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ESSAYS ON LABOUR MOBILITY IN WESTERN EUROPE

ESSAYS ON LABOUR MOBILITY IN WESTERN EUROPE

by

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TO MY PARENTS

and LENA

L.e.g.G.

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ABSTRACT

Labour migration in Western Europe in the post-World War II period provides substantial evidence of mobility of human resources. Unlike internal migration, which is not inhibited by institutional obstacles, and in contrast to settlement-oriented international migration, intra-European migration has been controlled by the authorities of the labour importing countries and has been of temporary nature, utilized to moderate labour market imbalances.

The purpose of this dissertation is to contribute two essays to the literature on intra-European migration. The first essay concerns the impact of labour mobility on labour market adjustments and, more specifically, on wage determination and on the state of excess demand for labour. A model is developed on the hypotheses that, first, wage adjustments, responding to the state of excess demand for labour, are simultaneously determined with quantity adjustments which take the form of migration-induced shifts in the labour supply curve; and, secondly, that wage adjustments are responsive to the characteristics of the structure of the labour market represented by the

vacancies-unemployment relationship. Furthermore, it is recognized that mobile labour in Western Europe may be distinguished by EEC and non-EEC citizenship. This distinction is implemented by assuming that mobility of EEC citizens can be explained by the human capital theory of migration, while mobility of non-EEC citizens is determined by a government behaviouralfunction. The model is estimated using West German data. The results confirm that wage adjustments and the state of excess demand for labour are influenced by labour mobility and that the slope of the short-run Phillips curve becomes flatter when the labour market is open.

The second essay of the dissertation provides a framework to analyse the determinants of diversification of the foreign labour stock in Western European countries distinguished by country of origin. The model utilizes ideas from the theory of discrimination in labour markets and from the theory of production. The model suggests that discrimination on the basis of nationality and costs associated with labour imports constitute the proximate determinants of the foreign workers mix. The theoretical predictions of the model could be tested empirically should data become available.

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TABLE OF CONTENTS

			Page
CHAPTER I.		INTRODUCTION	1
	I.1	Introductory Remarks	1
	I.2	Synopsis of the Dissertation	10
		Footnotes to Chapter I	14
CHAPTER II.		INSTITUTIONAL BACKGROUND AND DIMENSIONS OF INTRA-EUROPEAN MIGRATIONS	16
	II.1	Introduction	16
	II.2	The System of Labour Mobility in Western Europe	18
	II.3	Dimensions of Intra-European Migrations	25
	II.3.1	Migratory Stocks and Flows	25
	II.3.2	Characteristics of Sending Countries	32
	II.3.3	Foreign Labour in West Germany	36
	II.4	Summary	49
		Appendix Table AII.1	53
		Appendix Table AII.2	54
		Footnotes to Chapter II	56

CHAPTER III. INTRA-EUROPEAN MIGRATION: A SURVEY OF PAST RESEARCH 58
III.1 Introduction 58
III.2 Labour Imports and Economic Growth in Western Europe 59
III.3 Quantitative and Qualitative Analyses of Intra-European Migration and its Effects 67
III.4 Migration as an Issue in the North-South Dialogue 81
III.5 Summary 85
Footnotes to Chapter III 88

CHAPTER IV. LABOUR MOBILITY AND WAGE ADJUSTMENTS IN WEST GERMANY 90
IV.1 Introduction 90
IV.2 Analytical Framework and Model Specification 95
IV.2.1 Imports of non-EEC Labour 97
IV.2.2 Italian Migration to Germany 101
IV.2.3 The Wage Adjustment Equation 103
IV.2.4 The Excess Demand Equation 105
IV.2.5 The Unemployment Rate Equation 109
IV.3 Estimation Results 111
IV.3.1 Summary of the Estimated Model 111
IV.3.2 Ordinary Least Squares Results 112
IV.3.2A Imports of non-EEC Labour 112

	IV.3.2B	Italian Migration to Germany	116
	IV.3.2C	The Wage Adjustment Equation	119
	IV.3.2D	The Excess Demand Equation	124
	IV.3.2E	The Unemployment Rate Equation	128
	IV.3.3	Two Stage Least Squares Results	130
	IV.3.3A	Introduction	130
	IV.3.3B	Two Stage Least Squares Results	131
	IV.4	Summary and Conclusions	135
		Footnotes to Chapter IV	139
CHAPTER V.		AN ANALYSIS OF THE DETERMINANTS OF LABOUR IMPORTS: A MODEL OF LABOUR IMPORTS DISTINGUISHED BY COUNTRY OF ORIGIN	146
	V.1	Introduction	146
	V.2	Analytical Framework and Model	152
	V.2.1	The Model	152
	V.2.2	Preferences	153
	V.2.3	Production	155
	V.2.5	Costs	156
	V.2.5	Analytical Solutions	164
	V.2.6	Case I	165
	V.2.7	Case II	175
	V.3	Summary and Conclusions	183
		Appendix AV: The Comparative Statics of the Model	186

Appendix AV.I Case I 186

Appendix AV.II Case II 189

Footnotes to Chapter V 194

CHAPTER VI. CONCLUDING SUMMARY AND SUGGESTIONS FOR FURTHER RESEARCH 198

VI.1 Introduction 198

VI.2 Concluding Summary 199

VI.3 Suggestions for Further Research 202

Footnotes to Chapter VI 212

APPENDIX I. THE DEVELOPMENT OF THE FRAMEWORK OF FREEDOM OF LABOUR MOBILITY IN THE EEC AND THE NATURE OF THE BILATERAL AGREEMENTS 216

APPENDIX II. STATISTICAL MATERIAL: DATA AND SOURCES 225

II.1 Time Series of Main Variables 228

II.2 Sources of Data 240

BIBLIOGRAPHY 245

LIST OF FIGURES

FIGURE		PAGE
V.1	Per Worker Non-Wage Cost Function Associated With Labour Imports	160
V.2	Determination of the Optimum Quantity of Labour Imports from Country i	168
V.3	Comparative Statics of Labour Imports from Country i with respect to Unemployment in Country i	174

LIST OF TABLES

TABLE		PAGE
I.1	Increases in non-agricultural civilian labour force, 1950-1973 (%)	3
II.1	Stocks of foreign labour in EEC countries (1000's and %)	27
II.2	Labour flows into the EEC, by country of origin (1000's and %)	30
II.3	Some characteristic aspects of labour exporting economies (annual averages, 1000's and %)	34
II.4	Aspects of the Italian economy (%)	35
II.5	West Germany: Aspect of the Labour Market(%)	38
II.6	West Germany: Composition of the Foreign Labour force by nationality and Sex (1000's and %)	42
II.7	West Germany: Sectoral Distribution of Foreign Labour (%)	45
II.8	West Germany: Workers' remittances to selected source countries	47
AII.1	Rates of natural change of population in EEC Countries (annual averages)	53
AII.2	Stocks of foreign labour by nationality and Host Country (1000's and %)	54
III.1	Contribution of Foreign Labour to Economic Growth (%, annual averages)	66

IV.1	Alternative OLS Equations for non-EEC Labour Imports: West Germany, 1960-1977	114
IV.2	OLS Equation for Italian Migration to West Germany: 1960-1977	117
IV.3	Comparison of Functional Forms: Wage Adjustment Equation	120
IV.4	OLS Equation for Wage Adjustment: West Germany, 1960-1977	122
IV.5	OLS Equation for Excess Demand (vacancy rate): West Germany, 1960-1977	125
IV.7	2SLS Estimates for Labour Mobility and Wage Adjustments: West Germany, 1960-1977	132
V.1	The Composition of Labour Imports: West Germany	148

APPENDIX TABLES

1	Stocks of Foreign Labour, West Germany (1000's)	228
2	Non-EEC Labour in West Germany, by Nationality (1000's)	230
3	Non-EEC Labour in West Germany, by Nationality: Males (1000's)	231
4	Wages and Prices, West Germany (%)	232
5	Vacancy, Unemployment and Foreign Labour Rates, West Germany (%)	233

6	Vacancies and Unemployment, West Germany	235
7	Employment and Labour Supply, West Germany (1000,000's)	236
8	Wages and Prices, Italy	237
9	Labour Supply and Unemployment, Italy (1000,000's, 1000's, and %)	238
10	Exchange Rates	239

CHAPTER I

INTRODUCTION

I.1 Introductory Remarks

World War II depleted the stock of workers in all Western European countries, and in West Germany in particular. The reconstruction of the economies and the post-war expansion of the 1950s resulted in serious shortages of labour. Labour shortages in the 1960s were further accentuated as a result of the expansion in international trade and of the substantial flow of direct (mainly American) investment into Western Europe. Additional labour supply constraints were imposed on the economies by their demographic character and by the expansion and restructuring of the educational system which permitted young people to lengthen the time spent out of the labour force. Finally, the formation of the European Economic Community (EEC hereafter) and the subsequent expansion of intra-EEC trade led to additional substantial increases in the demand for labour. The general characteristic, therefore, of the post-1950 Western European growth is that labour demand was accompanied by an imbalance in the labour market, implying potential retardation of economic growth, large

losses in real output, slowdown of physical and human capital accumulation, reductions in consumption and inflationary pressures.

This potentially costly disequilibrium was corrected through internal and intersectoral labour mobility, especially out of primary sectors towards manufacturing and services, through autonomous labour supply mobilization of such groups as females and under-employed workers, through government-induced changes in labour supply by importing workers and through free labour mobility of EEC nationals. To accommodate economic growth, employment policy in the post-1950, and especially in the post-1960 period, was directed towards two sets of issues: first, towards the development of a mechanism, by which labour mobility was either entirely uninhibited, resulting in the framework of the common labour market for EEC citizens; or a scheme, by which labour supply from the European periphery was transferred to industrial Northern Europe in response to disequilibrium in the labour market; secondly, towards accommodation and correction of structural problems in the labour market, which manifested themselves in the form of high immigration and relatively high national or regional unemployment[1]. Despite its significance, the latter issue is not a matter of consideration in this

TABLE I.1

INCREASES IN NON-AGRICULTURAL CIVILIAN LABOUR FORCE, 1950-1973 (%)

	Annual Increase	PERCENTAGE POINTS ATTRIBUTABLE TO			
		Change in national population of working age	Change in participation rate	Net migration from other countries	Migration from agriculture
Canada (1950)	3.4	1.9	0.6	0.5	0.4
USA (1960)	2.3	1.6	0.2	0.2	0.3
Japan (1953)	3.3	2.4	-0.5	-	1.4
France (1954)	1.7	0.5	-0.3	0.6	0.9
Germany (1960)	0.7	-0.3	-0.3	0.8	0.5
Italy (1954)	1.8	1.4	-0.8	-0.4	1.6
UK (1950)	0.6	0.4	0.2	-0.1	0.1
Australia (1954)	2.5	1.0	0.5	0.5	0.5
Netherlands (1950)	1.6	1.5	-0.3	-	0.4
Sweden (1950)	1.7	0.5	0.5	0.3	0.4
Switzerland (1950)	1.8	0.5	0.3	0.7	0.3

SOURCE: OECD (1977), Table 5.

NOTE: The first year of reference is in parentheses.

dissertation. The dissertation is concerned exclusively with the first issue.

Migration has been a significant component of labour supply changes in all the OECD countries in the post-1950 period, and in the Western European countries in particular. As Table I.1 shows, the contribution of net international migration to labour supply growth was greater than the combined contribution of changes in the domestic population and changes in participation rates in the case of France, Germany and Switzerland, the three most prominent importers of labour in Western Europe. Immigration also contributed more to the average growth of labour supply of these three countries than intercontinental migration contributed to the labour supply growth of Canada, U.S.A. and Australia during the same period. The table also highlights the negative contribution of labour migration to the growth of the labour force in Italy, which supplied the single most important component of mobile manpower of EEC origin in Western Europe.

While Italy provided the largest supply of foreign workers to European countries in the late 1950s and in the beginning of the 1960s, new labour suppliers were subsequently utilized. The most accessible areas of exportable labour have been the countries of the southern Mediterranean basin (Spain, Portugal and Greece),

Islamic countries such as Turkey and a socialist country, Yugoslavia. France has utilized manpower from such former colonies as Morocco, Algeria and Tunisia, while Switzerland has imported workers almost exclusively from Spain and Italy. Great Britain has utilized workers mainly from former colonies. So too have Belgium and the Netherlands, although they have also utilized foreign workers from the Mediterranean periphery. The Scandinavian countries have also experienced some substantial transfers of labour, predominantly of Finnish labour into Sweden. Finally, Germany has the most diversified foreign labour force composed of workers from the Mediterranean periphery, Turkey, Yugoslavia and North Africa.

A virtually uninterrupted flow of foreign labour into Western Europe, throughout the decade of the 1960s and during the early 1970s, resulted in an accumulated stock of foreign labour in the range of 15 million legally admitted workers[2]. In addition, illegal immigrants are estimated to be about 10% of the legal stock[3]. In individual countries, foreign labour represents a substantial proportion of the labour force, ranging from 35% in Luxemburg to 20% in Switzerland and to about 12% in France and Germany. Lower proportions are found in Belgium and the Netherlands.

Intra-European labour migration has been thought of as representing an application of the principle of the

gains from exchange[4], in which source countries export their unemployable or underemployed human resources, in return for remittances. In the short-run, remittances contribute to economic development by alleviating the foreign exchange constraint, while in the long run, the labour exporting countries have been thought to benefit as a consequence of the human capital returning migrants have accummulated during their stay abroad. Host countries on the other hand, reap benefits of economic growth as they effectively remove constraints on labour supply. This is the economic rationale underlying the design and practice of the system of temporary labour imports. Thus, foreign labour was expected to reside and work for a temporary (contractually defined) period of time in the host country, upon completion of which it would return to the source country. As a result, the utilization of foreign labour in Western Europe is characterized by a high degree of turnover. Furthermore, involuntary labour exports have taken place on several occasions and most notably, during the 1967 and the post-1974 recession[5].

However, while the principle of rotation[6] has been practised throughout the 1960-1973 period, a substantial proportion of the stock has remained in the host countries on a semi-permanent basis. Therefore, what was conceived of as a temporary scheme to accommodate

short-term variations in the state of excess demand for labour, has become a permanent feature of the character of industrial Europe. In this respect, foreign labour represents a new dimension in the traditional character of European migration. Thus, while European immigrants settled Australia and North America, the European-sending countries have now become net receivers of labour. As a result, for countries such as West Germany, the presence of foreign labour has raised demands for the provision of services specific to the foreign population and for the initiation of integration programs and of policies of pluralism[7].

For some of the labour exporting countries (most notably, Italy and Greece) migration towards Northern Europe provided an alternative to transcontinental migration which, being of more permanent character, implied a permanent loss of manpower with a reduced compensating flow of remittances. But while labour exporting governments actively participated in the scheme of temporary labour exports in order to relieve pressures on national budgets and unemployment, they were also forced to accept the return of relatively large numbers of workers when the host countries were unable to provide employment for them. This, of course, is a striking feature of the precarious dependence of the European periphery on the industrial North for purposes of manpower absorption and

development: the host governments' responsibility for full employment does not extend to migratory workers.

This aspect of migration, together with theoretical analyses and factual descriptions of the uneven development of the host and source countries, has given birth to an alternative view of intra-European migration, which suggests that labour exports and the development interests of the source countries are in conflict. Furthermore, the post-1974 recession, and the implementation of restrictive migration policies by host countries, has also led to a re-evaluation of the ideology of labour imports and to an examination of the feasibility of transfers of capital towards the labour exporting countries, as a substitute for transfers of labour towards the industrial nations.

As seen from the above discussion, the phenomenon of intra-European labour mobility is complex and several of its aspects could serve as fruitful research areas. In order to limit the scope of this dissertation, its subject is divided into two themes: first, the implications of free and government-induced labour mobility for the character of labour market adjustment, and secondly, the determinants of the composition of labour imports by country of origin. The two themes were chosen from a variety of possible questions arising from the experience with intra-European labour

transfers for two reasons. The first is that because of their size, labour imports should have some significant effects on the countries utilizing them, and most immediately, on their labour markets. It was therefore, thought appropriate to study the impact of foreign labour in a labour market context, in order to determine the extent to which the degree of openess of the the labour market, as a result of international labour mobility, has implications for the nature of economic adjustment.

The second reason is that, in contrast to the human capital view of spatial redistribution of populations and labour forces, international migration in Western Europe has a demand component, which is most prominent in the case of utilization of non-EEC labour. It was felt, therefore, that a theory complementing the human capital model is warranted in order to provide insights about the factors affecting the composition of foreign labour by nationality, in a manner which is consistent with, and preserves relationships suggested by economic theory. In both instances, West Germany was chosen as a case study not only because she is the most prominent employer of foreign workers in Western Europe, but also because of data availability.

