_2) > 0.$$

The slope of Region 1's IS curve is then given by

$$\frac{\partial i_1}{\partial Y_1} = \frac{1 - \dfrac{\partial C_1}{\partial Y_1} + \dfrac{\partial M_{12}}{\partial Y_1}}{\partial I_1/\partial i_1} < 0.$$

7. These consist of all central government spending in and purchases from the Region.

where M_S^1 is Region 1's nominal money stock, Md^1 its total demand for money (in real terms), p_1 its general price level, i_2 is the interest rate in Region 2, and Z' refers to exogenous factors such as central bank policy which influence Region 1's nominal money stock [8]. Equation (10) is the condition for money market equilibrium in Region 1.

Consider Figure 1, where i_1 is plotted vertically and Y_1 is plotted horizontally. In this Figure, the curve IS^1 represents those combinations of i_1 and Y_1 which are compatible with commodity market equilibrium in Region 1, given Z, G_1, and Y_2. Here, variations in the level of Y_2 result in shifting of Region 1's IS schedule, *ceteris paribus*. For example, a rise in Y_2 raises X_{12} and thus shifts the IS curve for Region 1 rightwards [9]. The curve $LM_0(p_1^0)$ (i_2^0) in Figure 1 represents those combinations of i_1 and Y_1 which are compatible with money market equilibrium in Region 1, given Z' (at Z_0'), p_1 (at p_1^0), and i_2 (at i_2^0). Here, variations in i_2 lead to shifts in the Region's LM curves, *ceteris paribus*. For example, a rise in i_2, given Z' and p_1, results in a flow of funds (assuming financial capital is mobile between the Regions) from Region 1 into Region 2 and thus in a leftward shift in Region 1's LM curve [10]. As shown in Figure 1, equilibrium in both the commodity and money markets is initially at point A, with coordinates (Y_1^0, i_1^0) [11, 12].

In a fashion much like the above, Region 2's markets can be constructed. The commodity market for Region 2 is given as

8. We assume that
$$\frac{\partial f}{\partial i_1} > 0, \quad \frac{\partial f}{\partial i_2} < 0, \quad \frac{\partial L_1}{\partial Y_1} > 0, \quad \frac{\partial L_1}{\partial i_1} < 0.$$
9. Conversely, any fall in Y_2 lowers X_{12} and shifts Region 1's IS curve to the left.
10. Conversely, a fall in i_2, given Z' and p_1, results in a flow of funds out of Region 2 into Region 1 and thus in a rightward shift in Region 1's LM curve.
11. It is the influence of Region 2's interest rate and income level over Region 1 (and of Region 1's interest rate and income level over Region 2, as discussed below) which gives the model its character of economic interdependence. Short-run interregional labor mobility is assumed neglible. Related to this, see P. K. Gatons and R. J. Cebula, «Wage Rate Analysis : Differentials and Indeterminacy», *Industrial and Labor Relations Review,* forthcoming.
12. Region 1's labor market is, a follows :

Y_1	=	$Y_1(N_1, \overline{k_1})$	Production Function
Nd_1	=	$Nd_1(w_1/p_1)$	Labor Demand
N_{S1}	=	$N_{S1}(w_1/p_1)$	Labor Supply
w_1	=	w_1^0	Exogenously-determined money wage rate
N_1	=	$\min[Nd_1(w_1/p_1), N_{S1}(w_1/p_1)]$	Equilibrium Condition

Here, N_1 is the number of labor units employed in Region 1, $\overline{k_1}$ Region 1's

