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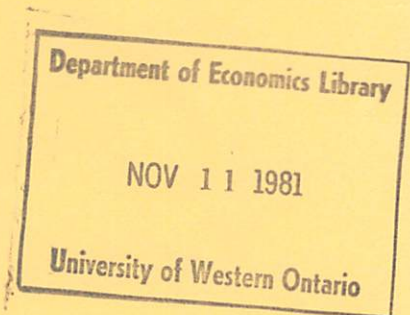
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LABOUR MIGRATION AND THE NORTH-SOUTH DEBATE

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This paper contains preliminary findings from research work still in progress and should not be quoted without prior approval of the author.

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LABOUR MIGRATION AND THE NORTH-SOUTH DEBATE

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Abstract

An important issue arising from recent North-South exchanges is whether the South has more to gain from liberalization of labour migration than the other policy initiatives raised thus far in the North-South debate. A simple methodology uses data on differences in GNP/capita to infer differences in marginal productivity of labour both between countries and major world trading areas. Calculations are made of the worldwide efficiency gains from removing immigration restrictions in the world economy along with the impact of wage rate changes on non-migration labour. While these calculations are clearly based on contentious assumptions, the striking feature is the size of the annual worldwide efficiency gains. Under some assumptions these are in the region of 25% of worldwide GNP. These gains exceed existing estimates of LDC gains from changes proposed under North-South negotiations by overwhelming orders of magnitude. The losses to labour already employed in high wage countries dramatize the incentives for labour unions in the North to oppose liberalization.

I. Introduction

LDC complaints in recent North-South forums have focused on such issues as commodity price stabilization programs, debt write-offs, the long-term deterioration in Southern terms of trade (which some economists consider contentious), and protectionist trade policy restrictions in the North. Relatively little has been heard about controls on inward migration to the North from the South,[1] despite the widespread recognition of the potential quantitative dominance of immigration controls in the North as a source of LDC loss.[2]

This paper takes as its point of departure the (apparent) total absence of any calculations of possible worldwide impacts of removal of immigration controls. Some speculative 'order of magnitude' calculations are reported as to the potential

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[1] Although trade theorists might argue that factor price equalization makes such a discussion unnecessary, large differences exist in wage rates between DC's and LDC's.

[2] As long ago as 1967 Harry Johnson remarked that "...immigration policies of developed countries, which generally discriminate severely against immigrants from less developed countries, especially the poorly trained and educated, may be said to lie at the core of the development problem" (Johnson (1967), p. 107), and more recently Gerry Helleiner (1979) has argued that "...the most important 'imperfection' in world markets is that which exists in the market for labour, particularly unskilled labour. The world labour market is severely segmented by the fact of immigration restrictions."
(Helleiner, in Cline (1979), p. 365)

worldwide efficiency gains from removal of controls and the impacts on non-migrating labour. The major finding is that under 'central case' assumptions, large annual worldwide efficiency gains result which are in the order of $2 trillion (using 1977 data) compared to a worldwide GNP of $7 trillion. This is around many orders of magnitude greater than existing estimates of al other North-South proposals summarized in Cline (1979). Estimates reported by Cline (1979) suggest perhaps $30-40 billion as the annual gain to LDCs from a package comprising extensive commodity price stabilization and debt writeoffs programmes, coupled with significantly increased aid from the North to the South.

The calculations reported here have been made to provide ball park estimates under alternative assumptions until such time as data improve and alternative methods are proposed. These are presented by the author with more than a little trepidation since the assumptions are highly simplified and the data are imprecise. The importance of the policy issues and the need for ball park estimates motivate the exercise rather than exactness of forecast.[1] If Southern negotiators are interested in promoting the aggregate welfare of their (current) citizens the implication is that they should argue much more passionately than hitherto for liberalization of immigration controls in the North. Indeed if modest gains are made by the South in terms of the current agenda, but are accompanied by even harsher immigration controls in the North, the South may well be a significant net loser.

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[1] If one is so disposed, there are many perfectly acceptable reasons why one could dismiss these calculations as virtually worthless. One can argue that the assumptions made prior to the calculations dictate the conclusion, the 'data' are little more than schematic, and that alternative assumptions could be made which would make the entire efficiency gain estimate disappear. Such an assumption would be that all differences in wage rates across countries reflect productivity differences.