I.2 Synopsis of the Dissertation

The dissertation consists of six chapters, including the present, and two appendices. With the present chapter serving as an introduction, the contents of the following five chapters are now summarized.

Chapter II has two themes: the first represents the main elements of the system of labour mobility in Western Europe, which distinguishes workers by their EEC or non-EEC origin. The main purpose of the discussion is to highlight the implication of the regulatory framework for the degree of freedom of mobility of human resources in continental Europe. As will be seen, mobility of EEC citizens is guaranteed by the common labour market arrangement for Community workers, while mobility of non-EEC citizens is regulated by bilateral agreements between sending and receiving countries. The main characteristics of the latter are discussed, based largely on the Greek-German agreement of 1960. The second part of Chapter II is a broad statistical description of the dimensions and patterns of intra-European labour movements. Three main subsections are presented, the first (II.3.1) dealing with migratory stocks and flows, the second (II.3.2) with the broad characteristics of the source countries, and the third (II.3.3) providing relatively more detail about the utilization of foreign labour in

West Germany. A closing section (II.4) summarizes the chapter.

Chapter III surveys the existing literature dealing with labour mobility in Western Europe. As will be seen there, published research results are relatively scarce, despite the size and significance of the phenomenon[8]. Most attention in the available literature is concentrated on the case of Germany, although one study, which treats migration as a policy instrument, attempts to derive implications of labour mobility for the European Community as a whole. Some attention has also been paid to the cases of Switzerland and France. This chapter is organized in three subsections: the first (III.2) reviews the thesis of growth with unlimited supplies of labour, applied by Kindleberger (1967) to Western Europe, and its qualifications; the second (III.3) deals with studies of an econometric nature, attempting to explain the patterns and implications of intra-European labour mobility using formal economic methodology and statistical techniques. It also examines some qualitative studies; and the third (III.4) considers the main issues in the North-South dialogue as they relate to labour transfers from the European periphery to the North.

While Chapters II and III provide an important perspective on the phenomenon of labour migration in

Western Europe, the two following chapters constitute the main contributions of the dissertation. As mentioned above, they revolve around two themes and they are organized as two essays. Chapter IV is macroeconomic in nature in that it is mainly concerned with the impact of labour mobility on labour market adjustments, and more specifically, with wage adjustments and the state of excess demand for labour. It is, therefore, directly related to the Phillips curve literature. The model of this chapter (Section IV.2) explains migration adjustments of migratory EEC (Italian) and non-EEC workers in West Germany and the structure of excess demand and wage determination which are indirectly influenced by labour mobility. The model is then estimated using West German data (Section IV.3). The presentation of a number of conclusions completes this essay (Section IV.4).

Chapter V presents the second essay of the dissertation. Its nature is predominantly microeconomic, and the purpose is to identify the proximate determinants of the composition of foreign labour. As non-EEC migration in Western Europe is controlled by the authorities of the host countries, the model of this essay emphasizes the demand side of the process of redistribution of labour forces. The model utilizes elements of the theory of the firm and of the theory of discrimination in labour markets

to arrive at a framework which may be thought of as being complementary to supply-oriented models of labour mobility[9].

Migrations of the dimensions experienced in Western Europe in the post-World War II period provide substantial evidence of mobility of human resources and imply that positive net benefits accrue to the parties involved. As many important themes are not addressed by this dissertation, and since substantial detail is lost by the aggregate nature of the analyses, Chapter VI provides suggestions for further research and identifies issues thought to be important for potential implementation of a labour imports scheme in other countries, and more particularly, in the U.S.A. In addition to this, Chapter VI summarizes and concludes the dissertation.

Finally, two appendices are provided. Appendix I contains a more detailed discussion of the system of free mobility of EEC labour and of the bilateral control of non-EEC labour imports, the latter with reference to the Greek-German agreement (1960). Appendix II presents the main series used in the statistical analysis and discusses the sources of the data. Footnotes are provided at the end of each chapter and the bibliography in a separate section at the end of the dissertation.

FOOTNOTES

Chapter I

1. The main EEC member with structural unemployment and high immigration during the 1960s and the beginning of the 1970s is Belgium - its unemployment rate was 2.1% of the labour force during 1960-73, substantially higher than that of any of the other EEC countries.

2. Migratory dimensions, similar to those experienced in Western Europe, have started to emerge in the Arab world. An examination of the patterns there is presented in "Finance and Development", Volume 15, No. 4 (December 1978). For comparative purposes, 15 million workers migrated towards industrial Europe during the period 1960-1978, while over the three decades (1940-1970) of the great American migration, about 9 million blacks migrated from the South to the North.

3. The estimate is from EEC (1974, p. 7).

4. The classic statement of this view may be found in the preliminary report of the Kindleberger Group (1977, p. 7).

5. It has now become part of the conventional economic wisdom and of popular folklore that the scheme of temporary labour imports has provided substantial advantages in the management of the economies of the labour importing countries. Contrasted to economies not possessing these advantages, such as the U.S., Lester Thurow writes:

> "West Germany and Switzerland are often held up as countries that followed this route and succeeded in stopping inflation. They did so, but each country had two advantages that we do not have. [....] More importantly, West Germany and Switzerland each run an economy with a large number of foreign workers. When tight monetary policies lead to falling employment, the unemployed can be exported to the countries from which they came. And this is exactly what was done in West Germany and Switzerland.

> In 1978 industrial employment was 12 percent below 1973 levels in West Germany and 10 percent lower in Switzerland. This did not lead to massive unemployment, since each country sent foreign workers home. Scaled up to an economy the size of ours [USA], the Swiss rounded up 10 millions workers and sent them home. Which 10 million American workers do we round up and send home? (L. Thurow (1980) p. 62-63).

6. For a discussion of the turnover of the stock of foreign workers in Germany and the interests associated with the principle of rotation, see Reimann and Reimann (1979).

7. The necessity for such policies has been greatly emphasized by Rist (1979).

8. Results are scarce as compared to the research results associated with Canadian and U.S. internal migration.

9. Readers will notice the intellectual debts of this essay to international trade studies distinguishing the composition of trade flows by place of production, such as Armington's (1969).

CHAPTER II

INSTITUTIONAL BACKGROUND AND DIMENSIONS OF INTRA-EUROPEAN MIGRATIONS

II.1 Introduction

The present chapter presents a summary view of the institutional framework regulating labour mobility in Western Europe, and of the patterns and dimensions of intra-European migrations in the post-1960 period. Its content is essentially descriptive. Relatively more information is provided for West Germany, the country of principal concern in this dissertation.

The European economies have undergone two substantial and parallel mutations in the post World-War II period: reconstruction and demographic transition. Both have been reflected on the demand for labour. The reconstruction of the economies naturally led to a state of excess demand for labour. The demographic developments amounted to a growing trend towards an aging population[1]. Fertility, as Guilmot (1978, p. 6) notes, peaked around 1964 and has been falling since 1965. Mortality, on the other hand, has been declining steadily. In all the EEC countries, as Table AII.1 shows, the difference between

live births and deaths during 1960-73 was considerably below the 1950 level and the 1960-65 peak period. Together with the expansion of the demand for education, which led to a decline in labour force participation rates[2], dependence ratios in several countries increased and labour demand systematically exceeded domestic labour supply. The labour market deficit was satisfied through imports of foreign labour.

This chapter is divided into two main sections: Section II:2 discusses the institutional framework which regulates labour migration in Western Europe, and more specifically, in the EEC. It therefore, provides an overview of the regulatory mechanism exercised by the host countries in controlling the migration of citizens of EEC member states and of workers of non-EEC origin. Section II.3 presents the dimensions of intra-European migration, in most cases up to 1973, and it is divided into three subsections: the first discusses the state and evolution of migratory stocks and flows; the second discusses the main economic characteristics of the source countries; and the third provides an overview of the employment of foreign labour in West Germany. The chapter is closed by Section II.4, which summarizes the main findings. Two tables are relegated to the end of the chapter as Appendix Tables AII.1 and AII.2. A further discussion of the legal framework determining labour mobility in the EEC is presented in Appendix I.

II.2 The System of Labour Mobility in Western Europe[3]

The mobile manpower in Western Europe consists of workers of EEC origin and of workers of non-EEC origin. The former enjoy freedom of mobility, which is guaranteed by the Treaty of Rome (1958) and its subsequent interpretations and revisions, while the latter are subject to the regulatory power of the host countries. As will become clear below, while workers of non-EEC origin constitute the most significant component of mobile labour in the EEC, the regulatory regime, determining their freedom of mobility, places them in an unfavourable position vis-a-vis the relatively immobile EEC workers.

The legal framework, establishing a common labour market within the EEC, was enacted by the Treaty of Rome (especially Articles 48 and 49), and subsequently revised to conform with the notion of freedom of product and factor mobility consistent with the principles of the European Community. Freedom of labour mobility was understood in terms of its consequences: the principle of non-discrimination in employment, the right to obtain employment in any member country, equal treatment regarding fiscal matters, social security and exercise of union rights, vocational training and non-discrimination in housing markets.

Workers of EEC origin presently enjoy the same legal freedom of access to the labour market of other members states as to their own. The main elements of freedom of mobility of EEC workers can be summarized as follows[4]:

(a) while, at the initial stages of the development of a common labour market within the EEC, workers from member countries were restricted to obtaining employment in an EEC member state only if a notified vacancy remained unfilled by a citizen of the host country after three weeks, this restriction was removed in 1964;

(b) while, on the basis of regional or occupational imbalances, the host economy could refuse renewal of work permits, this condition was removed in 1964 and, in 1968, the system of work permits was abolished;

(c) responsibility relating to broad and specific matters of EEC labour mobility has been gradually transferred from the member states of the EEC to the Community, establishing a cross-national framework to regulate migratory movements;

(d) when the work permit was abolished, the residence permit remained as a barrier to staying in a

member country of the EEC; thus, Regulation 1612/1968 of the EEC provided that, if an EEC national were unable to find employment within three months in a host country, the (required) residence permit would not be issued and the workers would have to return to the country of origin; if, on the other hand, he or she were employed for a period of between three months and one year, a temporary residence permit would be issued according to the expected period employment; subsequent revisions of this Regulation provided that the residence permit would be valid throughout the territory of the issuing state, that it would be valid for at least five years and would be automatically renewable. Family members of permanently residing workers were also granted the right to establish themselves permanently;

(e) social security benefits are portable, irrespective of place of residence;

(f) special measures enacted on the grounds of public policy, public security and public health are extended to apply to nationals of members states and their families who exercise the right to remain in a member state.

The purpose of the free mobility arrangements was to promote efficiency in the allocation of human resources in the EEC by eliminating barriers to labour migration. There is no consensus, however, about their contribution to the level of intra-EEC migration, and two studies that examined the question arrived at opposite conclusions.

Thus, Böhning (1972) finds that the free mobility legislation had a positive effect on labour mobility in the EEC up to the period ending in 1972. A clearly visible positive effect is found in the case of Belgium, and to a smaller extent, in the case of West Germany and the Netherlands. France also appears to have experienced a positive impact, but in the case of Italy and Luxemburg the picture is ambiguous. On the other hand, Werner (1974) concludes that there is very little evidence to suggest that the free mobility arrangements had a significant impact on labour mobility in the EEC. In contrast, he suggests that the major force underlying inter-EEC labour movements has been the strength of labour demand, and that even in the absence of the common labour market framework, workers would have migrated towards nations with positive excess labour demand. To support this view, he cites the experience of host countries with imports of non-EEC labour.

Imports of non-EEC labour are regulated by two sets of rules that distinguish them from EEC workers[5]: the bilateral agreements between sending and receiving countries and the relevant national legislation concerning the rights of foreign nationals, and workers in particular, in the territory of the host nation.

The general aim of the bilateral agreements is three-fold: first, to establish a mechanism by which the demand for and supply of labour are brought into equilibrium in the two countries; secondly, to establish a mechanism for screening potential migrants, and thirdly, to define the limits and duration of employment of non-EEC nationals. West Germany, the major labour importer in Europe, signed several such agreements with source countries during the 1960s: with Greece, 1960; Spain, 1960; Turkey, 1961; Morocco, 1963; Portugal, 1964; Tunisia, 1965; and Yugoslavia, 1968.

The major elements of the Greek-West German agreement which are typical of the rest[6], are:

(a) potential migrants from non-EEC origins are screened on the basis of their human capital and in the light of the labour market characteristics needed by the host country; the final decision about employment

is left with the West German employers, who have to draw a contract between the worker and the firm;

(b) contrary to the case of EEC nationals, the West German authorities will provide selected workers with work permits ("legitimationskarte") valid for one year, which are specific to a particular employer and location. Upon its expiry, the worker must request a regular work permit which is issued according to domestic laws;

(c) workers may export their earnings in West Germany subject to the country's legislation regarding exchange controls;

(d) the source country's government must accept repatriation of her nationals who migrated on the grounds of the agreement, without further procedures;

(e) the agreement does not supersede in its application other more favourable agreements when the latter are binding for the West German government - such as the EEC agreements;

(f) after five years of uninterrupted employment a permanent work permit may be granted.

Contrasting the cases of non-EEC and EEC workers' freedom of mobility, it is clear that the former are placed in an unfavourable position vis-a-vis the latter in several respects:

(a) the principle of non-discrimination in employment is not extended to non-EEC workers;

(b) their entry and residence (in West Germany) is regulated by the authority of the host country and it is not an EEC affair;

(c) labour market considerations are the major determinants of non-EEC workers' mobility;

(d) the work permit and the residence permit control spatial mobility of non-EEC nationals[7], as well as competition in the labour market and imbalances in the labour market; the right to obtain employment in other regions, or with other employers, or in other member states is not extended to them.

One lesson from the experience of the 1967 recession is that the burden of economic adjustment is borne by the non-EEC nationals. West Germany as much as other labour importers in Europe, established a

virtual moratorium on new hiring of non-EEC nationals in November 1973[8]. By 1975 it was unofficially suggested in the popular press and elsewhere that foreign workers with permanent work permits should be bribed to return to the source countries. While efforts did not go to this extreme, the non-renewal of work permits accomplished the same and an era of practically uninterrupted labour migration of dimensions never before experienced in Western Europe ended.

II.3 Dimensions of Intra-European Migrations

The present section provides a statistical description of the patterns and dimensions of intra-European labour mobility in the post-1960 period to the mid-1970s.

II.3.1 Migratory Stocks and Flows

All the industrial countries of Western Europe and Scandinavia have participated, to different degrees, in the scheme of labour imports. The main sources of exportable manpower have been Yugoslavia, Greece, Italy, Turkey, Portugal, Spain and the North-African countries of Morocco, Algeria and Tunisia.

Nikolinakos (1973) suggests that labour imports evolved over four stages: Italy, Greece, Spain and Portugal provided the necessary manpower in the first stage; in the second stage,expansion of the system embraced Yugoslavia and Turkey; in the third stage, Arab and North-African sources of supply were exploited and in the final stage, Black Africans were expected to come into the picture (in the 1980s) as other sources were exhausted. The recession of the 1970s has thus far at least delayed the last stage.

The two tables of the present subsection show the evolution of intra-European labour movements. Table II.1 highlights the state of migratory stocks in five EEC countries over the period 1965-1975. The proportion of foreign workers in the total employment of the host countries and in the Community of the five rose steadily to 1973, when employment of foreign labour was stabilized, and has subsequently declined. On the other hand, the proportion of Community workers (predominantly Italians) has remained approximately stable throughout the period, the highest proportion being observed in Luxemburg. Therefore, the major increase in the employment of foreign labour must be attributed to the employment of non-Community workers. The table also shows that West Germany is the major user of foreign labour, measured

TABLE II.1

STOCKS OF FOREIGN LABOUR IN EEC COUNTRIES (1000's and %)

	1965	1970	1973	1975
Belgium				
Employment	2,814	2,972	3,102	3,113
Foreign Workers	182,0[1]	209,0	211,0	205,0
% FW	6.5	6.9	6.8	6.6
% CW	4.3	3.9	3.9	3.7
West Germany				
Employment	21,289	21,747	22,054	20,095
Foreign Workers	1,164	1,839	2,519	2,071
% FW	5.5	8.5	11.4	10.3
% CW	2.1	2.2	2.6	2.2
France				
Employment	14,482	15,874	16,776	17,400
Foreign Workers	1,158[2]	1,600	1,900	1,900
% FW	8.0	10.0	11.0	10.9
% CW	1.8	1.7	1.8	1.7
Luxemburg				
Employment	102,0	110,0	123,0	133,0
Foreign Workers	28,0	33,0	43,0	47,0
% FW	27.5	30.1	35.0	35.0
% CW	23.4	23.6	24.0	22.6
Netherlands				
Employment	3,556	3,822	3,853	3,855
Foreign Workers	62	120	121	117
% FW	1.8	3.2	3.2	3.0
% CW	0.7	1.3	1.4	1.3
Community 5				
Employment	42,243	44,525	45,908	44,596
Foreign Workers	2,594	3,792	4,794	4,340
% FW	6.1	8.5	10.5	9.8
% CW	2.0	2.1	2.3	2.0

...continued

TABLE II.1 (continued)

SOURCE: European Economic Community (1976b)

NOTES: Employment refers to civilian employment.