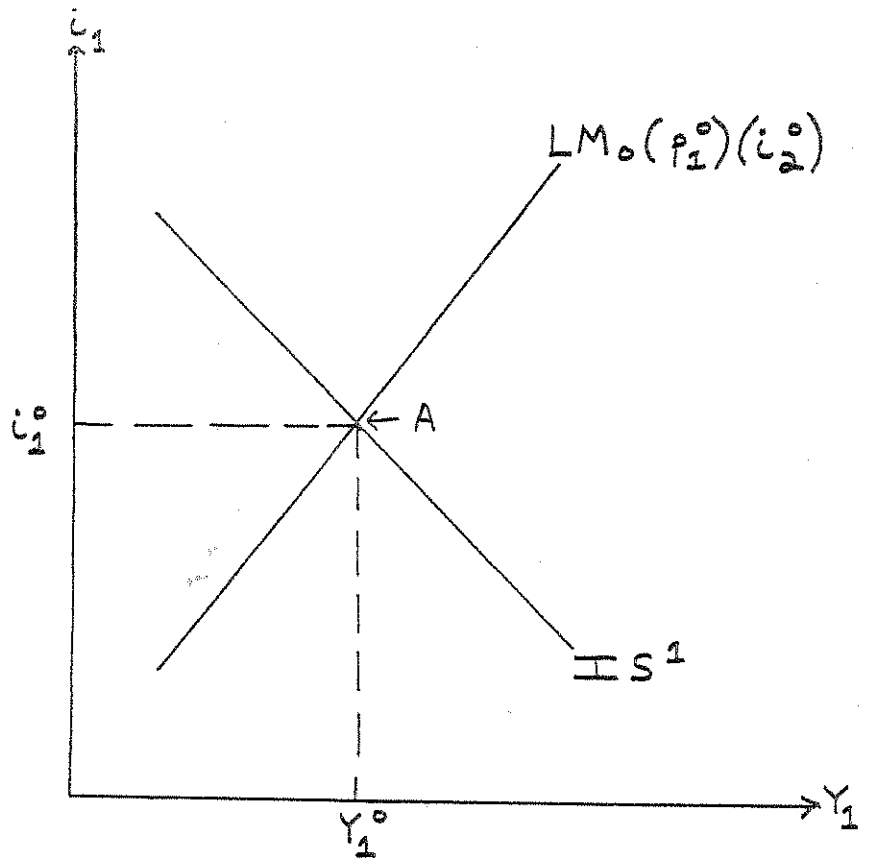


FIGURE 1

(11) $C_2 = C_2(Y_2)$,

(12) $I_2 = I_2(i_2)$,

(13) $G_2 = G_2^0$,

(14) $X_{21} = X_{21}(Y_1)$

capital stock (which is fixed in the short run), Nd_1 the number of units of labor demanded in Region 1, N_{S1} the number of labor units supplied in Region 1, and w_1 the money wage in Region 1. It is assumed that

$$\frac{\partial Y_1}{\partial N_1} > 0, \quad \frac{\partial^2 Y_1}{\partial N_1^2} < 0, \quad \frac{dNd_1}{d(w_1/p_1)} < 0, \quad \text{and} \quad \frac{dN_{S1}}{d(w_1/p_1)} > 0.$$

(15) $X_{23} = X_{23}(Z'')$,

(16) $M_{21} = M_{21}(Y_2)$,

(17) $Y_2 = C_2(Y_2) + I_2(i_2) + G_2 + X_{21}(Y_1) + X_{23}(Z'') - M_{21}(Y_2)$,

where C_2 is Region 2's real consumption Y_2 its real income, I_2 its real investment, G_2 its local government spending (in real terms), X_{21} its exports (in real terms) to Region 1, X_{23} its exports (in real terms) to the central government, M_{21} its imports (in real terms) from Region 1, and Z'' exogenous factors (to Region 2) which influence central government purchases of Region 2's commodities. Equation (17) is the commodity-market-equilibrium condition for Region 2.

Region 2's money market is given by

(18) $M_s^2 = g(i_1, i_2, Z''')$,

(19) $Md^2 = L_2(Y_2, i_2)$,

(20) $M_s^2/p_2 = L_2(Y_2, i_2)$,

where M_s^2 is Region 2's nominal money stock, Md^2 its total demand for money (in real terms), p_2 its price level, and Z''' exogenous factors such as central bank policy which influence M_s^2. Equation (20) is the condition for money market equilibrium in Region 2.

Consider Figure 2, where i_2 is plotted along the ordinate axis and Y_2 is plotted along the abscissa. The curve IS^2 in this Figure represents those combinations of i_2 and Y_2 which are compatible with commodity market equilibrium in Region 2, given Z'', G_2, and Y_1. Changes in the level of Y_1 shift the IS curve for Region 2 ; as Y_1 rises, Region 2's IS curve shifts to the right, and as Y_1 falls, Region 2's IS curve shifts to the left, *ceteris paribus*. In Figure 2, the curve $LM_0(p_2^0)$ (i_1^0) represents those combinations of i_2 and Y_2 which are compatible with money-market equilibrium in Region 2, given Z''' (at z_0'''), p_2 (at p_2^0), and i_1 (at i_1^0). Here, variations in the level of i_1 brings about shifts in the LM curves in Region 2, *ceteris paribus*. For example, a rise in i_1, given Z''' and p_2, results in (again, assuming mobile interregional financial capital flows) a leftward shift in Region 2's LM curve as funds flow out of Region 2 into Region 1. As shown in Figure 2, equilibrium in both the commodity and money markets is initially at point B, with coordinates (Y_2^0, i_2^0) [13].