Having stated these implications, some careful qualification is in order because of features neglected in the analysis. If outward migration is selective rather than general, departing residents of LDCs may well be the best trained and most highly educated (as currently). The human capital transfer accompanying such selective outward migration may drive down wage rates of lower skilled labour remaining. Such a result could be generated by taking removal costs explicitly into account, which is not done here. The distributional issue of who gains and loses within the group who reside in LDCs prior to removal of controls in the North may be a prime reason why little is made of this issue by the South. Another neglected feature of present analysis is that user fees for education services in LDCs typically do not cover the human loss from outmigration, inflicting further losses on those who remain. Lastly, there are obvious political pressures for resistance to inward migration into the North by labour groups who will likely see wage rates driven down. This, presumably, provides the main reason why such a change will not occur. The impacts on those who reside in the North before the change are captured in the calculations reported through induced changes in wage rates between regions; labour in the North is a major loser and a capital gainer.

II Methodology for the Calculations

In order to calculate the world wide efficiency gains from a removal of immigration controls, a number of assumptions are made which enable the change in the allocation of labour by region in the world economy to be calcualted for the alternative groupings of countries into regions considered. In this section, the basic methodology for the calculations is outlined. Two different methods are used which vary in underlying model treatment of the labour market in each of the blocs which characterize the worldwide economy.

The first method assumes that production structures are characterized by linearized marginal revenue product of labour schedules in each region. Capital is fixed by region and it is assumed that labour is paid its marginal product. Differences in wage rates are attributed to restrictions on inward migration into high wage areas. The return to capital in each region is calculated as the area under the marginal revenue product of labour schedule less labour costs.

Figure 1 illustrates this method for the case where two regions (low and high wage) are involved. For each region the linear marginal revenue product of labour schedule reflects diminishing marginal productivity of labour.

In the presence of controls, the allocation of labour between the regions is $\hat{L}_H$ and $\hat{L}_L$. Employment in the high wage area ($\hat{L}_H$) reflects the restrictions on the inflow of labour since controls produce the higher wage rate. The effect of removing immigration controls is to allow labour to flow from the low wage to the high wage region, and to equalize the wage rate. Labour employment in the low wage region contracts from $\hat{L}_L$ to $\hat{\hat{L}}_L$ and expands in the high wage region from $\hat{L}_H$ to $\hat{\hat{L}}_H$

In the high wage region the expansion of labour employment yields an increase in the value of product. In the low wage region labour use contracts and a loss occurs. The areas of gain and loss may be superimposed one on the other since, from the full employment assumption, the change in labour allocation in the two regions has to be the same. The area of net gain from elimination of immigration controls is represented in Figure 1. If we assume a single output which is both homogeneous and internationally traded across regions, the

Figure 1

Simple Linearization Method of Calculation of Gain from Removal of Immigration Controls