Foreign Workers refers to foreign workers employed.

% FW - Foreign workers in employment as percent of civilian employment

% CW - Community workers in employment as % of civilian employment.

Community 5 - The five EEC countries of the table.

1 - 1967

2 - 1968

by the absolute size of the stock of foreign workers in the country, followed closely by France and the Benelux countries. In the continental EEC countries, the highest absolute size of migratory stock was reached in 1973 (about 5 million workers) which was twice as large as the stock in the beginning of the 1960s. Switzerland, Austria and the Scandinavian countries, not shown here, present similar patterns[9].

Flows of foreign workers towards the EEC countries have been sizeable, paralleling the pattern of changes in the stocks. Table II.2 shows gross flows of foreign labour into the EEC, aggregate and disaggregate by country of origin. The largest annual flow occurred in 1969-70, when it reached a little less than 1 million workers, reflecting the reflation of the post-1967 recession. Note that the annual flow in the post-1973 period is substantially less than in the previous years and that the size of the flow in 1970 was three times what it had been in 1960. Two general patterns are revealed. First, the presence of EEC workers as a whole, and more particularly of Italian workers, diminished substantially between 1960 and 1973. The decline was gradual and uninterrupted. In the post-1973 period, however, the share of EEC (and Italian) workers goes up. Secondly, the proportion of non-Community workers in the aggregate flow rose dramatically from 38% in 1960 to 76% in 1973. It then

TABLE II.2

LABOUR FLOWS INTO THE EEC, BY COUNTRY OF ORIGIN

(1000's and %)

	1960	1965	1970	1973	1974
Total	333,0	713,0	946,0	668,0	226,0
of which:					
EEC	207,0	261,0	205,0	158,0	98,0
EEC as % of Total	62	37	22	24	37
Italians as % of EEC	51	33	19	16	21
of which:					
Non-EEC	126,0	452,0	741,0	510,0	168,0
Non-EEC as % of Total	38	63	78	76	63
Composition of Non-EEC by Nationality (%)					
Greece	7	9	7	1.4	0.8
Yugoslavia	1.3	5.5	23	13	4.2
Spain	15	19	8	6	4
Portugal	1	8.5	12	9	7.3
Turkey	.	10	15	19	7.7
Algeria	.	.	.	0.03	0.5
Morocco	.	3	3.5	4	5.5
Tunisia	.	.	1.7	3	1.6
Other	14	9	9	13	29.4

SOURCE: European Economic Community (1976b).

NOTE: Composition of non-EEC by Nationality refers to flows from the non-EEC countries shown as percent of the total non-EEC flows.

declined to 63% in 1974, but still remained the most substantial component of the total flow. Hence, there has been considerable substitution between EEC and non-EEC workers.

Flows of labour reflect stock adjustment processes through which the equilibrium level of foreign labour employed in host countries is attained. This is particularly relevant for the government-controlled component of foreign labour, labour of non-EEC origin. Closer inspection of Table II.2 reveals substantial differences regarding imports of non-EEC workers by nationality. Thus, while Spain and Greece represent the main sources of manpower in the early years, their share in the 1970s has been substantially reduced, while Turkey and Yugoslavia emerge as the main suppliers of labour. In 1973, Turkey was the largest source of labour supply, followed by Yugoslavia and Portugal. The North-African countries (Morocco, Tunisia and Algeria) have also increased their share, albeit to a smaller extent. Finally, in 1974 the first year after the 1973 moratorium, the composition of the flow had not substantially changed in terms of the ranking of non-EEC countries as sources of manpower.

II.3.2 Characteristics of the Sending Countries

The general characteristics of the sending countries are that they all are developing economies and that they have as part of their political history during the period of labour exports relatively illiberal political regimes. Further, the percentage of employment in agriculture is significantly above the 9% average of the EEC (Greece, 35%; Portugal, 27% and Spain 26%). This highlights the fact that significant underemployment is likely to be pervasive in these countries while productivity and the standards of living are low.

Common structural problems characterized their industrial performance. Typically, while their export earnings depended on agricultural products, tourism and workers' remittances, their domestically owned industrial activity had not been export oriented. Small-scale production, protected behind strong tariff and non-tariff barriers made them non-competitive in world markets. Since their investments were capital intensive, few linkages with the rest of the economy were present and the percentage of imported inputs, mainly capital goods and intermediate inputs, was very high. In this respect the export oriented sector has offerred little solution to the problem of underemployment. Population growth[10]

has also contributed to the growth of the labour force and to employment problems. Migration has acted as a safety valve to the political instability of the countries, has alleviated demands on government budgets, and has provided a substantial flow of remittances that alleviated foreign exchange constraints.

The following two tables provide a perspective on the state of five countries of recruitment and on Italy. As Table II.3 shows, growth rates of real domestic product were quite high, averaging well above 6% during the period. Real wages also rose at diverse rates. Employment growth in Greece and Yugoslavia, where information is available, was over 3% during 1960-73, which, judging from the outflow of workers towards the EEC, was probably below the rate necessary to absorb increases in labour supply. Some evidence on the extent of migration is provided in the cases of Portugal and Spain where annual average migration to the EEC is reported as a percentage of the respective labour forces. Thus, for the period 1960-73, almost 1.5% of the Portuguese labour force and 0.65% of the Spanish, migrated to industrial Europe. Unfortunately, there is no comparable information for Turkey, Yugoslavia and Greece, but the trend was likely similar.

Table II.4 shows some important characteristics of the Italian economy during 1960-73. Despite the fact that GDP doubled, employment declined substantially.

TABLE II.3

SOME CHARACTERISTIC ASPECTS OF THE LABOUR EXPORTING ECONOMIES

(annual averages, 1000's and %)

	1960-65	1965-70	1970-73	1960-73
GREECE				
GDP Growth	7.46	7.57	7.80	7.44
Employment Growth	3.27	2.39	5.21	3.26
Real Wage Growth	5.76[1]	6.66	3.48	5.69
Emigration to EEC	51,2	47,2	35,8	43,2
YUGOSLAVIA				
GDP Growth	7.01	5.51	6.11	6.58
Employment Growth	4.91	1.64	4.46	3.52
Real Wage Growth	8.91	5.97	3.00	6.17
Emigration to EEC	10,1	105,2	131,4	73,1
SPAIN				
GDP Growth	7.61	6.54	6.34	7.10
Real Wage Growth	8.19	6.40	7.79	7.38
Emigration/Labour Force	0.94	0.61	0.42	0.65
Emigration to EEC	112,6	77,0	55,6	82,3
PORTUGAL				
GDP Growth	6.32	6.59	8.63	6.79
Real Wage Growth	2.54[2]	3.01	0.77	2.00
Emigration/Labour Force	0.88	1.92	2.23	1.48
Emigration to EEC	27,0	67,4	79,6	50,8
TURKEY				
GNP Growth	4.75	6.19	7.18	6.11
Emigration to EEC	39,8[2]	79,4	129,0	75,6

SOURCE: Original data utilized in the calculation of the variables were obtained from: International Monetary Fund (1978): Real GDP AND GNP, Nominal Wages, Consumer Price Indices and Employment Indices; OECD (1976): Labour Force; European Economic Community (1976b): Emmigration to EEC.

NOTES: 1 - 1962-1965; 2 - 1961-1965.

TABLE II.4

ASPECTS OF THE ITALIAN ECONOMY (%)

	Annual Averages			Change During
	1960-75	1965-70	1970-73	1960-73
GDP Growth	5.13	5.48	4.16	91.98
Employment Growth	-1.41	-0.57	-0.14	-5.23
Real Wage Growth	na	9.85	9.03	+76.47
Labour Force Growth	-0.78	-0.19	-0.12	-6.69
Participation Rate	39.31	36.46	35.05	-6.00
Unemployment Rate	3.25	3.54	3.39	
Income per head				
Italy/EEC9	66.07	68.88	69.18	+5.34
Emigration/Labour Force	0.94	0.83	0.81	
Population Growth	0.86	0.66	0.73	+10.62

SOURCE: Original data utilized in the calculation of GDP Growth, Real Wage Growth and Population Growth were obtained from International Monetary Fund (1978): Emigration to EEC from European Economic Community (1976b); Income Per Head: Italy/EEC9 from Cavallari and Faustini (1978). All other data were obtained from Eurostat (1977).

NOTES: EEC9 refers to the nine EEC countries. The data for Income per Head are in 1970 price and exchange rates.

The labour force and the participation rate declined too, while the real wage rose significantly. Emigration to the EEC corresponded to a little less than 1% of the labour force and the unemployment rate remained relatively stable at a little over 3%. Finally, the income gap between Italy and the EEC only marginally improved during the period in question.

As noted previously, Italy has supplied the major component of mobile EEC labour in the post-World War II period. Because of the uneven development between the North and the South as expressed by earnings and unemployment differentials, many workers have migrated from the latter to the former, evidence of which has been provided by Salvatore (1979, 1980). Many of Southern workers have also migrated to industrial Europe and Barzanti (1965) notes that Northern European governments (mainly the West German and the Dutch) have exploited this manpower reserve by financing training programmes through the EEC Social Fund to develop skilled workers to be exported to the host countries.

II.3.3 Foreign Labour in West Germany

West Germany deserves special consideration in the context of labour imports, not only because she is quantitatively the most important labour importer in

Western Europe[11], but also because we will study its case more carefully in later chapters. In addition, as a result of the permanence of the migratory stock, West Germany is singularly faced with the necessity to introduce policies of integration and pluralism[12].

Imports of labour in West Germany have been a consequence of a widening deficit in the labour market. Aging and declining population, lengthening of the time spent in education and general immobility of the population have reduced the supply of labour from domestic sources. The general expansion of aggregate demand on the other hand, increased demand for labour. The resulting gap was partly filled by foreign labour.

The major characteristics of the post-1960 West German economic growth are high investment activity, successful export performance, a relatively undervalued currency and substantial productivity growth. Macroeconomic management was directed towards accommodating aggregate demand expansion and price stability through tight monetary and fiscal policies, and labour market policies were supplemented by imports of foreign labour. Total employment rose by close to 1% during 1960-73, but employment of domestic labour declined by about 0.5% over the same period as did hours per person employed.

Table II.5 shows that labour imports were substituted for the decline in the West German labour

TABLE II.5

WEST GERMANY: ASPECTS OF THE LABOUR MARKET (%)

	1960	1965	1970	1973
Unemployment Rate	1.05	0.58	0.61	1.13
Vacancy Rate	1.77	2.44	3.02	2.16
Foreign as % of				
Domestic Employment	1.29	4.42	7.42	9.84
Employment/Population Ratio	47	45	42	40
(i) Male	62	59	55	53
(ii) Female	34	31	29	29
Foreign Employment/Population Ratio				
(i) Male	72	74[1]	na	75[2]
(ii) Female	43	60[1]	na	61[2]
Foreign Males as:				
(i) % of Domestic employment	1. 0	3.69	5.25	6.88
(ii) % of all Males employed	1.50	5.95	8.35	11.06
Foreign Females as:				
(i) % of Domestic employment	0.17	1.12	2.17	2.96
(ii) % of all Females employed	0.44	2.98	5.84	7.83
Foreign as % of total Blue Collar Workers	2.31	9.65	15.99	19.66
Domestic Labour Force (1000s)	25,890	25,440	24,510	24,130

SOURCE: Stock of Foreign Workers from Bundesanstalt fur Arbeit, various issues; Foreign Participation Rate from Bundesanstalt für Arbeit (1974); Blue Collar Workers (Arbeiter) from IAB (b). All other variables were calculated from original data obtained from Eurostat (1977).

...continued

TABLE II.5 (continued)

NOTES: The term "Domestic" used in the table refers to the variable in question exclusive of foreign labour.

na - not available

1 - 1966

2 - 1972

force a decline partly caused by the fall in participation rates. The proportion of foreign workers in domestic employment rose from 1.29% in 1960 to close to 10% in 1973, as did foreign male and female participation rates, the latter much more than the former during the same period. Viewing the proportion of foreign labour in West Germany employment on a sex basis, it is clear that foreign males are present to a much higher degree than foreign females both in total as well as in sex-disaggregated employment. This is partly a reflection of the selection process by which relatively more mobile single males have been extensively imported on a temporary employment basis.

Two more aspects are highlighted in the table. First, that labour imports occurred in a climate of virtual full employment, with the unemployment rate about, or less than, 1% of the labour force. The vacancy rate was, on the other hand, substantially higher than the unemployment rate, indicating the persistence of positive excess demand for labour that accompanied the expansion of aggregate demand. Secondly, that foreign workers represent a substantial proportion of the total blue-collar labour force in West Germany, a reflection of the fact that the entire foreign labour force is employed in the blue-collar occupations. This proportion

has followed an upward trend, starting at around 2% in 1960 and reaching about 20% in 1973, a possible reflection of the process of skill upgrading of West German blue-collar workers leaving these occupations for more rewarding white-collar jobs.

As noted previously, the composition of labour imports in West Germany changed over the period 1960-1975 and Table II.6 presents the evolution of the migratory stock by nationality and sex. The following observations can be drawn: first, while workers from Italy dominate the stock up to 1965, their presence declined substantially afterwards and by 1975, they represented about 15% of the total foreign labour force; secondly, in 1975, Turkish and Yugoslavian workers represented the major components of the foreign labour force; thirdly, the presence of non-EEC workers rose very substantially over the period 1960-75; and fourthly, in the stock of each nationality the female share was rising over the period in question and in 1975, the highest proportion of females is found in the case of Greece and the lowest in the case of Turkey. However, the major sources of labour of either sex in 1975 were Turkey and Yugoslavia.

Economic growth in West Germany in the post-1960 period was accompanied by changes in the sectoral distribution of employment, with the service sector experiencing substantial employment gains, the

TABLE II.6

WEST GERMANY: COMPOSITION OF THE FOREIGN LABOUR FORCE BY NATIONALITY AND SEX

(1000's and %)

	1960	1965	1970	1975
GREECE				
Total	130,0	187,1	242,1	196,2
% Male	88.25	63.15	57.45	57.42
% Female	11.73	36.85	42.55	42.58
% FW	4.65	15.38	12.43	9.62
YUGOSLAVIA				
Total	8,8	64,0	423,2	415,8
% Male	81.23	77.45	70.34	64.40
% Female	18.17	22.55	29.66	35.60
% FW	3.16	5.26	21.72	20.40
ITALY				
Total	121,6	372,2	381,8	292,4
% Male	93.57	84.62	76.34	73.19
% Female	6.43	15.38	23.66	26.81
% FW	43.55	30.60	19.59	14.34
TURKEY				
Total	2,4	132,7	353,8	534,3
% Male	91.98	86.62	78.18	75.35
% Female	8.02	13.38	21.87	24.65
% FW	0.89	10.91	18.16	26.21
SPAIN				
Total	9,4	182,7	171,6	124,5
% Male	82.59	70.44	70.56	67.81
% Female	17.41	29.56	29.44	32.19
% FW	3.38	15.02	8.81	6.11
PORTUGAL				
Total	0,2	14,0	44,7	68,3
% Male	85.82	86.86	72.95	67.90
% Female	14.18	13.14	27.05	32.10
% FW	0.09	1.15	2.30	3.35

TABLE II.6 (continued)

SOURCE: Original data utilized in the calculation of the variables were obtained from Bundesanstalt für Arbeit, Various issues.

NOTES: Total refers to the stock of each nationality shown in the table.

% Male: stock of male workers from country shown as per cent of the national total.

% Female: stock of female workers from country shown as per cent of the national total.

% FW stock of workers from country shown as percent of the total foreign labour stock.

agricultural sector losses, while industrial employment declined only marginally. The employment of foreign labour, on the other hand, rose in all sectors of economic activity. Table II.7 presents a profile of the utilization of foreign workers in five major economic sectors. It is clear that the dominant employer of foreign labour in West Germany has been the manufacturing sector, while the primary sector has been an insignificant employer. Energy and Mines have utilized a declining share of foreign labour, a strongly upward trend is noted in the service sector while the construction sector experienced a substantial decline in the number of foreign workers employed in the latter part of the period, mainly as a result of the mid-1970s recession. In general, as a percent of total employment in each branch of economic activity the share of foreign workers had been steadily rising and in 1975 it represented between 12% and 15% of sectoral employment.