13. The labor market in Region 2 is precisely analogous to that in Region 1.

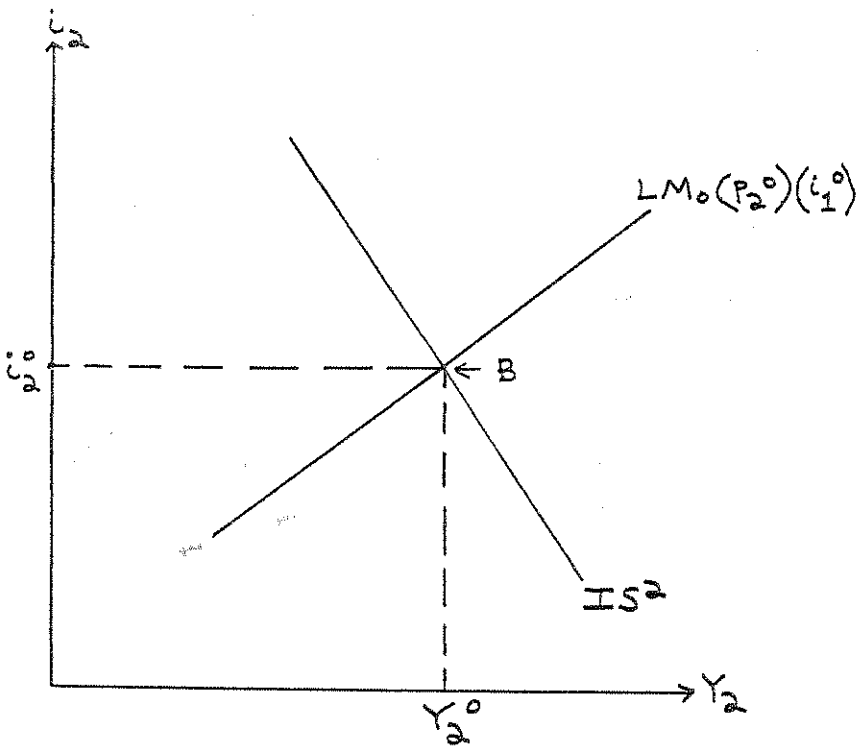


FIGURE 2

It now remains for us to bring Regions 1 and 2 together so that we may analyze the effects of various forms of ROSP within a general equilibrium framework. This is done graphically with the aid of Figure 3. In this Figure, both i_1 and i_2 are measured along the vertical axis. Point C in Figure 3 is assumed the origin of the diagram. Y_1 is measured horizontally to the right of point C, while Y_2 is measured horizontally to the left of point C. At point c, $i_1, i_2, Y_1, Y_2 = 0$.

If we adopt the assumption that financial capital is perfectly mobile between regions, it follows that, in full equilibrium [14], $i_1 = i_2$. Region 1 is shown in equilibrium in Figure 3 at point A, which corresponds to

14. Related to the notion of perfectly mobile financial capital, see R. A. M u n d e l l, « The Monetay Dynamics of International Adjustment under Fixed and Flexible Exchange Rates », *Quarterly Journal of Economics,* Vol. 74 (1960), pp. 227-257, or A. T a k a y a m a, « The Effects of Fiscal and Monetary Policies under Fixed and Flexible Exchange Rates », *Canadian Journal of Economics,* Vol. II (1969), pp. 190-209.