High Wage Area   **Low Wage Area**
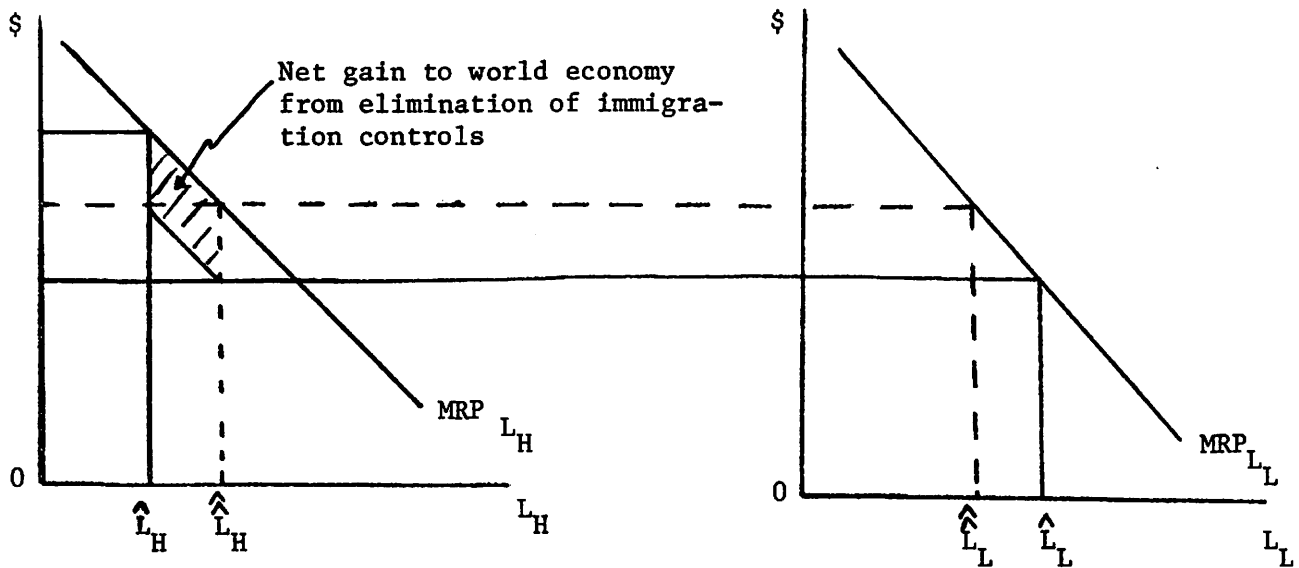
Before control elimination labour allocation $\hat{L}_H$, $\hat{L}_L$

After control elimination labour allocation $\hat{\hat{L}}_H$, $\hat{\hat{L}}_L$

From the fixed world labour supply $\hat{L}_H + \hat{L}_L = \bar{L}$, and $\hat{\hat{L}}_H - \hat{L}_H = \hat{L}_L - \hat{\hat{L}}_L$

change in the value of product is both the efficiency and welfare gain (or loss) to the world economy. This method is similar to Harberger's (1966) procedure for the evaluation of the productive efficiency costs of distortions in the corporate tax in the U.S. but is made simpler by the restriction to a single output.

To implement this procedure it is necessary to specify the marginal revenue product schedules in each region. The methods used to do this are illustrated in Figure 2. As will be described later, national accounts and other data are used to generate an observation on the wage bill in region i. B_i is thus available, and from GNP accounts the return to capital in region i, R_i, is determined. The point estimate of the elasticity of the marginal revenue product schedule with respect to L_i evaluated at the observed labour employment $\hat{L}_i$ is

$-2R_i/B_i$. R_i, $\hat{L}_i$, and B_i are observable, and it is possible to calculate the elasticity of the schedule. From the observations on w_i and $\hat{L}_i$, and the elasticity, all the characteristics of the linearized marginal revenue of product function are known for each region.

An iterative search is used to find the allocation of labour in the no immigration control regime. This is a relatively simple calculation to programme on a computer, which, even with dimensions of around 150 (approximately the number of countries in the world), requires minimal amounts of execution time. In high dimensional cases, the calculation of the gain to the world economy from removal of immigration controls proceeds as in the two country case by adding the changes in value of product in expanding and contracting regions.

Figure 2

Implementation of Linearization Calculation
(Method 1)
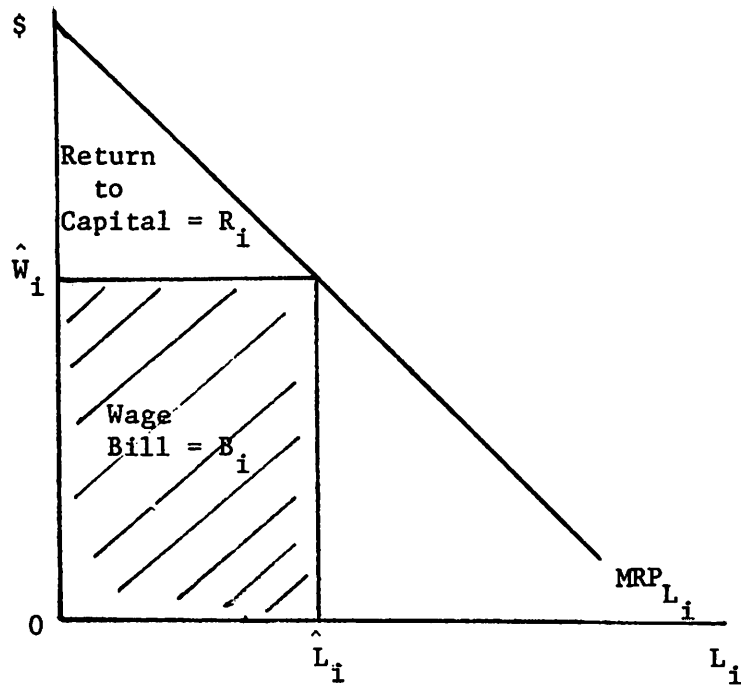
MRP schedule defined by point Estimate of Elasticity of MRP w.r.t. to L_i at $\hat{L}_i$