The last aspect of the question of labour imports to be noted presently is the size of remittances exported by foreign workers from West Germany to the source countries. Remittances represent a significant element of the economics of labour migration in Western Europe, both because of their impact on the balance of payments of the host country and because of their importance for the balance of payments of the source

TABLE II.7

WEST GERMANY: SECTORAL DISTRIBUTION OF FOREIGN LABOUR (%)

	1962	1965	1970	1972	1975
Primary Sector					
% FE	1.46	1.06	0.88	0.92	0.97
%TE	0.31	0.41	0.70	1.03	1.10
Energy & Mines					
% FE	6.41	2.81	1.45	1.48	1.80
% TE	6.52	7.44	8.65	12.08	14.85
Manufacturing					
% FE	52.58	62.97	65.68	61.27	59.99
% TE	3.73	6.93	11.53	13.90	13.33
Construction					
% FE	24.34	18.12	15.31	16.77	10.65
% TE	7.96	8.66	12.84	17.64	12.41
Services					
% FE	4.68	10.42	12.50	14.99	19.13
% TE	1.34	4.37	7.67	11.32	12.87

SOURCE: Total employment and foreign workers employed from IAB(c); data used for 1962 from Bundesanstalt für Arbeit, various issues.

NOTES: % FE - foreign workers employed in indicated activity as % of total foreign workers employed.

% TE - foreign workers employed in indicated activity as % of total employment in the respective activity.

countries. For West Germany, workers' remittances represent the third large component of the balance of payments after tourism and services. With regard to the source countries, the size of the flow of remittances partly explains the fact that governments have been actively involved in the scheme of labour imports by signing bilateral agreements to facilitate transfers of labour, as discussed in the beginning of the present chapter.

Table II.8 presents remittances from West Germany aggregate and by country of destination, the ratio of remittances to export earnings for six source countries and remittances per capita by nationality. Remittance flows rose dramatically between 1960 and 1975 in all cases, reflecting the growing stock of foreign workers in the country. Similarly, remittances appear to have been a significant source of foreign exchange, being in some cases as important as export earnings. For example, in the case of Greece, the ratio of remittances to export earnings rose to about 0.28 in 1973, while for Turkey, it was 0.71 in the same year. It had also been rising in the cases of Yugoslavia and Portugal during the period in question, but although rising, it had been much smaller in the cases of Spain and Italy which have had more diversified and export-oriented economies than the other countries. In all cases, a

TABLE II.8

WEST GERMANY: WORKERS' REMITTANCES TO SELECTED SOURCE COUNTRIES

	1960	1965	1970	1973	1975
Total (DMm)	300	2150	5000	8430	7000
GREECE					
Total (DMm)	50	350	600	900	700
R/Export Earnings	0.05	0.26	0.26	0.27	0.14
R/Worker	3844	1870	2477	3353	3567
TURKEY					
Total (DMm)	50 (1962)	300	1250	2500	2050
R/Export Earnings	0.06	0.15	0.38	0.70	0.59
R/Worker	2694	2259	3532	4741	3836
YUGOSLAVIA					
Total (DMm)	50 (1961)	150	1150	2200	1800
R/Export Earnings	0.02	0.03	0.18	0.28	0.17
R/Worker	3987	2341	2717	4724	4328
SPAIN					
Total (DMm)	50	450	550	850	600
R/Export Earnings	0.01	0.01	0.06	0.06	0.03
R/Worker	5288	2462	3203	4744	4818
PORTUGAL					
Total (DMm)	na	11	40	85	na
R/Export Earnings		0.04	0.11	0.18	
R/Worker		785	893	1232	
ITALY					
Total (DMm)	200	850	1100	1350	950
R/Export Earnings	0.01	0.02	0.02	0.02	0.01
R/Worker	1643	2283	2880	3297	3248

SOURCE: Export Earnings and Exchange Rates from International Monetary Fund (1978); stocks of foreign workers by nationality from Bundesanstalt für Arbeit, various issues; workers' remittances from Statistische Beihefte zu der Monatsberichten der Deutschen Bundesbank, Reihe 3, various issues, and Monatsberichte der Deutschen Bundesbank (1974).

...continued

TABLE II.8 (continued)

NOTES: DMn - millions of current German marks.

R/Export Earnings - ratio of remittances (in current DM) to export earnings both converted into $U.S. by the exchange rate of the respective year.

R/Worker - ratio of remittances (in current DM) to workers of respective nationality.

na - not available.

marked decline is noted in the post-1973 period, a consequence of the decline is the absolute size of each national labour force in West Germany. Finally, remittances per capita declined to 1965, and then followed an upward trend, though in the post-1973 period, a marked decline is noted once more. The post-1973 decline in remittances per foreign worker may be a reflection of the likely maturation of the remaining migratory stock, in the sense of becoming more permanently established in the country.

II.4 Summary

The purpose of the present chapter has been to present the main elements of the institutional framework determining labour mobility in Western Europe and more particularly, in the EEC, and to provide a statistical description of the dimensions of intra-European migration. The main points can now be summarized:

(a) Freedom of labour mobility in the EEC guaranteed by the Treaty of Rome and its subsequent interpretations, has led to the establishment of a common market for labour. But while mobility of EEC

nationals is uninhibited and subject to a supra-national authority, mobility of non-EEC nationals is regulated by bilateral agreements between source and host countries.

(b) Non-EEC nationals do not, as a result, enjoy the labour market rights that are enjoyed by EEC nationals working in member states. Furthermore, the nature of their employment and residence is defined by contractual agreements, which are subject to the authority of the host country.

(c) Labour market objectives are significant elements in the selection and utilization of non-EEC nationals in host countries.

(d) The evolution of migratory movements parallels the historical development of the two regimes controlling labour mobility in the EEC. Thus, while the aggregate stock of foreign labour has followed an upward trend in the post-1960 period, the development of the bilateral agreements has facilitated mobility of non-EEC nationals whose presence has increased much faster than that of the single most mobile EEC labour, Italian.

(e) A broad characteristic of the labour exporting countries has been their lower, than industrial Europe's, level of development. Labour exports have acted as a mechanism by which excess supply pressures in their labour markets have been relieved.

(f) West Germany is the major employer of foreign labour in the EEC, followed closely by France. West Germany experienced continuous imbalances in her labour market, in the form of positive excess demand for labour in the post-1960 period. Labour imports occurred in a context of relative prosperity and growth, characterized by low unemployment, significant output growth and increased industrial production. In addition, they occurred in a context of a declining labour force, partly due to declining participation rates.

(g) Foreign labour represents a significant proportion of West German employment and labour force, and an important component of the blue-collar labour force. Foreign workers have been predominantly employed in her manufacturing sector. West Germany has utilized foreign labour from several nations. And the sex composition of the foreign labour force has changed towards higher representation of females, a trend common

to all nationalities.

(h) Workers' remittances have been an important component of the balance of payments of the source countries, and a significant source of foreign exchange in the post-1960 period. The size of remittances compares favourably to export earnings during the period in question. Remittances per capita have followed an upward trend, parallel to the accumulation of the stock of foreign labour in West Germany in the post-1960 era.

APPENDIX TABLE A

RATES OF NATURAL CHANGE OF POPULATION IN EEC COUNTRIES (averages)

	1950	1960-65	1965-70	1970-73	1960-73
W. Germany					
Births/1000	16.2	17.91	16.10	11.92	15.76
Deaths/1000	10.5	11.38	11.68	11.92	11.67
Net Difference	5.7	6.53	4.42	0	4.09
France					
Births/1000	20.6	18.0	17.11	16.85	17.39
Deaths/1000	12.7	11.23	11.03	10.70	11.03
Net Difference	7.9	6.77	6.03	6.15	6.36
Belgium					
Births/1000	16.5	16.85	15.20	14.02	15.35
Deaths/1000	12.0	12.01	12.21	12.17	12.12
Net Difference	4.5	4.84	2.99	1.85	3.23
Netherlands					
Births/1000	22.7	20.75	19.01	16.52	19.03
Deaths/1000	7.5	7.81	8.16	8.37	8.07
Net Difference	15.2	12.94	10.85	8.15	10.96
Italy					
Births/1000	19.6	18.60	17.76	16.40	17.75
Deaths/1000	9.8	9.65	9.68	9.70	9.67
Net Difference	9.8	8.95	8.08	6.70	8.08

Source: Original data utilized in the calculation of the variables were obtained from Eurostat (1977).

APPENDIX TABLE AII.2

STOCKS OF FOREIGN LABOUR BY NATIONALITY AND HOST COUNTRY

(1000's and %)

	1960		1970		1975	
	Total	% FW	Total	% FW	Total	% FW
Greeks in:						
West Germany	13,0	4.65	242,1	12.43	196,2	9.62
France	10,4	0.64	10,1	0.30	12,4[1]	0.50
Netherlands	0,4	5.96	3,5	2.99	4,1	2.19
Yugoslavians in:						
West Germany	8,8	3.16	423,2	21.72	415,8	20.40
France	13,5	0.83	56,0	1.65	73,8[1]	2.70
Netherlands	0,9	13.43	8,0	6.82	13,5	7.19
Portuguese in:						
West Germany	0,2	0.09	44,7	3.35	68,3	3.35
France	44,5	2.73	607,0	17.89	538,6[1]	19.40
Netherlands	0,1	1.49	5,1	4.35	8,1	4.32
Italians in:						
West Germany	121,6	43.55	381,8	19.59	292,4	14.34
France	688,4	42.15	592,7	17.47	490,0[1]	17.6
Netherlands	5,0	74.63	18,3	15.61	19,8	10.50
Turks in:						
West Germany	2,4	0.89	353,8	26.21	534,3	26.21
France	3,3	0.20	15,0	0.44	8,9[1]	0.30
Netherlands	0,1	1.49	31,3	26.70	69,2	36.66
Spaniards in:						
West Germany	9,4	3.38	171,6	8.81	124,5	6.11
France	308,3	18.88	601,0	17.71	598,3[1]	21.50
Netherlands	0,2	2.99	28,0	23,88	28,9	15.33

SOURCE: Stocks of foreign labour by nationality for each host country were obtained from:

West Germany - Bundesanstalt für Arbeit, various issues.

...continued

APPENDIX TABLE AII.2 (continued)

France:- INSEE, various issues.

Netherlands - Privately communicated by R. Maas, Erasmus University, Rotterdam.

NOTES: % FW - foreign workers of indicated nationality as % of the total foreign labour stock.

1 - 1972.

FOOTNOTES

Chapter II

1. For an extensive presentation and analysis of the demographic developments in Western Europe, see Council of Europe (1978).

2. Günter and Leminsky (1978) note that the decline in participation rates in West Germany during the 1960s was a consequence of three factors: decreased working-age population due to the demographic transition, lengthening of the education of young people and flexible retirement age.

3. The documents related to the regulation of labour mobility in Western Europe and more so, in the EEC, are discussed further in Appendix I.

4. See Also Appendix I, and for a comprehensive examination of institutional issues by country of origin and destination, see the collection of papers in Kane (1979).

5. See also Appendix I.

6. All of the above agreements were consulted for their provisions.

7. One should not fail to recognize the similarities between the regulation of non-EEC workers in West Germany and the Soviet internal passport system: they both aim at regulating spatial mobility of populations and labour forces in view of the authorities' objectives. An insightful analysis of the Soviet system is provided by Helgeson (1979).

8. An analysis of the causes and effects of the moratorium in Western Europe is provided in the context of a discussion concerning the redistribution of unemployment among countries of immigration and emigration by the Kindleberger Group (1977).

9. While there is no comprehensive statistical summary of labour migration in Western Europe, the OECD has established a committee monitoring migratory developments and publishing an annual summary of the trends since 1973 under the title SOPEMI (initials for Systeme d'Observation Permanente des Migrations).

10. The average population growth in all sending countries, for the period 1960-73, was over 10%, with the exception of Greece (7.2%) and Portugal (3.0%). Livi-Bacci and Hagmann (1971) had estimated that by 1980 a surplus of 7.5 to 10.5 million workers would accumulate in the European periphery (plus Ireland) which could be utilized to fill the deficit of 11.3 million workers forecast for the northern industrialized countries for the same year.

11. The utilization of foreign labour dates back in the pre-World War II years, and it was a common feature of the Kaiser era and of the German war effort. An interesting analysis is presented in Homze (1967).

12. Rist (1978) discusses these issues extensively and draws analogies between integration policies in the USA and in West Germany.

CHAPTER III

INTRA-EUROPEAN MIGRATION: A SURVEY OF PAST RESEARCH

III.1 Introduction

The existing published research on intra-European migration can be divided into two groups: studies of a political and/or sociological nature[1] and economic studies. The review of this chapter is selective, in the sense that only the latter group of studies is surveyed. In order to provide a broad view of the nature of these studies and a summary of their findings, the present chapter is organized around three themes. Section III.2 discusses studies dealing with the contribution of labour imports to the economic growth of industrial Europe. Section III.3 examines several studies dealing with econometric analyses of labour migration and its effects, and others dealing with qualitative predictions. Section III.4 reviews some literature on the North-South dialogue, and while the review in this section is not extensive, the body of literature is nonetheless an important one, since it provides an alternative paradigm for analysing labour mobility in Western Europe[2]. Finally, Section III.5 provides a summary and statement of the main conclusions.

III.2 Labour Imports and Economic Growth in Western Europe

The rapid growth of industrial European economies in the post-World War II period resulted in a persistent excess demand for labour, which brought into existence the system of labour imports. The availability and employability of surplus labour contributed to the growth potential of the host countries by introducing considerable flexibility on the aggregate supply side of their economies. This contribution had certain specific implications: (a) it promoted non-inflationary growth by eliminating potential or actual bottlenecks in the labour market; (b) it promoted labour mobility and upgrading of domestic labour, increased competition in the labour market and decreases in unit labour costs; (c) it promoted the accumulation of human capital by allowing an increase in the length of time spent in the educational process without the costs associated with production and consumption losses; and (d) losses in real income due to labour shortages which would inhibit growth, were avoided.

Kindleberger (1967) has argued that labour imports in Western Europe were one of the major

explanatory factors of the growth experience in the post-World War II period. His thesis is essentially an application of the Lewis model of development with unlimited supplies of labour[3] to the situation in Europe. Thus, as in the Lewis model, surplus labour is transferred from agriculture to the secondary and tertiary sectors of economic activity, which face a practically horizontal labour supply curve; so in the case of Western Europe, labour migrating from the surplus South to the labour short regions of the industrial North, effectively provides the conditions of development where labour is in abundant supply. External shocks in aggregate demand translate into absorption (or release) of labour along a more elastic (than without migration) supply curve for aggregate output. Host economies can, therefore, obtain growth targets without being constrained by the labour market. Within this framework, labour mobility further contributes towards closer integration of the labour importing economies[4]. While it can not lead to complete factor price equalization, because of restrictions on the mobility of non-EEC nationals, it complements the notion of freedom of economic activity envisaged by the formation of the EEC.

This view of development may be critized in two ways. First, imports of foreign labour affect

the structure of the host economies. Thus, the utilization of surplus labour imported from abroad may postpone adjustments necessary to reflect the "true" availability of factor supplies[5]. Labour imports, by increasing the labour intensity of the economy, reduce the price of labour relative to the price of capital and the utilization of foreign labour creates disincentives to improve productivity by replacing the existing capital stock. In this sense, employment of foreign labour can exert a negative influence on the growth of the economy in the long run.

The importance of this influence is largely an empirical question. As seen in the previous chapter, foreign labour is concentrated in sectors which could experience significant productivity improvements. There is some evidence, however, that at least in the case of the Swiss economy, employment of foreign labour negatively affects productivity performance. Thus, Lambelet and Schilthnecht (1970) in their econometric model of the Swiss economy, estimate that a 1% increase in the proportion of foreign labour in the Swiss labour force reduces real output per capita by .434%[6]. Similarly, Kooyman and van de Pas (1972), of the Central Planning Bureau in the Hague find in their analysis of the impact of labour imports on the economy of the Netherlands, a

weaker effect on capital-intensive investment activity caused by a 1% expansion of foreign labour supply than by a 1% increase in the supply of domestic labour (.74 compared with 1.19. See their Table 13). Finally, Davidson (1976) has analysed some evidence relating to labour saving innovations in Japan, Europe, USA and UK, which is related to the present discussion. Davidson finds that Europe ranks third in relative factor costs with respect to labour and that she had the lowest rate in labour saving process innovations in the period 1945-74. He concludes that "innovators are sensitive to the relative supply levels of different factors of production... factor supply considerations appear to influence process innovators" (p. 213). Europe was relatively labour abundant throughout the period only in her ability to import foreign labour.