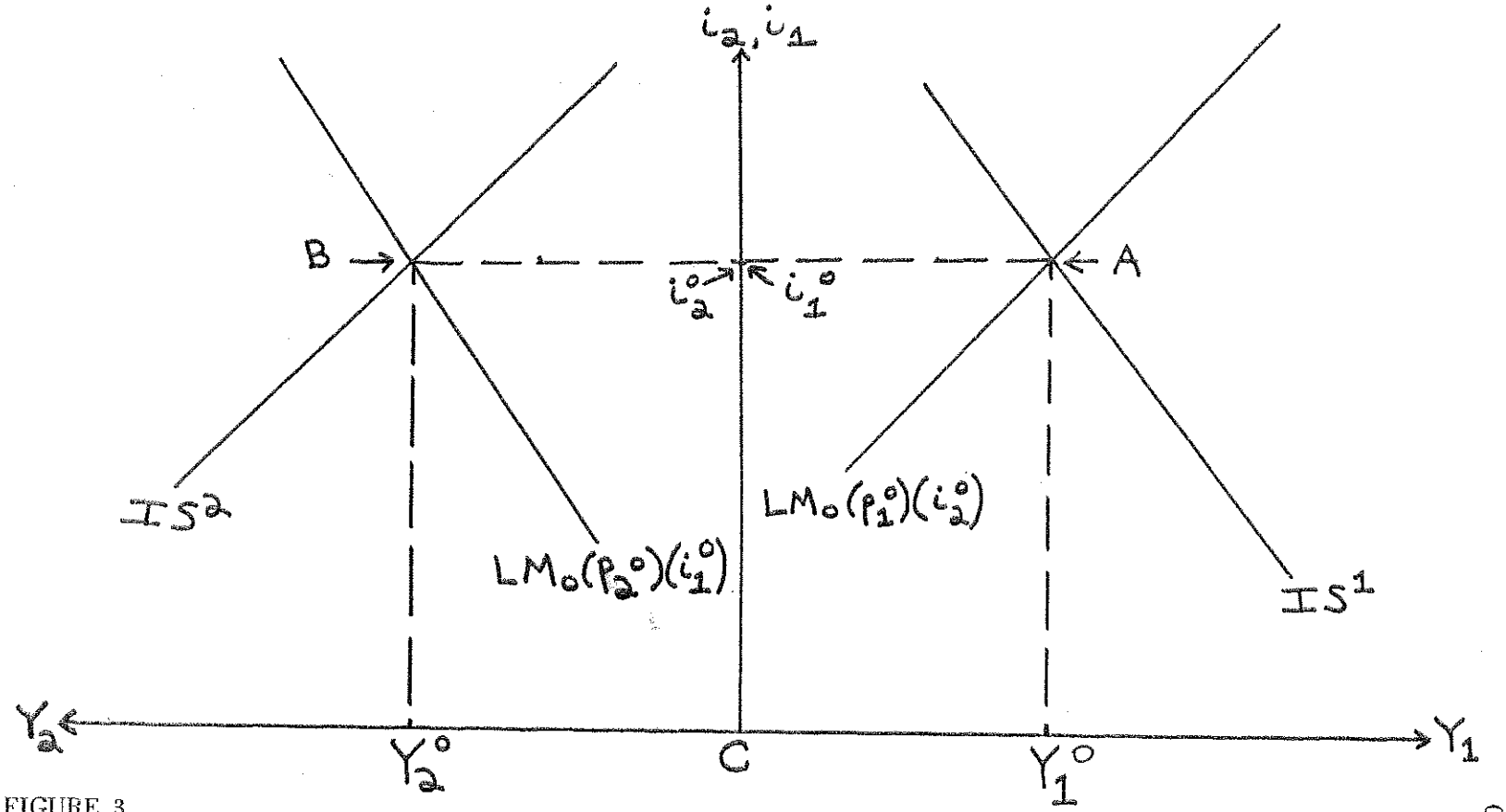


FIGURE 3

income level Y_1^0 and interest rate i_1^0 ; Region 2 is shown in equilibrium in Figure 3 at point B, which corresponds to income level Y_2^0 and interest rate i_2^0. Given perfect capital mobility, $i_1^0 = i_2^0$, as shown [15].

II.

Given the framework developed in Section I, we are now in a position to analyze the effects of ROSP. For simplicity, only two forms of ROSP are explicitly considered here ; they are (1) ROSP in the form of monetary policy aimed directly at alleviating unemployment in one of the regions, and (2) ROSP in the form of redistributing a fixed *total* amount of government spending between the regions so as to alleviate unemployment within one of the regions. It is assumed throughout this section that financial capital is perfectly mobile between Regions 1 and 2, so that when both Regions have simultaneously reached equilibrium, $i_1 = i_2$ [16].

1. To analyze ROSP in the form of monetary policy aimed directly at alleviating unemployment in one of the Regions, we use Figure 4, where i_1, i_2, Y_1, and Y_2 are measured precisely as in Figure 3. Region 1 is shown in initial equilibrium at point A, with coordinates (Y_1^0, i_1^0) ; Region 2 is shown initial equilibrium at point B, which corresponds to income level Y_2^0 and interest rate i_2^0. The full employment level of real income in Region 1 is represented by Y_1^*, while the full employment level of real income in Region 2 is represented by Y_2^*. As shown $Y_1^0 < Y_1^*$ and $Y_2^0 < Y_2^*$. Furthermore, $i_1^0 = i_2^0$. Finally, the initial equilibrium price levels in Regions 1 and 2 are p_1^0 and p_2^0, respectively.