$$\frac{\partial (MRP_i)}{\partial L_i} \cdot \frac{\hat{L}_i}{\hat{W}_i} = \frac{-2R_i}{\hat{L}_i^{\,2}} \cdot \frac{\hat{L}_i}{\hat{W}_i} = \frac{-2R_i}{B_i}$$

Using observations on R_i, B_i, $\hat{L}_i$, the MRP schedule can be determined.

An alternative method of calculation dispenses with the linearized marginal revenue product schedules outlined in Figure 1 and, instead, uses an aggregate production function for each of the regions. The steps involved are listed in Table 1.

For each region a CES production function is used and the parameter ρ_i is specified. This implies selection of a value for the elasticity of factor substitution in production. The same data for Method 1 are used along with the assumption that factors are paid their marginal products before the immigration controls are removed. From the first-order conditions for cost minimization and the observations on factor use and factor returns, the parameter δ_i is calculated in each region. Units are assumed for the single (worldwide) homogeneous output as that amount which sells for $1 in the situation prevailing before the immigration controls are removed. This choice of units determines the scale parameter A_i in the production function in each region.

The production function parameters are then used to calculate the change in labour allocation across regions after removal of immigration controls. An equalized marginal revenue product of labour across blocs is found consistent with full employment of the fixed world wide labour supply. This procedure is similar to that represented in Figure 1, except the marginal revenue product schedules are no longer linear. Explicit equations for the marginal revenue products are used in numerically determining (on the computer) the labour allocation characterizing the post-control solution. The gain to the world economy is then calculated as the change in the value of the total world product between the before and after elimination of control situation. This procedure can be repeated for alternative extraneous values of the parameters ρ_i in each region.

Table 1

Implementation of Production Function Calculation
(Method 2)

Step 1 - For each region an aggregate CES production function is assumed.

$$Y_i = A_i [\delta_i K_i^{-\rho_i} + (1-\delta)L_i^{-\rho_i}]^{\frac{1}{-\rho_i}}$$

Step 2 - Extraneous values of ρ_i for each region are assumed.

Step 3 - From the assumption that factors are paid their marginal product before removal of controls, value of δ_i determined from ratio of first-order conditions.

Step 4 - Units assumed for output such that one unit sells for \$1. The GNP value for the region, along with production function parameter, is used to solve A_i.

Step 5 - Using production function parameters, an iterative procedure is used to calculate the change in labour allocation after removal of controls consistent with (a) equal MRP of labour in all blocs (b) full employment of fixed labour supply.

Step 6 - The gain from removal of immigration controls is calculated as the change in the value of total world product.

Step 7 - The procedure can be repeated for alternative extraneous values of the parameters ρ_i in each region.

III.   Data and Assumptions

In order to use the methods described above to calculate worldwide efficiency gains from the removal of immigration controls, data drawn from a number of different sources are used. In the process some key assumptions are made as to data interpretation and use. In the main calculations reported on later, a 7-region grouping used in a different context by Whalley (forthcoming) is adopted, due to the convenience of using data already assembled on this classification. Alternative groupings are considered to identify whether the main gains occur from North-South rather than North-North or South-South migrations.

Data on 1977 GNP per capita in U.S. dollars are taken from the World Bank Atlas (1979) and countries of the world are grouped into the blocs outlined in Table 2. Countries are grouped into EEC, U.S., Japan, other developed countries, OPEC, new industrialized countries, and less developed countries. GNP per capita in U.S. dollars is calculated for each region. The World Bank Atlas also provides data on population for 1977 for each country, which is aggregated to produce population by region. Table 2 indicates the large differences in GNP per capita between LDC's and the North, and also the concentration of population in LDC's. There are many problems of interpretation with GNP per capita data by countries. These are recognized here, and a limited amount of sensitivity analysis performed to explore robustness of results to the data used.