The second criticism of the thesis that Western European growth has been promoted as a result of the availability of foreign labour relates to the social costs associated with the employment of foreign labour, which should be taken into account to arrive at its net contribution to the host economy. Social costs in this context refer to increased demands upon the social system to provide infrastructure and services specific to foreign labour. Also, non-pecuniary social costs

will include elements of dissatisfaction of the domestic population arising from the presence of foreign labour. Blitz (1977) has provided one estimate of the net benefits accruing to one host economy, West Germany. Using a cost-benefit framework, he concluded that the net benefits to the West German economy from the operation of the system of labour imports are substantial, essentially arising from importing human capital, whose child rearing and educational production costs are borne abroad. In particular, measured in 1962 DM, net benefits are of the order of 4.5 billions in 1960, rising to 10.1 billions in 1970, and then falling to 8.3 billions in 1973. Furthermore, two extensions of the conventional migration model[7] suggest that some social costs of labour imports could be reduced or redistributed within the host economy. Usher (1977), discussing the welfare costs (benefits) of migration in the context of an economy in which there is public property, suggests that the system of "guest" or temporary workers avoids such costs "because it is the essence of the institution of guest workers that they are denied access to at least a substantial part of the advantages available to full citizens - support in old age, education of their children, the right to vote and so on" (p. 1019). And Krauss and Baumol (1977) suggest that, if the labour importing country has a small open economy, then welfare programmes provided by the government

do not represent a net benefit accruing to, or spilling over to, foreign workers. Instead, they suggest that these programmes represent a subsidy from the government to the host country's employers, and furthermore, do not increase the standards of living of domestic workers which compete with foreign workers.

Simulation experiments, using a variety of assumptions regarding the size of the foreign labour force, provide another way of analysing the impact of the utilization of foreign labour on the growth of host economies, and have produced some interesting results. Lambelet and Schiltknecht (1973) have simulated a model of the Swiss economy to detect the effect of labour and capital flows. Their conclusions are revealing in the ways foreign labour and foreign capital influence a small open, labour importing economy. Thus, they find that imports of foreign labour and capital inflows contribute substantially to real income and real per capita consumption growth and that they restrain inflationary pressures and promote growth of real investment. Furthermore, simulations involving labour imports and presence or absence of capital inflows suggest that maximization of the growth rates of the above variables obtained when flows of workers accompany inflows of capital. Their analysis suggests that "Switzerland's high standard of living.... can be ascribed, at least partially, to the

free use Switzerland made, up to 1963-64, of the labour reserves available in Southern Europe" (p. 42).

Labour imports have also been analysed as an instrument of economic policy within an interdependent EEC system to produce some qualitative and quantitative results. Thus, Waelbroek and Dramais (1974) recognized that "most of the continental EEC countries have freely used this instrument to ease inflationary pressures, or to prevent unemployment from rising at times of recession. The model confirms that this is an effective and powerful instrument" (p. 306). Labour imports are found to positively contribute to GNP growth and unemployment (because they are linked to the labour force rather than employment) and to the balance of payments, and negatively contribute to the rate of growth of consumer prices. If we introduce the possibility of controlled migration, that is, migration linked to employment, the positive influence of labour imports on unemployment will practically become zero, which is consistent with the historical experience in Western Europe. Finally, these results are largely consistent with the ones obtained by Lambelet and Schiltknecht (1973) in the case of Switzerland.

A final study deserving attention in this context is Askari's (1974) research. Askari has estimated the contribution of labour imports to EEC countries' growth, utilizing the Denison framework of

TABLE III.1

CONTRIBUTION OF FOREIGN LABOUR TO ECONOMIC GROWTH

1960-70

(%, annual averages)

	Contribution of foreign labour to growth	Contribution of foreign labour to growth as % of total growth
Belgium	0.0764	1.5909
France	0.0336	0.6000
West Germany	0.0482	0.8727
Netherlands	0.0236	0.2727
Luxemburg	0.2073	6.3364

SOURCE: Calculated from Askari (1974), Tables III and IV.

growth accounting. His results are shown in Table III.1. The contribution of foreign labour to economic growth appears to be positive but small. However, as he notes, the magnitude is only marginally smaller than the net trade creation effect generated by the customs union, and in this respect, it is significant.

III.3 Quantitative and Qualitative Analyses of Intra-European Migration and Its Effects

As in studies of internal migration, several aspects of labour mobility in Western Europe have become the subject of empirical analysis. This literature deals mainly with demand and supply aspects of this phenomenon. Some qualitative studies are referred to at the end of this section.

Two studies concerned with stock adjustment relationships in the employment of foreign labour were conducted by Drettakis (1975, 1976). Drettakis studied the pattern of stock changes in West Germany (1961-72) and in France (1956-72) using an econometric model of the form

$$F_{ijt} = a_0 + a_1 X_{jt} \qquad (1)$$

where F_{ijt} is the stock (or flow) of foreign workers from country i in country j at time t, and X_{jt} is a vector of variables representing excess demand for labour in country j (unemployment in the case of France, vacancies in the case of West Germany), growth of industrial production, and the existing stock of foreign labour or industrial employment. Using a partial adjustment relationship, he also obtains a speed of adjustment estimate. His results for West Germany, based on aggregate and sex-disaggregated equations, indicate that the quarterly speed of adjustment of the actual to desired (or equilibrium) total stock is 0.14. However, in three individual countries there is substantial variation. Thus, he finds that the quarterly speed of adjustment of actual to desired (or equilibrium) migratory stock for Italian workers to be 0.24, higher than the Spanish (0.13) or the Greek, (0.10). This suggests that the EEC freedom of mobility legislation may have had some effect on the speed with which labour importers are able to adjust to their desired stock of foreign labour. Marked differences are found in the long-run elasticity of labour flows to changes in the excess demand for labour, represented in the model by unfilled vacancies. Thus, while the short-run elasticity is very similar in all cases (and 0.15 for the aggregate), the long-run elasticity varies from 1.56 for Greece to 0.56 for Italy. Drettakis explains these differences on the basis of availability of

exportable labour by country of origin.

More interesting patterns emerge from the disaggregated results. Thus, with the exception of Spain, the short-run elasticity of females with respect to excess demand is greater than that of males. Also, the short-run elasticities of Italian males and females with respect to excess demand are greater than those of other nationalities. Females from Italy, Greece and Yugoslavia have larger short-run elasticities than males, and the pattern is reversed for Spain, Turkey and Portugal. Finally, covariance analysis shows that differences exist between the individual country equations, both the aggregate ones and those that are disaggregated by sex, with respect to seasonality and trend, and in the case of Italy, Greece and Spain, in the adjustment parameters.

The case of France shows comparable patterns. The equation is similar to (1). Statistical results from annual data show that the time trend (which represents productivity, technical change, growth in the capital stock, etc.) is significantly negative or positive, depending on the variable used to represent labour demand. The same applies to the sex-disaggregated results. In particular, the unemployment elasticity of the flow is negative but the trend coefficient is positive. On the other hand, both the industrial

production and the employment elasticities are positive, but the trend coefficient is negative. This suggests that the results are sensitive to specification. It is also worth noting that the vacancies variable is not statistically significant in the case of France, but that migratory flows respond positively to fluctuations in the growth of the French economy. Finally, two conclusions arise from comparing the experience of France and West Germany: first in France, the flows respond positively to the concentration of foreign workers in industry, while in West Germany, the opposite holds. Drettakis conjectures that this may be the result of the type of labour sources used, with West Germany utilizing foreign labour from less developed countries (such as Yugoslavia and Turkey) and France labour from such semi-developed countries as Spain and Portugal. Second, in both countries, the adjustment response is highest in the case of Italians, possibly reflecting the impact of the EEC provisions on labour mobility.

The Drettakis studies emphasize exclusively the demand ("pull") forces on intra-European migration. Botsas (1970) on the other hand, has studied a supply model of Greek migration to Germany. His equation involves the flow of Greek emigrants to Germany as a function of relative wages ("pull" factor), relative unemployment ("push" factor), and the lagged stock of Greek workers to

reflect availability of information. While the aggregate equation did not yield significant results, the female flow was found sensitive to wage differentials. Sapir (1975) re-examined Botsas' statistical results, confirming the importance of unemployment and wage differentials, and he also suggested that throughout the 1960s all Greek governments encouraged emigration. He includes a dummy variable (one in 1966, zero otherwise) to identify the last year before the dictatorship and he finds it statistically significant. However, it is possible that it only captures the impact of the oncoming recession rather than political influences.

Heijke and Klaassen (1977) examined a gravity equation to analyse cross-section data relating stocks from nine sending in seven host countries. They find that income differentials, employment availability, population of sending countries and distance to be significant determinants of the migratory stock. They also find that "language barriers are an important element of psychological distance, and affect migration behaviour significantly" (p. 10). Clearly though, it is difficult to obtain meaningful results about the influence of the determinants of migration from cross-section analyses, especially since the distribution of labour imports by nationality has significantly changed throughout the post-1960 period. However, this study contributes to

our understanding of the concentration of some nationalities in some host countries by introducing cultural factors in the analysis.

The studies reviewed so far attempt to identify factors influencing migration and the employment of foreign labour in Western European countries utilizing econometric techniques and time-series and cross-section data. A study utilizing input-output data and considering the impact of one specific factor, the 1973 oil crisis, on the employment of foreign labour in West Germany was conducted at the International Institute of Management by Dirickx, Freiburghaus and Sertel (1974). Their analysis considered both the aggregate employment of foreign labour and employment disaggregated by nationality. Their results depend on what they call the "discrimination parameter", which they define as "the firing elasticity of foreigners with respect to Germans" (p. 4), denoted as:

$$p = \left(\frac{\Delta A}{A}\right) \quad \left(\frac{\Delta D}{D}\right) \qquad (2)$$

where A and D are foreign and West German labour employed, respectively, and Δ is a difference operator. From the experience of the 1966-67 recession, p is calculated to range from 5.1 to 6.7. In their incidence analysis, and for values of p ranging from 1 to 6, they found that layoffs of Turkish and Portuguese workers ranked first

and last, respectively, in absolute terms. But in percentage terms, Greek and Spanish workers ranked first and last, respectively (see their Graph 1, p. 13). They offer no explanation for this pattern, but we may hypothesize that it is a function of the industrial distribution of foreign labour, of the complementarity between foreign and domestic labour and of the size of the individual foreign labour stocks.

We now turn to studies which analyse labour imports in a labour market context. Since labour imports represent an increase in the labour force of the host country, labour import policies naturally affect the state of excess demand for labour that characterizes the post-migration equilibrium. The notion of foreign labour-induced effects on wages has concerned several students of intra-European migration. In analytical terms, accessibility to foreign labour implies, first, that the effective full employment constraint on the economy can be partly removed by a continuous influx of imported labour, and second, that the labour market is open in the sense that the nominal wage is partly determined by the migratory forces. In the extreme case, where the economy is small and open in the product and labour market, and there is perfect labour mobility, the real wage is determined exogenously. In the more general case, however, wage determination, and the wage-and-price behaviour of the economy, are simultaneously

determined with the degree of labour mobility.

Geary and McCarthy (1976) have studied such a process in a predominantly labour exporting economy, Ireland. They implemented the notion of openness in the case of the Irish economy by permitting import and export prices, and migration between Ireland and the UK, to affect the state of the labour and product markets. Their empirical investigation suggests that external influences play a substantial role in determining wage and price behaviour in Ireland and, more significantly, that the degree of integration between the Irish and the UK labour markets is high. They are, however, unable to confirm precisely the role of migration in their wage adjustment equation[8].

Rosi and Thomas (1971) estimated a model of inflation and migration for the Swiss economy for the period 1948-1966. Their model consisted of a price, an earnings, an excess demand for labour, and a migration equation. They find that there is interdependence among all the equations, as predicted by theoretical considerations, and that the stock of foreign labour exerts a negative impact on the excess demand for labour. In addition, employment of foreign labour is mainly determined by excess labour demand and its lagged value. Two-stage least squares estimates suggest that "differences of up to 5 percentage points in the rate of earnings

increase and 2½ percentage points in the rate of price increase can be caused by variations, within plausible limits, in the excess demand for labour" (p. 785). Hence, by affecting excess demand for labour, foreign labour indirectly affects both wage and price increases. One problem with this study is that the excess demand for labour variable for Swiss economy is unreliable since reported vacancies and unemployment have been negligible and represent less than 1% of the annual flow of migrants into the country. In reality, foreign labour flows would be a better variable to represent ex ante excess demand for labour.

In a similar fashion, Lambelet and Schiltknecht (1973) find that labour imports exert a restraining effect on the growth of the GNP deflator, and restrictions on migration translate into slower growth and higher inflation. In their estimation of a forecasting model of the Swiss economy, Lambelet and Schiltknecht (1970) also show that net changes in the stock of foreign labour (net migration) in Switzerland exert a downward pressure on the level of real wages: a 1% increase in net migration depresses the real wage by .5% (p. 314 and equation (19)).

In an econometric model of the West German labour market, Franz (1976b) confirms that excess demand for labour (defined as the difference between vacancies

and unemployment as a percent of the labour force) is significant in determining wage changes. While foreign labour does not enter the wage equation directly, it acts indirectly through the supply side of the labour market. Simulating a reduction in foreign labour by 500,000 workers during each quarter in 1974 and 1975, Franz detected a substantial wage explosion. More specifically, he noted that female wages rose much faster than male and as a consequence, the employment of females declined much more than the employment of males. As a result of the wage increase, domestic labour supply initially showed a marginal increase, but then it declined, suggesting a backward bending labour supply curve for West German workers. Another result of the simulation is that exports of labour reduce unemployment, despite the decline in labour demand arising from the wage explosion. And although there are no price effects reported, it should be expected that the growth of wages and the rise in unit labour costs would ultimately be reflected in price changes. The wage price interdependence in West Germany has already been confirmed by an OECD (1971) study, which established the role of excess demand in wage determination.

Wage restraint as a result of labour imports is also detected by Kooyman and van de Pas (1972) in the case of the Netherlands. They find that a 1%

increase (40,000 man-years) in labour supply available in the Dutch economy as a result of migration reduces nominal wages by 0.49% and consumer prices by 0.16%. However, they obtained opposite results under the assumption that members of the migrants' families arrive. The latter results represent the aggregate demand impact of foreign workers' spending in the Dutch economy instead of transferring their remittances to the source country. They also reflect the impact of social capital spending to accommodate new immigrants.

Another study, concerned with foreign labour-induced wage effects, was conducted by Bain and Pauga (1972) who examined the inter-industry wage structure in West Germany. The form of their model is:

$$W_i = F(FW_i, P_i, U_i) \qquad (3)$$

$$F_{FW_i}, F_{U_i} < 0, \quad F_{P_i} > 0$$

where W_i is the level of nominal wage in sector i, FW_i and U_i are the stock of foreign workers and the stock of unemployed in i, respectively, and P_i is the price level. Applied to eighteen industrial activities, the equation confirmed the a priori expected signs in most cases, which led the authors to the conclusion that

the employment of foreign labour was a significant determinant of the inter-industry wage structure.

Permanently established foreign workers in host countries enjoy the right to unemployment insurance when laid off and, as noted in the previous chapter, the idea of bribing them to return home has emerged. Franz (1976a), in his simulation of the West German unemployment insurance scheme, allowed for the possibility that unemployment insurance is paid to foreign workers as an incentive to leave the country. He found that in this case over 5% of foreign workers voluntarily departed and that the unemployment rate was substantially reduced. However, departure of foreigners led to reduction in capacity utilization which, in turn, decreased the demand for domestic labour, although only marginally. Franz concluded that a policy of bribing foreign workers to leave West Germany is effective in lowering the unemployment rate. The Franz research represents a substantial analysis of foreign labour within the framework of a national labour market and it clearly demonstrates the interaction between domestic labour, labour market policies and imported labour in West Germany.

Finally, we turn to studies which provide qualitative predictions about some effects of labour imports on host countries. The major theme in this context is that a significant aspect of migration is

the resultant changes in factor proportions, which imply changes in factor prices and lead to changes in the distribution of income. Leo Klaassen (1974) analysed a theoretical model in which domestic labour is distinguished as lower and higher qualified and he showed that income for both types of labour would experience a downward pressure as a result of migration. This result arises because imports of lower qualified labour reduce the wage of lower qualified labour and increase the wage differential between the two types of labour. Lower qualified labour engages in a process of human capital accumulation to become higher qualified, thus increasing higher qualified labour supply and inducing a decline in its wage. A continuous policy of labour imports then, facilitates a process by which domestic population upgrades itself through investment in human capital, ultimately leaving the low-skilled jobs to foreigners. This is consistent with Böhning's (1972) notion that the migratory stream in Western Europe, instead of being temporary, acquires a permanent character for two reasons: first, as the upgrading process proceeds, host economies become dependent on unskilled labour to perform the unskilled jobs; secondly, as second generation immigrants acquire skills for better jobs, and as the existing stock of foreign labour ages,

more immigrants are required to fill vacancies in the lowest strata of the labour market[9].