On the assumption that the central government wishes to exercise

15. Both Regions may be assumed to be below their respective full employment levels of real income.

16. No attempt here is made to integrate the *liquidity trap* (see J.M. Keynes, *The General Theory of Employment, Interest and Money,* esp. pp. 201-204) into the analysis. Similarly, we do not here attempt to deal with the *commodity trap.* Related to the latter, see R.J. Cebula and P.K. Gatons, « Aggregate Demand under Conditions of a 'Commodity Trap' », *Rivista Internationale di Scienze Economiche e Commerciali,* forthcoming ; R.J. Cebula and P.K. Gatons, « The 'Commodity Trap' : Some Extensions and Limitations », *The Indian Journal of Economics,* forthcoming ; R.J. Cebula and H.N. McKenzie, « A Note on Capital Depreciation the Rate of Interest, and the IS Function », *The American Economist,* Vol. 14 (1970), pp. 81-86 ;. and R.J. Cebula and S.M. Renas, « A Theoretical Note on Monetary Policy », *Rivista Internazionale di Scienze Economiche e Commerciali,* Vol. 17 (1970), pp. 1208-1212.

monetary policy to alleviate unemployment in Region 1, postulate an initial increase in the nominal money stock in Region 1. The initial effect of this is a rightward shift in Region 1's *LM* curve, say to $LM_1(p_2^0)\ (i_2^0)$. Initially, this has the effect of driving down i_1 and in turn stimulating I_1. As I_1 begins to rise, so too do Y_1 and p_1. The rise in p_1 tends to shift the *LM* curve upward and to the left somewhat [17].

At the same time that i_1 is falling, and I_1, Y_1, and p_1 are rising, changes are occurring in Region 2. Firstly, as i_1 is falling, funds are beginning to flow out of Region 1 and into Region 2. This implies a leftward shift in Region 2's *LM* curve [18], and thus downward pressure on i_2 and upward pressure on I_2 and in turn on Y_2 and p_2. Secondly, as Y_1 begins to rise, X_{21} rises and thus shifts Region 2's *IS* curve leftward [19]. This implies further increases in both Y_2 and p_2, although it also implies a diminished rate of decrease of i_2 over time. Thirdly, as p_2 rises, this implies some rightward shifting of Region 2's *LM* curve and thus a diminished rate of decrease for i_2 over time and a diminished rate of increase in Y_2 over time (vis-à-vis the situation where in $\triangle p_2 = 0$).

Thus, although central bank policy initially influences the interest rate and real income level in Region 1 (as specifically intended), it also leads to changes in the interest rate and real income level in Region 2. And the chain of events has by no means yet been broken, for as Y_2 begins to rise, this shifts the *IS* curve for Region 1 to the right. This has several important effects. These include a higher level of Y_1 and a higher level of i_1. In turn, as Y_1 continues to rise, Region 2's *IS* curve continues to shift to the left. This then leads to, among other things, a higher level of Y_2. And this process of interregionally transmitted changes continues back-and-forth over time until both Regions simultaneously are in equilibrium. Such a final equilibrium for both Regions is depicted in Figure 4, where Region 1 is in final equilibrium at point A' and Region 2 is in final equilibrium at point B'. Under these new circumstances, $i_1 = i'_1$, $Y_1 = Y'_1$, $p_1 = p'_1$, $i_2 = i'_2$, $Y_2 = Y'_2$, and $p_2 = p'_2$. Furthermore, $i'_1 = i'_2$. Comparative statics results are summarized in (21), where an upward-pointed arrow ($\uparrow$) denotes an increase in the value of the variable in

17. Related to this, see L. H o u g h, « The Price Level in Macroeconomic Models », *American Economic Review*, Vol. 44 (1954), pp. 269-286 or W. L. S m i t h, « A Graphical Exposition of the Complete Keynesian System », *Southern Economic Journal*, Vol. 22 (1956), pp. 115-125.

18. Note that this is the appropriate shift, given the structure of Figure 4, where Y_2 is plotted from right to left, starting at point C.

19. See footnote 18.

question and a downward-pointed arrow (↓) denotes a decrease in the value of the variable in question :

$$(21)\quad \begin{cases} Y_1 & \uparrow \\ i_1 & \downarrow \\ p_1 & \uparrow \\ Y_2 & \uparrow \\ i_2 & \downarrow \\ p_2 & \uparrow \end{cases}$$ [20].

Whether $\triangle Y_1 \gtreqless \triangle Y_2$ of course depends on the relative elasticities of the *IS* and *LM* schedules in Regions 1 and 2.