For the first calculations under Methods 1 and 2 it is assumed that the population of any country defines the potential workforce. This is a poor assumption since population will exceed workforce and some approximations for the fraction of the population in the workforce are used in subsequent calculations. Data on factor shares between capital and

TABLE 2

Classification of Countries Into Regions and Summary Features of Each

Countries Included in Blocs

Region 1: Belgium   Ireland   Luxemburg   U.K.
(EEC)   Denmark   Italy   Netherlands   W. Germany
    France

Region 2: United States
(U.S.)

Region 3: Japan
(Japan)

Region 4:   Albania   Czechoslovakia   Hungary   Romania
(Other   Australia   E. Germany   Israel   Samoa
Developed)   Austria   Finland   Malta   Spain
    Bahamas   Fr. Polynsa   New Zealand   Sweden
    Barbados   Gibraltar   Norway   Switzerland
    Bermuda   Greece   Poland   U.S.S.R.
    Bulgaria   Greenland   Portugal   Virgin Isl.
    Canada   Guam   Puerto Rico   Yugoslavia

Region 5:   Bahrain   Iran   Nigeria   Saudi Arabia
(OPEC)   Brunei   Iraq   Oman   Un Arab Em
    Kuwait   Libya   Qatar   Venezuela

Region 6:   Argentina   Fr. Guiana   Martinique   Surinam
(NIC)   Brazil   Hong Kong   Mexico   Taiwan
    Chile   Jamaica   Neth Antil   Trinidad
    Costa Rica   Korea   N. Caledonia   Turkey
    Cyprus   Lebanon   Pacific Is.   Uruguay
    Ecuador   Macao   Panama
    Fiji   Malaysia   Singapore

Region 7:   Afghanistan   El Salvador   Mali   Solomon Is.
(LDC)   Algeria   Ethiopia   Mauritania   Somalia
    Angola   Gabon   Mauritius   S. Africa
    Antigua   Gambia   Mongolia   Sri Lanka
    Bangladesh   Ghana   Morocco   Sudan
    Belize   Grenada   Mozambique   Swaziland
    Benin   Guadeloupe   Namibia   Syrian A R
    Bhutan   Guatemala   Nepal   Tanzania
    Bolivia   Guinea   New Hebrides   Thailand
    Botswana   Guinea-Bis   N. Guinea   Togo
    Burma   Guyana   Nicaragua   Tonga
    Burundi   Haiti   Niger   Tunisia
    Camercon   Honduras   Pakistan   Uganda
    Cape Verde   India   Paraguay   Upp Volta
    Ce. African Rep.   Indonesia   Peru   Vietnam
    Chad   Ivory Coast   Philippines   Yemen A R
    China   Jordan   Reunion   Yemen PDR
    Colombia   Kenya   Rhodesia   Zaire
    Comoros   Kiribati   Rwanda   Zambia
    Congo   Korea   St. Kitts
    Cuba   Laos Fdr   St. Lucia
    Djibouti   Lesotho   St. Vincent
    Dominica   Liberia   Sao Tome
    Dominion Rp.   Madagascar   Senegal
    Dm Kampuchea   Malawi   Seychelles
    Egypt   Maldives   Sierra Leone

	1977 GNP/Capita in $ U.S.	1977 Population in billions	1977 GNP in $ bill (U.S.)
Bloc 1 (EEC Countries)	6283	.3	1629
Bloc 2 (U.S.)	8751	.2	1897
Bloc 3 (Japan)	6511	.1	737
Bloc 4 (Other Developed Countries)	3848	.5	2024
Bloc 5 (OPEC)	1000.3	.3	303
Bloc 6 (Newly Industrialized Countries)	1306	.4	461
Bloc 7 (Less Developed Countries)	325.1	2.4	773
WORLD	1863	4.2	7824

labour in each of the 7 regions are taken from Whalley (forthcoming); these data

rely on U.N. sources. These two pieces of data provide an observation on the

wage bill which, in turn, directly produces an estimate of the wage rate. The

procedures outlined above for Methods 1 and 2 (for each extraneous estimate

of the ρ_i) are then used.