Identifying foreign labour as lower qualified (or unskilled) is a factually accurate description of its human capital content. In combination with the characteristics of its employment (temporary work usually lasting one year, no promotion opportunities, discrimination and low pay) the utilization of foreign workers conforms with the typology of the primary-secondary labour market and several authors have suggestd that Western European economies have imported foreigners to sustain this dichotomy (Rist (1979), Piore (1978), Piore (1979)). Dufour (1978) provides some evidence that most "unpleasant" jobs in France and Sweden are performed by immigrants, but also by youth and women. In this context, the impact of labour imports would initially be felt in the secondary sector of the labour market, and Klaassen's contention is one significant possibility. Lack of data has prevented substantial analysis of labour market segmentation and the role of foreign labour in the host countries.

III.4 Migration as an Issue in the North-South Dialogue

The ideology underlying the system of labour imports in Western Europe can be thought of as an application of the notion of the "gains from trade". Source countries export labour services in return for remittances and human capital, and host economies import labour services in exchange for financial transfers. Individual workers and sending and receiving countries can all potentially benefit since the utility possibility frontier under a regime of free trade lies outside the utility possibility frontier under a regime of antarky[10]. We already have discussed some of the benefits accruing to one country, West Germany, above.

This static view of labour exports and imports ignores some of the dynamic elements involved and their implications for the source countries. An alternative view places labour imports within the framework of the Centre-Periphery hypothesis. This hypothesis, which is a component of a more general critique of socio-economic relationships in capitalist economies, suggests that labour migration from the underdeveloped, peripheral South, is an aspect of the process of capital accumulation in the industrial North. A central element of the North-

South relationship is the "unequal exchange" thesis, which in neoclassical terms, arises from trade under conditions of positive differential real wages (lower in the South than in the North[11]). The theory predicts a widening wage and income gap between the trading partners, and a continuous dependence of the South on the North. A particular form of dependence has two elements: (a) dependence of the South on the North to absorb exportable manpower, which was already made clear in the discussion of the bilateral agreements in the previous chapter; and (b) dependence of the South on the North for purposes of economic development. While the former element has been in operation, it is not clear that the North South relationship has been instrumental in the process of the economic development of the sending countries. As a result of this dependence, the downturn of the world economy in the mid-seventies has had significant repercussions on the South.

Some literature concerned with the question of underdevelopment suggests that the system of labour exports retards development of the South for several reasons[12]: (a) there are externalities associated with the presence of "elite" manpower, which tends mostly to be exported not only because it is self-selected but also because it is selected by the host countries through the screening process discussed above in Chapter II;

(b) sectoral skill shortages generate real income losses and upward pressure on wages, and retard development because backward and forward linkages are rendered inoperative; (c) in particular, the process of regional depopulation and manpower drain hinders development planning; (d) because of the short duration of employment abroad, there is no substantial human capital accumulated by the worker and if the worker stays permanently in the host country, the source country loses not only the individual but also his remittances; (e) remittances are often used in unproductive investments and possibly simply to finance imports from the host country.

Responding to the view that labour exports may diminish employment opportunities in the source countries, that they may be against the long-run interests of the host countries and that they may bias the pattern of international trade in a manner inconsistent with the factor abundance of the source countries, the ILO has commissioned two studies, investigating the possibility of transferring capital investments to labour-abundant countries, instead of labour to capital-abundant (Northern European) countries. The broader context of these studies is the establishment of a new notion of economic cooperation and the search for policies for international development alternative to labour exports. Hiemenz and Schatz (1976,

1977, 1979) examined the possibility of trade liberalization and direct investment in Spain and Turkey by West Germany. Using an input-output model, they found that progressive stages of trade liberalization would lead to substantial disemployment effects in West Germany because of the comparative advantage labour exporting countries have in low-skill labour intensive lines of production[13]. They suggest that policies of direct investment would lead to a more efficient allocation of labour between trading partners along the existing factor proportions in the South and in the North. Viewed in this context, they found labour imports an inferior policy which is against the long-run interests of West Germany. A similar study was conducted for the case of Switzerland by Maillat, Jeanrenaud and Widmer (1976, 1977a, 1977b) who also concluded that transfer of employment from Switzerland to the South, through capital exports and direct investment, was a real possibility especially if shortages of unskilled labour in Switzerland became acute.

Clearly, the feasibility of transfer of employment is a function of economic and non-economic factors. Political stability may be a critical component of the decision. With the entry of Greece to the EEC, the associate status of Portugal and Spain and the potential membership of Turkey, direct investment in

place of labour imports may be expected to rise. There are two additional aspects, however, to qualify this expectation. First, the lack of external economies in the source countries may represent a barrier to relocation of economic activity; and second, dependence on foreign labour for the functioning of the secondary labour market in the host countries may not eliminate the need for labour imports. For transfer of employment to be successful, a broader reorganization of the source and the host countries' economies is required and the costs of such an adjustment may be significant.

III.5 Summary

The main conclusion that can be drawn from the discussion of this chapter is that diverse issues have concerned students of intra-European labour mobility. From the surveyed literature, the following main points may be summarized:

(a) Kindleberger's (1967) thesis, about growth with unlimited supplies of labour in industrial Europe, appears to be a fruitful avenue of research to analyse the net contribution of foreign workers to European economic performance in the 1960s and 1970s. While

some first attempts have been made at assessing the contribution, a complete analysis, especially by host country, has yet to be provided. The existing literature suggests that the utilization of foreign labour has a multitude of effects, ranging from purely economic (effects on real incomes, the balance of payments, wage and price inflation, investment activity and productivity) to ones concerned with welfare changes and the design of social policy. The need for further analysis is warranted especially in view of recent discussions concerning possible temporary Mexican migration to the USA[14].

(b) A variety of econometric results suggests that migration adjustments are rapid, that excess demand for labour is a major determinant of intra-European migration and that disaggregation taking into account the sex of the migrants and the country of origin, show substantial diversity in patterns and sizes of responses to independent variables. Little is available, however, in support of the human capital model of migration. For the case of West Germany, Switzerland and the Netherlands, simulation results suggest that some substantial labour market effects are generated as a result of the employment of foreign labour, mostly with regard to the pattern of wage changes. Only limited attempts have been made to establish the role of foreign workers in the context of

the primary-secondary labour market theory.

However,the existing body of quantitative research fails to recognize the role of labour mobility in the context of the Phillips curve framework, it does not provide refined hypotheses in the context of model and equation specification and it often utilizes inadequate variables, most commonly in the specification of excess demand for labour.

(c) The most significant critique of the ideology of labour imports and their effects has been provided by the "unequal exchange" hypothesis./ A consequence of this critique is the re-evaluation of the logic of government-induced redistribution of the labour forces in the European continent and its periphery, the examination on the impact of labour mobility on the comparative advantage of the countries involved and the study of the feasibility of the transfer of employment. The existing evidence suggests that the re-allocation of economic activity in Western Europe can give rise to a new pattern of specialization that will benefit both labour importing and exporting countries.

FOOTNOTES

Chapter III

1. The best known sociopolitical study is Castles and Kosack (1973). See also Castells (1975).

2. With the downturn of the 1970s and the decline in migratory movements in Western Europe, a re-evaluation of the ideology of labour imports has taken place and the Centre-Periphery hypothesis has gained prominence. See also Footnote 11 for references.

3. See the original statement of the model in Lewis (1974).

4. Kindleberger (1973) discusses this point extensively, with respect to both labour and capital.

5. For the case of West Germany, Steinherr and Runge (1977), utilizing international trade data, find that West Germany is human capital abundant, and they conclude that imports of unskilled labour are inconsistent with the comparative advantage of the country.

6. Clearly, the effect of labour imports on aggregate productivity performance has several dimensions. It may arise as a result of sectoral shifts in output towards sectors employing foreign workers, so that the statistically detected effect should probably be attributed to this rather than the utilization of foreign labour per se.

7. What is here termed "conventional model" is presented in Berry and Soligo (1969). See also the collection of papers in the Journal of Development Economics (1975).

8. Geary and McCarthy hypothesize that net migration plays two distinct roles in a wage adjustment equation: it represents employment changes which, according to Phelps (1970), should have a negative effect on wage changes and also, it represents a stock adjustment process which, by decreasing excess demand in the labour market, should have a

positive effect on wage changes. Their empirical results suggest that the stock adjustment function can be rejected in favour of the employment change role.

9. See, in particular, Böhning (1972), Ch. 4, p. 45-54.

10. Extensions of the Heckscher-Ohlin-Samuelson model of international trade to accommodate factor mobility are numerous. The classic reference is Mundell (1957). Contributions incorporating the phenomenon of labour imports are: Casas and Scully (1972) and Krauss (1975, 1976).

11. The "unequal exchange" thesis was developed by Emmanuel (1969). For a critique, see Samuelson (1976). The thesis has also been analysed by Bruno (1977). A very interesting contribution is provided by Bacha (1978). Finally, a purely marxist analysis of intra-European migration is provided by Marshall (1973).

12. Specific reference to skill depletion in sending countries and its implications for development, as well as the other effects noted here, has been made by Paine (1974) and Nueloh (1976), for the case of Turkey, and by Kayser (1971), for the case of Italy.

13. For further reference to West Germany's international trade and its relation to the international division of labour, see Fels (1972) and Wolker (1977).

14. See the discussion provided by Reichart and Massey (no date).

CHAPTER IV

LABOUR MOBILITY AND WAGE ADJUSTMENTS IN WEST GERMANY

IV.1 Introduction

Changes in the stock of the labour input of an economy through international migration can significantly influence the path of economic adjustment. Theoretical[1] and empirical[2] investigations have confirmed that labour mobility can exert both a long-run and a short-run impact on the adjustment behaviour of economic variables[3] and that controlled labour migration[4] can be viewed as an instrument of economic (employment) policy. We have already discussed some of the literature concerned with the implications of labour migration in Western Europe in the previous chapter. In the present chapter we extend this body of literature by analysing wage and migration adjustments in the case of the most prominent employer of foreign labour in Western Europe, West Germany, for the period 1960-1977.

The purpose of the present chapter is to analyse the determinants of the employment of foreign labour in West Germany, and to provide empirical support for the notion that labour mobility, and more specifically,

labour imports, represent a quantity adjustment mechanism that modifies the path of wage changes in response to disequilibrium in the labour market. Therefore, labour imports are viewed as an instrument of stabilization policy, restraining the impact of high employment on wage adjustments and facilitating the attainment of short- and medium-run objectives of the host economy.

The model utilized has three features that are noteworthy and distinguish it from previously published research on the subject of migration-induced wage adjustments in Western European countries. First, it introduces labour mobility into the Phillips curve framework. Secondly, it introduces the hypothesis that the authority behaves in an optimizing fashion in her determination of the desired stock of non-EEC labour, in the light of certain labour market objectives, and it provides empirical results pertaining to the effects of the policy instrument on the authority's objectives. Thirdly, it identifies labour imports as a factor affecting the state of excess demand for labour, as represented by the vacancies-unemployment (V-U hereafter) relationship, thus enriching the literature concerned with shifts in the V-U relationship over time[5].

unemployment (V-U hereafter) relationship, thus enriching the literature concerned with shifts in the V-U relationship over time[5].

The chapter is organized as follows: Section IV.2 presents the model and discusses each equation in detail; Section IV.3 presents the estimation results for the model in two ways: first, the results obtained by single-equation estimation, and secondly, the results obtained by simultaneous systems estimation. In addition, results related to the structural stability of the excess demand relationship and to the functional form of the wage adjustment equation are reported. Section IV.4 summarizes the main conclusions of the chapter.

IV.2 Analytical Framework and Model Specification

The model consists of five stochastic equations five identities and two equations describing the adjustment of actual to desired stocks of workers. The core of the model is an expectations augmented Phillips curve equation and an equation defining the state of excess demand for labour in the form of the V-U relationship. Two equations depict migration adjustments: one representing a government reaction function which determines the stock of labour of non-EEC origin, and the other representing migration of EEC workers. Since the bulk of mobile EEC manpower is of

Italian origin, the latter equation explains aggregate Italian migration to West Germany. Finally, an equation based on a version of Okun's law and explaining the unemployment rate closes the model.

The logic of the model is as follows: the authority of the labour importing country responds to disequilibrium in the labour market by changing the stock of non-EEC labour, in light of the state of the domestic labour supply and of Italian (EEC) migration. Disequilibrium in the labour market is a reflection either of exogenous or policy-induced disturbances in the product market, which the authority controls through the use of monetary/fiscal or exchange rate policies, or is a reflection of developments in the labour market itself. The state of the output market is exogenous to the model and it only matters in so far as it affects excess demand for labour. For simplicity, domestic labour supply is assumed to be wage inelastic[6]. Wage adjustments are assumed to respond to two sets of forces, to the state of excess demand for labour and to price expectations. Given price expectations, and assuming positive excess demand for labour, an increase in the stock of foreign workers employed in the country reduces excess demand for labour and restrains the impact of excess demand on wage changes. Thus, the path of wage adjustment is

modified by the degree of government intervention through labour imports, and the slope of the Phillips curve becomes flatter as a result of the quantity adjustment foreign labour represents in the labour market[7]. As the post-migration equilibrium is characterized by a lower real wage and higher employment, this process of utilization of foreign labour is consistent with Fels' (1977) suggestion that labour imports in the post-1960 period permitted the West German economy to operate along a rather flat cost curve.

The model consists of the following behavioural equations and identities:

$$F_t^* = F(\dot{W}_t, V_t, I_t + G_t) \qquad (1)$$

$$F_{\dot{W}} > 0, \quad F_V > 0, \quad F_{(I+G)} < 0$$

$$I_t^* = I\left[\left(\frac{RWI}{RW}\right)_t, \quad \left(\frac{URI}{UR}\right)_t\right] \qquad (2)$$

$$I_{(RWI/RW)} < 0, \quad I_{(URI/UR)} > 0$$

$$\dot{W}_t = H(\dot{P}_t, VR_t, UR_t) \qquad (3)$$

$$H_{\dot{P}} > 0, \quad H_{VR} > 0, \quad H_{UR} < 0$$

$$VR_t = J\left[UR_t,\ \left(\frac{F+I}{F+I+G}\right)_t,\ t\right] \tag{4}$$

$$J_{UR} < 0,\ J_{(F+I/F+I+G)} < 0,\ J_t \gtrless 0$$

$$UR_t = Q\left(\frac{YR_t}{YR_t^*}\right) \tag{5}$$

$$Q_{(YR/YR^*)} < 0$$

$$RW_t \equiv \frac{W_t}{P_t} \tag{6}$$

$$\dot{W}_t \equiv \Delta \log W_t \tag{7}$$

$$\dot{P}_t \equiv \Delta \log P_t \tag{8}$$

$$VR_t \equiv \frac{V_t}{F_t+I_t+G_t} \tag{9}$$

$$UR_t \equiv \frac{U_t}{G_t} \tag{10}$$

$$F_t = Z(F_t^*,\ F_{t-1}) \tag{11}$$

$$Z_{F^*} > 0,\ Z_{F_{t-1}} \gtrless 0$$

$$I_t = N(I_t^*,\ I_{t-1}) \tag{12}$$

$$N_{I^*} > 0,\ N_{I_{t-1}} \gtrless 0$$

where F^* = desired stock of non-EEC labour

I^* = equilibrium stock of Italian workers in West Germany

$\dot{W}$ = rate of change of nominal wage

$\dot{P}$ = rate of change of consumer prices

V = unfilled job vacancies

G = labour supply of West German nationality

F = actual stock of non-EEC workers in West Germany

I = actual stock of Italian workers in West Germany

RW = real wage in West Germany

RWI = real wage in Italy

UR = unemployment rate in West Germany

URI = unemployment rate in Italy

VR = vacancy rate in West Germany

YR = real output in West Germany

YR^* = natural or full employment level of real output in West Germany

Δ = difference operator

Equations (1)-(5), together with equations (11) and (12), constitute the stochastic part of the model and equations (6)-(10) are identities. The subscripted expressions below each equation indicate partial derivatives and their hypothesized signs. We now turn to the discussion of each equation in turn.

IV.2.1 Imports of Non-EEC Labour

Equation (1) represents a government reaction function, determining the stock of non-EEC labour in West Germany. The desired stock of non-EEC workers is assumed to be an instrument of employment policy utilized by the authority to effect different states of the labour market. States of the labour market are characterized by the independent variables in equation (1), which can be thought of as representing targets or objectives the authority aims at influencing by regulating non-EEC labour imports. The partial derivatives of equation (1) indicate the direction of change of the instrument in response to the state of the objectives, and are assumed to reflect judgements of the authority regarding the manner in which labour imports are understood to influence labour market targets.

The theoretical basis of equation (1) lies in the literature concerned with the utilization of instruments of economic policy by the government in order to attain different states of the economy defined by a set of objectives[8]. In the present case, which represents an application to the case of government intervention in the labour market, the desired stock of non-EEC labour is the policy instrument and the objective is moderation of labour market disequilibrium.