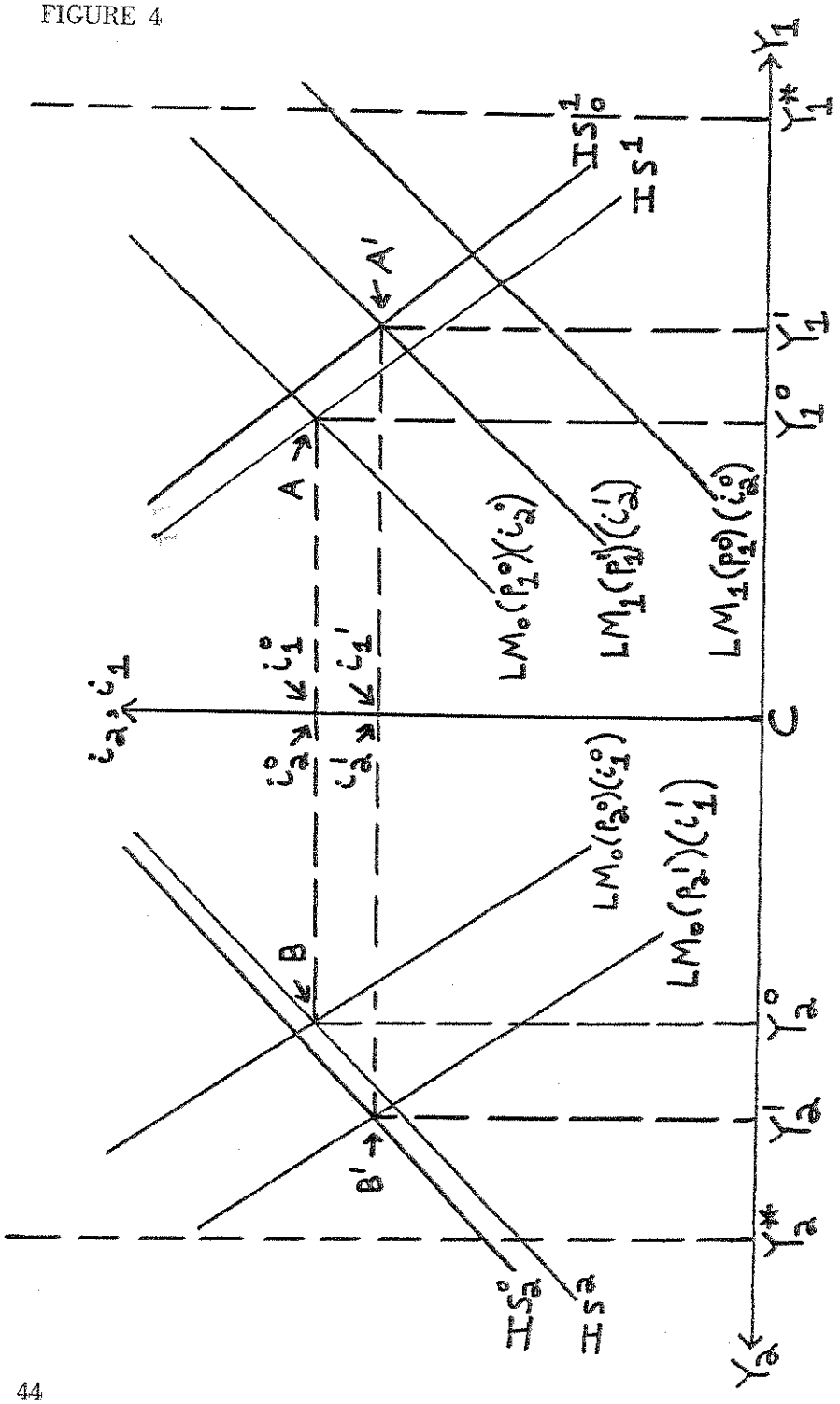
In summation, if the central bank attempts to alleviate unemployment in one Region by increasing that Region's nominal money stock, it will presumably also affect the level of real income in the other Region(s), assuming that the other Region(s) is (are) below its (their) respective full employment level(s). This follows even if we drop the assumption of perfect interregional mobility of financial capital, since the regions are still linked through the element of interregional commodity trade.