These procedures are implemented not only for the equalization of wage

rates across the seven regions indicated in Table 2, but also for the equalization

of wage rates across all countries, and the equalization of wage rates between

aggregated 'rich' and 'poor' blocs (blocs 1 to 5 are assumed 'rich' and blocs

6 through 7 'poor'). In the case of these second two sets of calculations

factor share data in convenient form is unobtainable and it is assumed that

capital's share in national income is .3.

Because of the importance of the assumptions used in these calculations,

alternative variants on the basic calculations are adopted. These are outlined

in Table 3. First, a correction is made for the ratio of the size of the work-

force to population; it is assumed in each region that the workforce is only a

fraction of the population in the region, with the fraction being crudely

specified to reflect demographic patterns in regions. Secondly, a correction

is made for differences in efficiencies of labour assumed across regions. The

labour in newly industrialized and less industrialized countries is assumed in

alternative calculations to be less efficient than labour in developed countries;

differential efficiency factors of one-half and one-third are used. Lastly,

crude corrections are made for differences in exchange rates reflecting purchasing

power parity differentials over official exchange rates; data are used from

Kravis et al. (1975) in a manner similar to the correction factors by income

range used in Whalley [1980]. Here correction factors by region are applied rather

than by income level as in the earlier piece. In cases where equalization

of wage rates across all countries is considered, the same 'correction factors'

are assumed to apply to all countries within a region.

TABLE 3

Variants on 'Basic' Calculation

A. **Population/Workforce** — Crude correction for size of labour force to population. Workforce assumed to be one-half of population in all regions.

B. **Efficiency Units** — Differential efficiencies of labour assumed by region. Labour in Regions 6 and 7 (NICs and LDCs) assumed to be (a) one-half and (b) one-third as efficient as labour elsewhere.

C. **Exchange Rates** — Crude correction for 'purchasing power parity' premium over official exchange rates, using estimates from Kravis, Kenessey, et al (1975). Premia relative to the U.S. dollar used are 1.24 for the EEC, 1.47 for Japan, 1.87 for Other Developed, 2.32 for OPEC, 2.32 for NIC's, and 3.49 for LDC's. See Whalley [1980], p. 274.

IV.   Results of Calculations

In Table 4, estimates of efficiency gains from worldwide free mobility of labour are reported for the 'central case' specification. This central case set of results suggests worldwide efficiency gains from the removal of immigration controls in the world economy of around $2 trillion/year using 1977 data. These worldwide gains are in the region of 25 percent of worldwide GNP. As can be seen from Table 4, the majority of the $2 trillion gain is accounted for by labour migration occurring between the rich and poor countries in the blocs listed in Table 2. Relatively little additional gain occurs from labour migration occurring internally within these two blocs. Also smaller gains occur with free mobility between all countries than only between aggregated regions. This partly reflects the change in factor share assumptions between cases (see footnote 1 to Table 4). This finding also confirms the intuition that disaggregation of blocs into countries need not increase the measured efficiency gain from liberalization of immigration controls, since this depends on the distribution of wage rates within the blocs involved.

Although highly speculative, these central case calculations suggest large potential worldwide efficiency gains from moving toward a worldwide labour market free of immigration controls. While not surprising, it is the quantitative size of the effects involved compared to other more actively discussed issues in North-South debate that is striking. To put this point in sharper perspective, Table 5 reproduces part of the table appearing in Cline [1979] offering a 'best guess' numerical evaluation of possible impacts of policy initiatives under the North-South dialogue. Cline describes the impact of liberalized migration on developing countries as 'very large'. The calculations reported here suggest a ratio of annual worldwide efficiency gains to developing country gains from non-migration initiatives of 90:1. While perhaps not a totally fair comparison since it compares elimination of immigration controls to more modest changes in aid, tariffs, and debt arrangements,

TABLE 4

Efficiency Gain Estimates from Worldwide Labour Mobility Using Method 1

$ trillion 1977 (Figures in parentheses are % of worldwide 1977 GNP)

Removal of controls on labour mobility between

(1)	All countries listed[1] in Table 2	2.11 (26.9)
(2)	The 7 blocs listed in Table 2	2.16 (27.6)
(3)	The "Rich" and "Poor"[1] blocs listed in Table 2	1.89 (24.2)
	Worldwide GNP in 1977	7.82

[1]These two calculations use an extra assumption that the share of capital in all countries or regions is .3. This is speculative and its use reflects the absence of factor share data for all the countries and blocs involved.