Two indices of disequilibrium are included in the equation: wage changes and unfilled job vacancies. It is hypothesized that the government responds to wage pressure (induced by disequilibrium in the labour market) by changing the stock of non-EEC labour employed in the country, in such a manner that the disequilibrium is moderated. Thus, disequilibrium in the form of positive (negative) excess demand gives rise to positive (negative) wage adjustments and the government increases (reduces) the stock of non-EEC labour. Therefore, $F_{\dot{W}} > 0$. Further, it was felt that aggregate wage changes would fail to capture all elements of disequilibrium and a second index is presently utilized, unfilled job vacancies. Among other things, vacancies are here used to capture some elements of the occupational structure of disequilibrium, because foreign workers are predominantly employed in less skilled and less desirable jobs in West Germany. And vacancies are also used in equation (1) to suggest that the government, observing the existence of positive excess demand and anticipating that it will translate into wage increases, responds by adjusting the stock of non-EEC labour employed in the economy. It is hypothesized that the authority's objective is to reduce the size of positive excess demand; hence, $F_V > 0$.

The third argument in equation (1) is the sum of Italian and West German labour in the economy. It is

hypothesized that the government, observing the state of domestic and Italian labour supply available in the economy, adjusts the stock of non-EEC labour in such a manner that labour market disequilibrium is reduced. Changes in West German and Italian labour supply, the former as a result of sociodemographic factors (recall that West German labour supply is here assumed to be wage inelastic) and the latter as a consequence of their migration behaviour, can give rise to, or change (reduce or increase) existing, disequilibrium. It is assumed that a reduction (increase) in Italian or in West German labour supply will be matched by an increase (reduction) in the stock of non-EEC labour and, therefore, $F_{(I+G)} < 0$.

The precise form of equation (1) employed here is as follows:

$$\log F_t^* = \alpha_0 + \alpha_1 \Delta\log W_t + \alpha_2 \log V_t + \alpha_3 \log(I_t + G_t) \qquad (13)$$

$$\alpha_1 > 0, \quad \alpha_2 > 0, \quad \alpha_3 < 0$$

Furthermore, the adjustment equation (11), which suggests that the actual stock of non-EEC labour is a function of the desired stock and of the level of the stock in the previous period, has the following explicit form[9]:

$$\left(\frac{F_t}{F_{t-1}}\right) = \left(\frac{F_t^*}{F_{t-1}}\right)^{\lambda} \qquad (14)$$

$$0 < \lambda \leq 1$$

Equation (14) represents a geometric adjustment process and λ is the speed of adjustment coefficient. Taking logarithms in (14), solving for $\log F_t^*$ and substituting into (13) we obtain:

$$\log F_t = \alpha_0' + \alpha_1' \Delta\log W_t + \alpha_2' \log V_t + \alpha_3' \log(I_t + G_t) + \alpha_4' \log F_{t-1} \qquad (15)$$

where the new (primed) coefficients are products of the speed of adjustment, λ, and of the coefficients in equation (13):

$$\alpha_i' = \lambda \alpha_i \qquad (16)$$

$$(i = 0,\ldots,3)$$

and

$$\alpha_4' = 1 - \lambda \qquad (17)$$

Equation (15) is estimated below both independently and as part of the simultaneous system. In order to ascertain the existence of delayed response on the part of the government, as information about the state of the labour market accumulates, some lagged forms of the independent variables are used in the estimation.

IV.2.2 Italian Migration to West Germany

Previous analysis of Italian internal migration has established that the human capital theory of spatial mobility can identify the proximate determinants of migratory movements from the Italian South to the North[10]. Salvatore (1977), for instance, found that the pattern of migration is highly elastic to wage and unemployment rate differentials and to lagged stocks of migrants. He included the latter variable to capture information costs and other pecuniary and non-pecuniary costs associated with spatial mobility.

Equation (2) of the present model also draws on this body of literature (the human capital theory) to model the equilibrium stock of Italian workers in West Germany[11]. It is hypothesized that the equilibrium stock of Italian workers in West Germany is a function of real wage and of unemployment rate differentials. Furthermore, it is assumed that an increase (decrease) in the real wage differential between Italy and West Germany will induce a reduction (increase) in the equilibrium stock of Italians (I_t^*) in West Germany, as earnings potential in the former, relative to the latter, country rises; hence $I_{(RWI/RW)} < 0$. On the other hand, changes in the relative valuation of employment

opportunities, as represented by the relative unemployment rates in Italy and West Germany, will tend to change I_t^* in the same direction, as workers will tend to migrate towards locations (countries) offering better employment prospects. Therefore, $I_{(URI/UR)} > 0$.

The precise form of equation (2) employed here is as follows:

$$\log I_t^* = \beta_0 + \beta_1 \log(\frac{RWI}{RW})_t + \beta_2 \log(\frac{URI}{UR})_t \qquad (18)$$

$$\beta_1 < 0, \qquad \beta_2 > 0$$

Assume also that the adjustment to I_t^*, described by equation (12), follows a geometric path, reflecting delays due to information, time delays in the migratory process, pecuniary and non-pecuniary costs, etc.:

$$(\frac{I_t}{I_{t-1}}) = (\frac{I_t^*}{I_{t-1}})^{\mu} \qquad (19)$$

$$0 < \mu \leq 1$$

where μ is the speed of adjustment coefficient. Taking logarithms in (19), solving for $\log I_t^*$ and substituting into (18) we obtain:

$$\log I_t = \beta_0' + \beta_1' \log(\frac{RWI}{RW})_t + \beta_2' \log(\frac{URI}{UR})_t + \beta_3' \log I_{t-1} \qquad (20)$$

where the new (primed) coefficients are products of the speed of adjustment, μ, and of the coefficients in equation (18):

$$\beta_i' = \mu\beta_i \qquad (21)$$

$$(i = 0,\ldots,2)$$

and

$$\beta_3' = 1 - \mu \qquad (22)$$

Equation (20) is estimated below both independently and as part of the simultaneous system.

IV.2.3 The Wage Adjustment Equation

Equation (3) is an expectations augmented Phillips curve equation, defining wage adjustments in response to two sets of forces: expected inflation and the state of excess demand for labour. Inflation in the present context is assumed to be perfectly anticipated so that actual and expected inflation are assumed equal. The state of excess demand in the labour market is, on the other hand, represented by the vacancy and the unemployment rates.

In a labour market, where the authority intervenes by controlling labour imports, the state of

excess demand is affected by the degree to which the authority allows foreign labour to be utilized in the economy. Furthermore, in a labour market which is open through free international labour mobility, labour in-migration, by affecting the supply side of the labour market, it also affects the state of excess demand. As wages are assumed to respond to the state of excess demand for labour, factors such as labour imports and free labour migration that affect the state of excess demand, indirectly influence the path of wage adjustment.

While the state of excess demand in wage adjustment equations is conventionally represented by the unemployment rate, here both the vacancy and the unemployment rates are used. The reason is two-fold. First, for a near full-employment economy such as West Germany's during most of the period covered by the empirical analysis (1960-1977), there have been suggestions that the unemployment rate alone underpredicts the degree of tightness of the labour market[12]. Secondly, Phelps (1970), among others, has suggested that vacancies exert an independent influence on wage adjustments, as they introduce into the analysis the demand side of the labour market. This is in contrast to the early Phillips curve literature which emphasized supply responses, leaving the demand side to be detected through supply responses.

Since there is no explicit theory on which to draw in specifying the functional form of the excess demand component of the wage adjustment equation (3), the Box-Cox method has been employed to find the best functional relationship. The estimated form of equation (3) is:

$$\Delta \log W_t = \gamma_0 + \gamma_1 \Delta \log P_t + \gamma_2 \left[\frac{VR_t^{\delta}-1}{\delta}\right] + \gamma_3 \left[\frac{UR_t^{\theta}-1}{\theta}\right] \qquad (23)$$

where δ and θ are the Box-Cox transformation parameters. Equation (23) is estimated below both independently and as part of the simultaneous system.

IV.2.4 The Excess Demand Equation

Equation (4) of the model represents the V-U relationship augmented by the proportion of foreign workers in total labour supply. The V-U relationship is thought to represent "the degree of structural disequilibrium in the labour market" (Hansen (1970), p. 11).

Holt and David (1966), building on the empirical work of Dicks-Mireaux (1958) and on Lipsey's (1960) analysis, derived the V-U relationship from a stochastic

micro model of the labour market. Hansen (1970) on the other hand, provided the most commonly used theoretical basis of the V-U relationship in the context of macro-economic wage changes and related it to the Phillips curve.

Hansen suggested that the product of the vacancy and unemployment rates can be represented by a constant, and that wage determination depends on the position of the V-U relationship, which in turn, determines the form and position of the Phillips curve. Flanagan (1973) provided empirical support for the hypothesis[13]. Extensions of the analysis by Holt (1970b) and Phelps (1970) have provided a search theoretic basis for the V-U relationship, based on turnover behaviour in stochastic model of the labour market. More recently, Bowden (1980) has examined the question of existence and stability of the relationship and suggests that the observed statistical V-U diagram "may be interpreted as a cyclical movement about a stable 'temporary equilibrium' locus" (Bowden, p. 47) which he derives from a labour turnover model. Movements along this curve correspond to different states of aggregate labour demand, while several factors may be identified as parametrically shifting the relationship[14].

The explicit form of equation (4) is based on

an extension of Holt's (1970b) formulation of the V-U relationship[15]. He shows that the product of the vacancy and the unemployment rates can be written as:

$$(VR)\ (UR) = g(S)(IMB) \qquad (24)$$

where g is a constant representing the structure of excess demand in the labour market[16], and S and IMB represent the degree of segmentation of the labour market and the degree of allocation of vacancies and unemployment between different segments, an imbalance component.

Labour imports should influence the structure of excess demand for labour because they represent the degree to which occupational imbalances are eliminated through the utilization of foreign labour. As noted in previous chapters, employment of foreign workers is concentrated in less skilled and less "desirable" jobs. Without access to foreign manpower, the structure of excess demand would be characterized by a high degree of occupational imbalances. As a consequence, the V-U relationship would lie further from the origin and the position and slope of the Phillips curve would show a less favourable trade-off. In an open labour market, however, access to the internationally mobile manpower can shift the V-U relationship towards the origin, restraining the pressure of labour market imbalances on wage adjustments.

For present purposes, equation (4) is specified in the following manner:

$$(VR)_t (UR)_t^{\eta} = g\left[\frac{F + I}{F+I+G}\right]_t^{-\tau} e^{kt} \qquad (25)$$

$$\eta > 0,\ \tau > 0, k > 0$$

where the sum of foreign workers, as a proportion of the total labour force in West Germany is used to represent the structural effect. The time trend in equation (25) is introduced to represent, among other things, smooth changes in the efficiency of the labour market as a mechanism for the allocation of human resources, which leads to rising reported vacancies. Finally, we allow for a somewhat more general form of the equation, than Holt does, by adding the parameter η.

Taking logarithms in (25), we obtain:

$$\log VR_t = \log g - \eta \log UR_t - \tau \log\left(\frac{F + I}{F+I+G}\right)_t + kt \qquad (26)$$

Equation (26) is estimated below both independently and as part of the simultaneous system.

Research has shown that, in some countries, the V-U relationship has shifted over time[17]. To establish the stability of the West German V-U relationship, tests for the intercept, the slope and the overall

homogeneity of relationship are performed and discussed in a later section.

IV.2.5 The Unemployment Rate Equation

In the labour market, both the vacancy and unemployment rates are treated here as being endogenous. In order to close the model, equation (5) is utilized.

Equation (5) is a modified version of Okun's law, relating the unemployment rate to the gap (here as a ratio) between actual real output and full employment real output. It is hypothesized that as the gap rises, the unemployment rate declines, so that $Q_{(YR_t/YR^*_t)} < 0$.

The explicit form of equation (5) is as follows:

$$(UR)_t = \Pi \left(\frac{YR_t}{YR^*_t}\right)^{-\xi} \qquad (27)$$

$$\Pi > 0, \quad \xi > 0$$

Equation (27) relates the unemployment rate to a constant, Π, and to the ratio of actual to full employment real output. An additional parameter, ξ, is incorporated, representing the extent by which the

unemployment rate varies as actual real output deviates from its full employment level. The unemployment rate is equal to Π when actual and full employment real output are equal.

Equation (10) of the model defines the unemployment rate as a proportion of West German labour supply. This definition of the unemployment rate differs from the reported one in that the latter is defined as a proportion of total labour supply in West Germany. The present definition was chosen because, during most part of the period covered by the empirical analysis, foreign labour was fully employed in West Germany and, as a result, they did not contribute to measured unemployment.

The full employment or natural real output YR^*, is hypothesized that it can be approximated by productivity growth which, in turn, is assumed to follow a smooth time trend, reflecting accumulation of physical and human capital in the economy, and the like.

The explicit form of the equation for YR^* is assumed to be:

$$\log YR^* = \tau_0 + \tau_1 t \qquad (28)$$

Now, taking logarithms in (27) we obtain the form of the unemployment rate equation which is used in the estimation of the model:

$$\log UR_t = \log \Pi - \xi \log\left(\frac{YR}{YR^*}\right)_t \qquad (29)$$

Values of $\log YR^*$ obtained from equation (28) are then used in the unemployment rate equation (29).

IV.3 Estimation Results

IV.3.1 Summary of the Estimated Model

The model of labour mobility and wage adjustments to be estimated consists of the following equations:

$$\log F_t = \alpha_0' + \alpha_1' \Delta\log W_t + \alpha_2' \log V_t + \alpha_3' \log(I_t + G_t) + \alpha_4' \log F_{t-1} + \varepsilon_t \qquad (15)$$

$$\log I_t = \beta_0' + \beta_1' \log\left(\frac{RWI}{RW}\right)_t + \beta_2' \log\left(\frac{URI}{UR}\right)_t + \beta_3' \log I_{t-1} + \varepsilon_t' \qquad (20)$$

$$\log W_t = \gamma_0 + \gamma_1 \Delta\log P_t + \gamma_2\left[\frac{VR_t^{\delta} - 1}{\delta}\right] + \gamma_3\left[\frac{UR_t^{\theta} - 1}{\theta}\right] + \eta_t \qquad (23)$$

$$\log VR_t = \log g - \eta \log UR_t - \zeta \log \left[\frac{F + I}{F+I+G}\right]_t + kt + \eta'_t \quad (26)$$

$$\log UR_t = \log \Pi - \xi \log\left(\frac{YR}{YR^*}\right)_t + \gamma_t \quad (29)$$

The equations of the model are identical to the ones specified theoretically in the previous section, except error terms have been added to indicate their stochastic nature. Classical restrictions regarding error behaviour are assumed to be satisfied. The model is estimated using annual data for the period 1960-1977. As noted previously, two sets of results are presented, results obtained by Ordinary Least Squares (OLS) and results obtained through an Instrumental Variables (IV) technique.

IV.3.2 Ordinary Least Squares Results

IV.3.2A Imports of non-EEC Labour

Equation (15) was estimated using various lagged forms of the independent variables, as well as unlagged forms. The lagged version of the equation purports to ascertain the existence of delayed responses on the part of the government as information about the state of the labour market accumulates. The dependent

variable is the (log of the) sum of workers from the following non-EEC countries: Greece, Portugal, Spain, Turkey and Yugoslavia. The wage variable is hourly earnings of blue-collar workers in West German manufacturing and vacancies are measured by aggregate registered unfilled job vacancies in labour exchanges in West Germany. Finally, the labour supply variable is (the log of) the sum of Italian workers and West German employed and unemployed workers.

Results are reported in Table IV.1. In equation (15.I), of the independent variables only the dependent variable appears in a lagged form. In equation (15.II), on the other hand, the wage change variable and the stock of Italians are lagged by half a year, by averaging the annual data. A number of different lags were considered, varying up to a full year. The one chosen for presentation here is typical as the results do not differ dramatically when the independent variables are lagged in various forms.

The statistical performance of the equations is satisfactory, both in terms of the statistical significance of the coefficients and in terms of a priori predictions regarding coefficient signs. The Durbin-Watson statistic indicates absence of serial correlation, although it should be noted that it is biased in the

TABLE IV.1

ALTERNATIVE OLS EQUATIONS FOR NON-EEC LABOUR IMPORTS: WEST GERMANY, 1960-1977

Equation		$\bar{R}^2$	DW	n
(15.I)	$\log F_t = \underset{(4.200)}{108.25} + \underset{(3.779)}{2.925}\Delta\log W_t + \underset{(3.491)}{0.212}\log V_t - \underset{(-4.135)}{6.212}\log(I_t + G_t) + \underset{(13.464)}{0.624}\log F_{t-1}$	.988	2.476	17
(15.II)	$\log F_t = \underset{(3.291)}{96.760} + \underset{(2.942)}{0.611}\Delta\log W_{t-1/2} + \underset{(6.686)}{0.336}\log V_t - \underset{(-3.372)}{5.710}\log(I_{t-1/2} + G_t) + \underset{(11.304)}{0.728}\log F_{t-1}$	.986	2.389	17

SPEED OF ADJUSTMENT COEFFICIENT

(15.I)	(15.II)
λ : 0.376	λ : 0.272

t statistics in parentheses

n is the number of observations

presence of the lagged dependent variable. Nominal wage changes exert a strong impact on the utilization of foreign labour as indicated in equation (15.I), by an elasticity estimate close to 3. The vacancy elasticity is relatively small, while the elasticity of non-EEC labour imports with respect to Italian and West German labour supply is over 6[18].