2. To analyze ROSP in the form of redistributing between two Regions a fixed *total* amount of real government spending, we use Figure 5, where i_1, i_2, Y_1, and Y_2 are measured precisely as in Figures 3 and 4. Region 1 is shown in initial equilibrium at point D, with coordinates (Y_1^0, i_1^0) ; Region 2 is shown in initial equilibrium at point E, which corresponds to income level Y_2^0 and interest rate i_2^0. The full employment level of real income in Region 1 is represented by Y_1^*, while the full employment level of real income in Region 2 is represented by Y_2^*. As shown, $Y_1^0 < Y_1^*$ and $Y_2^0 < Y_2^*$. Furthermore, $i_1^0 = i_2^0$. Finally, the initial price levels in Regions 1 and 2 are p_1^0 and p_2^0, respectively.

Assuming that the central government wishes to alleviate unemployment in Region 1 by increasing its real expenditures there by a certain amount and by decreasing its real expenditures in Region 2 by the same amount, the initial effect of the policy is to shift Region 1's *IS* curve to the right, say to IS_0^1, and to shift Region 2's *IS* curve to the right, say to IS_0^2. This results in several initial changes. First, Y_1 tends to rise, and so do p_1 and i_1. As p_1 begins to rise, the *LM* curve for Region 1 starts to

20. Thus, $N_1 \uparrow$ and $N_2 \uparrow$ where N_2 denotes the number of labor units employed in Region 2.

FIGURE 4


Y_1
Y_1^*
HS_1^1
HS^1
A'
A
Y_1^1
Y_1^0
$LM_0(P_1^0)(i_2^0)$
$LM_1(P_1^1)(i_2^1)$
$LM_1(P_1^0)(i_2^0)$
i_1^0
i_1^1
i_2, i_1
i_2^0
i_2^1
C
$LM_0(P_2^0)(i_1^0)$
$LM_0(P_2^1)(i_1^1)$
B
Y_2^0
Y_2^1
B'
Y_2^*
HS_2^0
HS^2
Y_2

shift to the left. As i_1 rises, this tends to lower I_1 and thus tends to offset somewhat the increase in Y_1 attributable to the increased government spending in the Region. Second, Y_2 tends to decline, as do p_2 and i_2. As p_2 declines, the *LM* curve for Region 2 begins to shift to the left. As i_2 falls, I_2 tends to rise and thus to offset somewhat the decline in Y_2 associated with the initial decline in government spending in the Region.

Given these initial changes, there is a sequence of other types of change which must now be considered. First, given the initial rise in i_1 and the initial decline in i_2, $i_1 > i_2$. This implies a flow of funds out of Region 2 into Region 1 and a resulting rightward shift of the *LM* curves of both Regions (in terms of Figure 5). Second, given the initial tendency for Y_1 to rise and for Y_2 to fall, the *IS* curves for both Regions tend to shift to the left (in terms of Figure 5).