Table 5

Table From Cline [1979][1] Providing 'Best Guess' Estimates of Economic Benefits from Alternative Policy Initiatives Under the North-South Dialogue

Policy Initiative	Annual Benefit to Developing Countries
1. Commodity Price Stabilization (Common Fund)	$0.6 bill.
2. Cancellation of Debt of 'Poor' Developing Countries	$2.4 bill. or less
3. Trade Liberalization 60% cut in	
a. tariffs	$2.2 bill.
b. agricultural NTB's	$0.4 bill.
c. textile protection	$1.6 bill.
4. Aid Targets	
a. 0.7% GNP transfer	$15.3 bill. or less
b. 0.5% GNP transfer	$ 7 bill. or less
5. Other Aid Mechanisms	
a. SDR 'Link'	$0-4 bill.
b. Ocean Resources	$5 bill. or less
c. Tariff Remittance transfer	$7 bill.
d. tax on brain drain	$0.5 bill.
6. Liberalized Migration	Described by Cline as 'very large' annual benefit to developing countries; central case estimates reported here of around $2 trillion per year worldwide efficiency gain per year.
7. Sum of 1,2,3a,b,c,4a, 5a($4 bill.),b,c,d (Non-migration Liberalization Initiatives)	$39 bill.
8. Ratio of Worldwide Migration Liberalization Gain to 7.	90:1

[1] Extracted from Table 1 appearing on pages 48 and 49 of Cline [1979].

the implication nonetheless appears to be that liberalization of worldwide migration is potentially the single most important issue in current North-South exchanges for the south.

Further elaboration on the central case calculations are reported in Table 6, along with results from calculations using alternative assumptions to those adopted in the central case. These alternative calculations are restricted to migration between the seven regions identified in Table 2. As can be seen, in the central case calculation, the worldwide gain of over $2 trillion is accompanied by an outward migration of 53 percent of the workforce from less developed countries. Only two regions lose labour, but approximately one billion people leave LDC's. The changes in average product of labour by region are modest and the GNP per capita of less developed countries rises only marginally. This is accounted for by the immobility of capital internationally. While these are clearly changes in the world economy way beyond anything that may be considered 'politically feasible', the calculations nonetheless emphasize the potential importance of the issue.

Table 5 reports alternative variants on the central case calculation. In some of these variants the estimates of the worldwide efficiency gains fall quite substantially. Of the separate modifications, the correction for labour productivity differentials between developed and less developed has the largest impact, cutting the estimated gain by an approximate factor of two where labour productivity differentials of 3:1 are used. However, with a (simultaneous) modification for labour productivity differences, exchange rates, and the change between population and workforce, worldwide welfare gains fall to $200 billion from $2 trillion in the central case. This emphasizes the substantial sensitivity of estimates of world wide efficiency gains to model treatment.

In Table 7 the impacts of using the alternative method (Method 2) for the calculation of worldwide efficiency gains (from the removal of immigration controls) are reported. Different elasticities of substitution are assumed for the aggregate

Table 6

Calculation of Gains from Removal of Immigration Controls

Using Method 1

A. Basic Calculation

Bloc	AV Product (US$) of Labour Before	Av Product (US$) of Labour After	% Change in Labour Use
1	6283	4520	+73
2	8750	5606	+147
3	6511	4801	+61
4	3848	2626	+113
5	1000	1035	-5
6	1306	1141	+26
7	325	358	-53

Worldwide Gain from Free Mobility of Labour $2158 bill (27.6% of worldwide GNP)