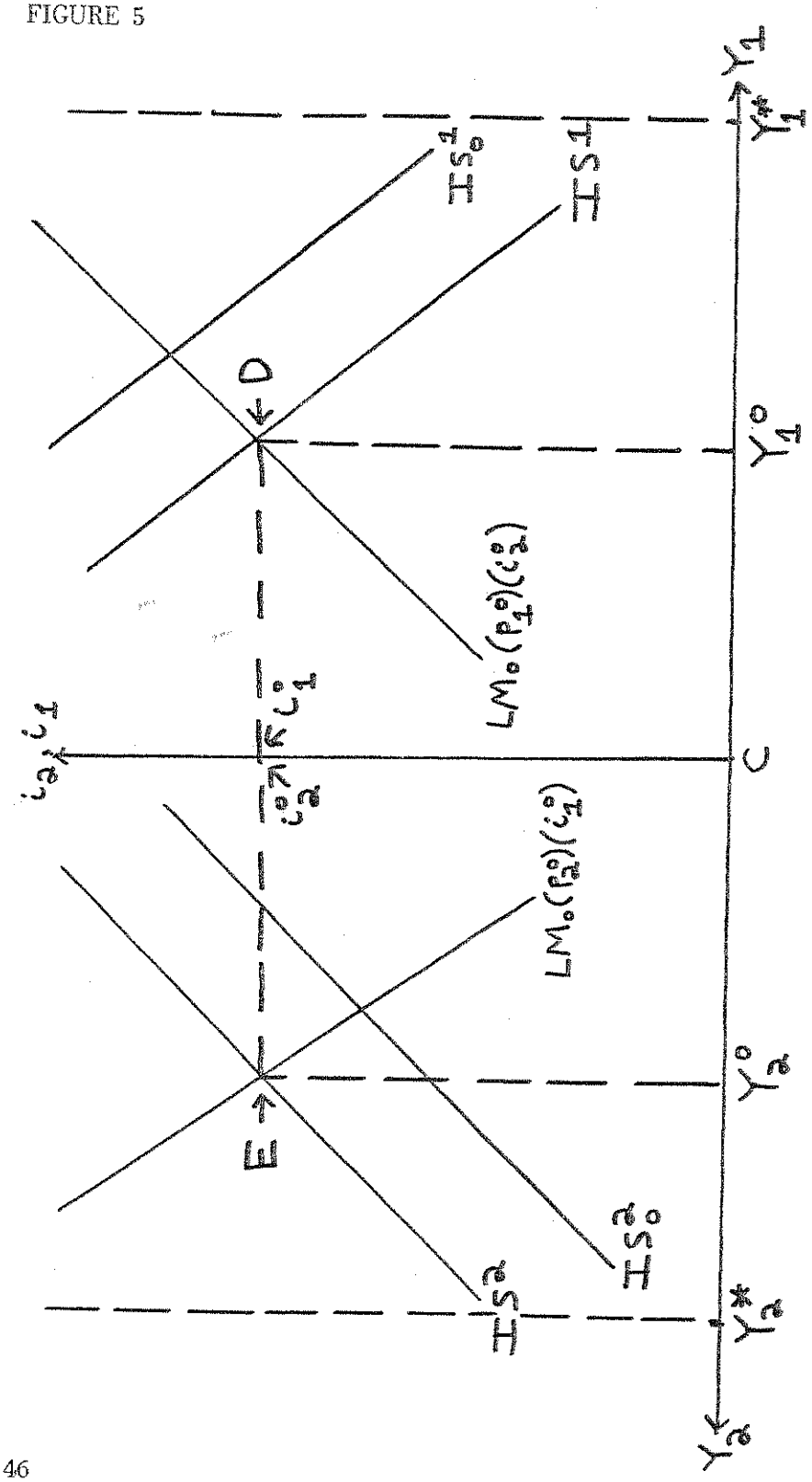
This process whereby changes in one Region influence the curves in the other Region, which Region in turn influences the first Region's curves, etc., continues until both Regions simultaneously are in equilibrium with $i_1 = i_2$. Given that Regions 1 and 2 need not have identically shaped market-equilibrium curves, it is not certain *a priori* whether the new equilibrium rate of interest will lie above, at, or below the original equilibrium rate of interest. On the other hand, the level of real income and the price level in Region 1 both rise, while Region 2's real income and price level both decline. These comparative statics are summarized in (22), where the arrow ($\uparrow, \downarrow$) notation is identical with that used in (21) and where a question mark (?) denotes that the change in the value of the variable in question is not *a priori* known :

$$(22) \quad \begin{cases} Y_1 & \uparrow \\ i_1 & ? \\ p_1 & \uparrow \\ Y_2 & \downarrow \\ i_2 & ? \\ p_2 & \downarrow \end{cases}^{21}.$$

Whether $|\triangle Y_1| \gtreqless |\triangle Y_2|$ is not known a priori. Thus, it is not certain whether, as a result of the policy under consideration, $(\triangle Y_1 + \triangle Y_2) \gtreqless 0$.

21. Thus, $N_1 \uparrow$ and $N_2 \downarrow$.

FIGURE 5


Y_1
Y^*_1
HS^1_0
HS^1_1
D
Y^0_1
$LM_0(P^0_1)(i^0_2)$
i_2, i_1
i^0_1
i^0_2
C
$LM_0(P^0_2)(i^0_1)$
Y^0_2
E
HS^2_0
HS^2_2
Y^*_2
Y_2

III.

In Section I of this paper, we develop *IS-LM* analysis within a two-region economy where interregional trade and interregional financial capital flows are permitted and where a central government is empowered to exercise various forms of ROSP. Section II analyzes two forms of ROSP within the framework constructed in Section I.

A number of closing comments are now in order. First, the assumption of perfectly mobile interregional financial capital flows is not absolutely necessary. It is adopted here in order to simplify the discussion and analysis as much as possible. The main consequence of eliminating the assumption of perfect capital mobility is to influence the effectiveness of regionally oriented monetary policy. In particular, it follows from the model that regionally oriented monetary policy is an increasing function of the degree of capital immobility. Second, only two types of ROSP are explicitly considered in this paper. It is felt that an understanding of the analysis of these two forms should equip the reader adequately to embark an analysis of more complex, and perhaps more relevant, forms of ROSP. Finally, the model constructed in this paper deals explicitly with only two Regions. Clearly, the model could be expanded into an N Region case, although this would involve a considerable increase in complexity.