B. Variants on Basic Calculation

		Worldwide Welfare Gain from Free Mobility of Labour $bill	As % of 1977 Worldwide GNP
(i)	Population/workforce correction	1895	24.2
(ii)	Exchange rate adjustment	2183	27.9
(iii)	Efficiency units correction $(\frac{1}{2})$	1633	20.9
(iv)	Efficiency units correction $(\frac{1}{3})$	1169	14.9
(v)	(i) + (ii) + (iii) simultaneously	967	12.4
(vi)	(i) + (ii) + (iv) simultaneously	242	3.1

Table 7

Calculation of Gains from Removal of Immigration Controls

Using Method 2

(Worldwide welfare gains from the free mobility of labour in $bill (1977))

		Elasticity of Substitution Assumed in all Blocs		
		1.5	.5	.25
(i)	Basic Calculation	12185	6052	2507
(ii)	Population/Work-force Correction	12810	6687	2499
(iii)	Exchange Rate Adjustment	10289	7219	2443
(iv)	Efficiency Units Correction (1/2)	6986	3969	2191
(v)	Efficiency Units Correction (1/3)	5137	3229	1894
(vi)	(ii) + (iii) + (iv) simultaneously	5020	4730	1504
(vii)	(ii) + (iii) + (v) simultaneously	2668	1595	871

production function in each region; in each case calculations are performed using
the procedures described under Method 2 above. The most notable feature of Table 7
is that the production function approach produces estimates of efficiency gains
substantially above those estimated using Method 1. With an elasticity of substitution
of unity (Cobb-Douglas), estimated efficiency gains exceed world GNP and are over five
times estimates from Method 1. This suggests that a more explicit production function
methodology would yield higher estimates of efficiency gains to the worldwide economy
than Method 1, but also underlines the enormous sensitivity of estimated gains to both
methods and parameter values.

While these calculations are undoubtedly speculative, one central
message is apparent. The worldwide efficiency gains from removal of immigration
controls in the North appear to be large and, almost certainly, much larger by
substantial orders of magnitude than any of the changes currently being debated
as potential gains to LDCs as part of the North-South dialogue. Cline
(1979) suggests that the total potential gains to LDCs from a combination of
commodity price agreements, liberalization of trade policy in the North, debt
writeoffs, and other changes may be in the region of 30 to 40 billion dollars
per year. The estimates in this paper indicate that worldwide gains from the
removal of immigration controls could be in the region of $2 trillion per year,
some 25 percent of worldwide GNP. Although sensitivity analyses suggest wide
confidence ranges must be placed on this figure, the obvious implication is that
less developed countries should more explicitly consider the potential gains
to them from removal of immigration controls in future North-South negotiations
since these would seem to far outweigh gains they may achieve through other
avenues.

V.   Conclusion

This paper has presented some speculative estimates of worldwide efficiency
gains from the removal of immigration controls in the rich countries of the
world. The estimates presented must be interpreted with great caution and
have large confidence ranges assigned to them, but the strong indication is that

potential worldwide gains from removal of controls are very large. Perhaps

more significantly, there seems little doubt that they are much larger than

any of the likely impacts from changes currently being discussed as part

of a possible new international economic order under the North-South negotiations.

These results suggest that citizens of LDCs would be well served if demands

for removal of immigration controls in the North were more forcefully presented

than other changes which have so far preoccupied negotiations on a new

international economic order.

REFERENCES

Harberger, A.C. (1966) "Efficiency Effects of taxes on income from capital"
        in (ed.) M. Krzyaniak, Effects of the Corporation Income Tax,
        Detroit, 1966.

Helleiner, G.K. (1979), "World Market Imperfections and the Developing Countries"
        in (ed.) W.R. Cline, Policy Alternatives for a New International Economic
        Order: An Economic Analysis, Praeger.

Johnson, H.G. (1967) Economic Policies Toward Less Developed Countries, Praeger.

Kravis, I.B., Kenessey Z., Heston A., and R. Summers (1975), A System of
        International Comparisons of Gross National Product and Purchasing Power,
        Johns Hopkins Press.

Whalley, J. (1980), "The Worldwide Income Distribution: Some Speculative Calculations,"
        Review of Income and Wealth, September 1980, pp. 261-275.

Whalley, J. (Forthcoming), Trade Liberalization Among Major World Trading Areas,
        Manuscript in progress, to be published by MIT Press.

World Bank Atlas (1979), World Bank, Washington, D.C.

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