The adjustment coefficient, λ, suggests that the accumulation of the desired stock of non-EEC labour is rather slow, which is consistent with the existence of uncertainty and information lags as well as pecuniary and non-pecuniary costs associated with labour imports.

Lagging the wage change variable and the stock of Italian workers by half a year, and re-estimating the equation, leaves the labour supply coefficient almost unchanged but it reduces the size of the wage change coefficient substantially, increases the coefficient of vacancies and reduces the speed of adjustment somewhat. Now the wage change elasticity is less than unity, but the labour supply elasticity remains high and is about 6. Vacancies too appear to be a strong determinant of labour imports.

The results suggest that the three indices of the state of the labour market that are hypothesized to enter the government reaction function, perform

satisfactorily. They also support the hypothesis that the government regulates the stock of non-EEC labour, responding to wage changes and to the state of unfilled job vacancies and of labour supply, that is to variables representing disequilibrium in the labour market. The effect of labour imports on wage changes and vacancies is investigated below in the estimation of equations (23) and (26), respectively.

IV.3.2B Italian Migration to West Germany

The estimates of equation (20), which determines Italian migration to West Germany, are reported in Table IV.2. The real wage differential variable here is denominated in Italian lira. (The real wage in West Germany is converted into Italian currency through the exchange rate.) The nominal wage in Italy is hourly earnings in manufacturing, and the nominal wage in West Germany is hourly earnings of blue-collar workers in manufacturing. The price deflator of the nominal wages is the consumer price index of each country.

The statistical performance of the equation is satisfactory. The coefficients are highly significant and signed according to a priori expectations. First-

TABLE IV.2

OLS EQUATION FOR ITALIAN MIGRATION TO WEST GERMANY: 1960-1977

		$\bar{R}^2$	DW	ρ_1	ρ_2	n
(20)	$\log I_t = \underset{(22.938)}{7.577} - \underset{(-9.028)}{0.302} \log(\frac{RWI}{RW})_t + \underset{(20.071)}{0.239} \log(\frac{URI}{UR})_t + \underset{(13.357)}{0.369} \log I_{t-1}$	.999	2.352	-0.993 (-6.105)	-0.741 (-4.558)	17

SPEED OF ADJUSTMENT COEFFICIENT

μ : 0.631

t statistics in parentheses

ρ_1, ρ_2 are the coefficients of the second-order autocorrelation equation, estimated by the Cochrane-Orcutt technique.

n is the number of observations

order autocorrelation correction by the Cochrane-Orcutt technique did not substantially improve the serial correlation characteristics of the equation and it was felt that second-order correction was necessary. Second-order autocorrelation correction by the Cochrane-Orcutt method (which here retains the first two observations) yields statistically significant estimates for the autocorrelation coefficients.

The equation provides strong support for the human capital theory of labour mobility. Thus, the real wage differential between Italy and West Germany exerts a substantial impact on the mobility of Italian workers: a 1% increase in (RWI/RW) leads to 1/3 of 1% decline in the stock of Italians in West Germany. In a similar fashion, an increase in the unemployment rate ratio by 1% leads to 1/5 of 1% increase in the stock of Italians in West Germany. Finally, the estimate of the speed of adjustment coefficient b(= 0.631) suggests that over half of the adjustment towards the long-run stock of Italians in West Germany is attained within a year. The fact that the speed of adjustment of Italian workers exceeds that of non-EEC workers, also noted by Drettakis (1976), is consistent with the free mobility arrangements enjoyed by the Italian workers.

The estimates in Table IV.2 provide strong

support for the notion that the degree of labour market integration between the two EEC countries, West Germany and Italy, is quite high[19] and that employment adjustments are effected through labour mobility.

IV.3.2C The Wage Adjustment Equation

As previously mentioned, the wage adjustment equation has been estimated using the Box-Cox method. Two sets of variables comprise the proximate determinants of wage changes: inflation and the state of excess demand for labour. The former is introduced through the rate of change of the consumer price index and the latter is captured by the vacancy and unemployment rates.

The estimates of the wage adjustment equation (23) are reported in Table IV.4. First, however, Table IV.3 is offered to show the results of tests for the functional form of the Phillips curve, in particular for the appropriate transformation of the excess demand variables. The conventional functional form of a Phillips curve is linear in parameters (but not necessarily in variables). The tests, therefore, are based on the null hypothesis that the form of the equation is linear (in

TABLE IV.3

COMPARISON OF FUNCTIONAL FORMS: WAGE ADJUSTMENT EQUATION

Transformations	δ	θ	ℓn L	-2 ℓn L
Linear	1	1	-29.45464	--
Semi-log	0	1.76	-30.15267	-1.39
Semi-linear	1	1.83	-29.29771	0.31
Semi-log	4.09	0	-28.65667	1.59
Semi-linear	2.36	1	-29.03936	0.83
Unrestricted	4.83	-0.25	-28.25892	2.39

$-2\ \ell n\ L \sim \chi^2\ (1)$

Critical values for χ^2 (1) are 3.84 at 5% level of significance and 6.63 at 1% level.

NOTE: The tests are based on the null hypothesis that the form of the Phillips curve is linear. L is the likelihood ratio and -2 ℓn L has a χ^2 distribution. See Theil (1971, pp. 396-97). The last transformation in the table ("unrestricted") is based on a grid search with a range -3.00 to 5.25.

parameters), which is tested against the transformations (alternative hypotheses) noted in the Table. δ and θ are the transformation parameters for the vacancy and the unemployment rates, respectively. As is clear from Table IV.3, none of the transformations shown yields a statistically significant value for the test statistic $-2 \ell n L$, and therefore, none of the transformations can be rejected against the null hypothesis (linear version of the Phillips curve). Hence, the choice of the reported equations in Table IV.4 is based on criteria of consistency with economic theory and on a priori expectations regarding coefficient signs[20].

Two forms of the estimated equation are reported in Table IV.4, without (23.I) and with (23.II) an autocorrelation correction. The autocorrelation correction was performed simultaneously with the Box-Cox transformation through the Savin and White (1978) technique. The transformation parameters were estimated to be $\theta = -0.25$ and $\delta = 4.83$ in the uncorrected version, (23.I), and $\theta = -0.25$ and $\delta = 4.13$ in the autocorrelation-corrected version (23.II). The wage and the price change variables are untransformed in both cases. Evidence of autocorrelation is clear in equation (23.I). In version (23.II), autocorrelation has been corrected with the DW statistic being 1.813 and a statistically significant estimate for the autocorrelation coefficient.

TABLE IV.4

BOX-COX EQUATION FOR WAGE ADJUSTMENT: WEST GERMANY, 1960-1977

		$\bar{R}^2$	DW	ρ	log L	n
(23.I)	$(100)\log\Delta W_t = \underset{(3.652)}{3.734} + \underset{(4.285)}{1.004}\,(100)\Delta\log P_t - \underset{(-2.138)}{1.551}\left[\frac{(100.UR)_t^{-0.25}-1}{-0.25}\right] + \underset{(2.81)}{0.17}\left[\frac{(100.VR)_t^{4.83}-1}{4.83}\right]$	.674	1.014	-	-28.25892	17
(23.II)	$(100)\Delta\log W_t = \underset{(2.712)}{3.770} + \underset{(3.136)}{0.927}\,(100)\Delta\log P_t - \underset{(-1.188)}{1.114}\left[\frac{(100.UR)_t^{-0.25}-1}{-0.25}\right] + \underset{(3.075)}{0.268}\left[\frac{(100.VR)_t^{4.13}-1}{4.13}\right]$	.712	1.813	0.500 (2.380)	-27.60493	17

BOX-COX ELASTICITIES AT MEANS

(23.I)	(23.II)
$e_{UR} = -0.164$	$e_{UR} = -0.118$
$e_{VR} = 0.309$	$e_{VR} = 0.450$

t statistics in parentheses.

Log L is the log of the linelihood function.

ρ is the autocorrelation coefficient estimated simultaneously with the transformation parameters by the Savin-White technique.

n is the number of observations.

The coefficient of the unemployment rate, while correctly signed and significant in equation (23.I), becomes insignificant in equation (23.II). On the other hand, the coefficient of the vacancy rate is correctly signed and significant in both versions. Vacancies, rather than unemployment, appear to be a more statistically appropriate index of excess demand for labour in wage determination equations for West Germany, confirming suggestions that the unemployment rate does not reflect accurately the state of "tightness" of the labour market in a near full-employment economy.

The coefficient of contemporaneous price changes is unity in equation (23.I) and not statistically different from unity in equation (23.II). The results suggest that the Phillips curve in West Germany is, for all practical purposes, vertical even in the short-run, so that the limitations on the successful exercise of stabilization policies appear severe.

The elasticities at the mean of the unemployment and vacancy rate are shown at the bottom of Table IV.4, as e_{UR} and e_{VR}, respectively[21]. The mean elasticity e_{VR} is utilized below to measure the impact of labour mobility on wage adjustments.

IV.3.2D The Excess Demand Equation

Utilization of foreign labour in West Germany affects the state of excess demand for labour, as previously suggested, and therefore, indirectly the rate of wage changes. Estimates of the excess demand equation (26) are reported in Table IV.5. Three versions of the equation are reported: in (26.I), a dummy variable D(= 0 for 1960-68, = 1 for 1969-77) is utilized to test the stability of all coefficients of the relationship over the sample period[22]; in version (26.II) the stability of the intercept alone is tested , and version (26.III) reports the equation without the dummy.

As is clear from (26.I), none of the multiplicative dummy variables has a significant coefficient and a test of the hypothesis that this subset of variables does not contribute to the explanatory power of the equation yields an F statistic of 1.252 reported in the Table. The critical value of the F statistic, at the 1% level of significance, is 5.99 and, at the 5% level, it is 3.48. Therefore, the hypothesis that the overall relationship is homogeneous cannot be rejected. In equation (26.II), the dummy variable itself is statistically insignificant and therefore, the hypothesis that the intercept is identical in the two periods cannot be rejected. Hence,

TABLE IV.5

OLS EQUATION FOR EXCESS DEMAND (VACANCY RATE)

WEST GERMANY, 1960-1977

	(26.I)	(26.II)	(26.III)
g_0	-9.992 (-5.522)	-9.474 (-9.741)	-9.769 (-12.412)
log UR	-0.810 (-4.861)	-0.813 (-10.110)	-0.839 (-13.127)
log $(\frac{F + I}{F+I+G})$	-0.481 (-2.031)	-0.360 (-2.592)	-0.396 (-3.336)
t	0.095 (2.092)	0.073 (2.940)	0.082 (4.789)
D_{1968}	1.826 (0.797)	0.041 (0.579)	--
D_{68}* log UR	0.143 (0.713)	--	--
D_{68}* log $(\frac{F + I}{F+I+G})$	0.113 (0.333)	--	--
D_{68}*t	-0.070 (-1.228)	--	--
$\bar{R}^2$	.963	.994	.995
DW	2.138	2.352	2.370
$F_{(4,10)}$	1.252	--	--
ρ_1	--	0.218 (1.137)	0.251 (1.333)
ρ_2	--	-0.581 (-3.029)	-0.599 (-3.177)
n	18	18	18

t statistics in parentheses.

$F_{(4,10)}$ is the calculated F-statistic with 4 and 10 degrees of freedom.

ρ_1 and ρ_2 are the coefficients of the second-order autocorrelation equation, estimated by the Cochrane-Orcutt technique.

the hypothesis that the V-U relationship in West Germany is structurally stable cannot be rejected.

The statistical characteristics of version (26.III) of the equation are very satisfactory, with a priori sign predictions confirmed and all the coefficients being statistically significant. The equation has been corrected for second-order auto-correlation through the Cochrane-Orcutt technique, and it explains 99% of the variation in the dependent variable, after correction for degrees of freedom.

The elasticity of the vacancy rate with respect to the unemployment rate is high (-0.839), suggesting that as aggregate demand reduces the unemployment rate by 1%, it correspondingly raises the vacancy rate by about 4/5 of 1%. One interpretation of this result is that government policies, designed to reduce unemployment, spill over onto the demand side of the labour market, raising vacancies, increasing the excess demand for labour, and, in light of the wage adjustment estimates in Table IV.4, exerting upward pressure on wage changes.

The proportion of foreign workers in West Germany exerts a substantial impact on the vacancy rate, with an elasticity of close to -0.40. The results confirm the hypothesis that the utilization of foreign labour is an important element in the structure of the labour market.

The effect of labour mobility on wage changes can be found by combining the elasticities of the excess demand and of the Phillips curve equations. The effect is:

$$\frac{\partial\, \Delta \log W_t}{\partial\, \log\left(\frac{F + I}{F+I+G}\right)_t} = (e_{VR}) \left[\frac{\partial\, \log VR_t}{\partial\, \log\left(\frac{F + I}{F+I+G}\right)_t} \right] \qquad (31)$$

where e_{VR} is the elasticity of wage changes with respect to the vacancy rate, calculated at the mean of the variables, and obtained from the Box-Cox transformed equation. From Tables IV.4 and IV.5, (31) is the product of $(e_{VR})(\zeta) = -0.178$. Therefore, a 1% increase in the proportion of Italian and non-EEC workers in West Germany leads to a decline of 1/5 of 1% in the rate of growth of the wage. The results suggest that the Phillips curve shifts closer to the origin as a consequence of labour mobility. This perhaps explains Spitäller's (1971) finding that the Phillips curve in West Germany exhibited the most favourable trade-off among the group of countries he studied.

Finally, the time trend in the equation has a positive and significant coefficient, suggesting that the reported vacancy rate has been rising relative to the unemployment rate over the period in question.

IV.3.2E The Unemployment Rate Equation

Table IV.6 reports the estimates of the unemployment rate equation (29). The equation explains 70% of the variation in the dependent variable and autocorrelation correction yields a statistically significant estimate for the autocorrelation coefficient. Two features of the results are of interest: first, the full employment unemployment rate (i.e., the rate when actual and full employment real output are equal) is estimated to be 1.89%, which is higher than the historical experience of the 1960-73 period, but lower than the actual unemployment rate in the post-1973 period. As an average estimate of the unemployment rate in the overall period, it is quite low but not inconsistent with the historically low unemployment rate in West Germany.

Second, the elasticity of the unemployment rate with respect to deviations of actual from full employment output is -0.221, suggesting that a 1% deviation leads to a decline in the dependent variable by 0.2%. This estimate is lower than the corresponding estimate by Okun (1962) for an earlier period for the USA (1/3) and also lower than the Denton, Robb and Spencer (1980) estimate for Canada (0.334). Finally,

TABLE IV.6

OLS EQUATION FOR THE UNEMPLOYMENT RATE: GERMANY, 1960-1977

Π	-3.965 (-6.187)
log (YR/YR*)	-0.221 (-2.444)
$\bar{R}^2$	.699
DW	1.911
ρ	0.906 (9.131)
n	18

Full employment UR^* = antilog (-3.965)

UR^* = 1.89%

t statistics in parentheses

ρ is the autocorrelation coefficient estimated by the Cochrane-Orcutt technique.

n is the number of observations.

compared to Okun's estimate of the full employment unemployment rate for the US (4.0%), the estimate of 1.89% for Germany is consistent with the generally observed lower unemployment rate in the latter country over the whole period in question.

We now turn to estimation results obtained by a Two-Stage Least Squares technique.

IV.3.3 Two-Stage Least Squares Results

IV.3.3A Introduction

In order to correct for the possibility of simultaneous equation bias in the results presented above, the model is re-estimated using the Two-Stage Least Squares (2SLS) technique. As is well known, bias arises from the fact that the variables, which are endogenous in the model, are included as explanatory variables in equations of the model. As a result, the classical restrictions regarding error behaviour are not satisfied and OLS is an inappropriate estimation method. Several methods are available to estimate a simultaneous equation system and the 2SLS method is one that permits estimation of a single equation using information from the rest of the model.

The model has the following endogenous variables: log F, log I, Δ log W, log VR, log UR, log RW, log W, Δlog P, log V, log U. The list of predetermined variables is: log G, log RWI, log URI, log P, log F_{t-1}, log I_{t-1}, log P_{t-1}, log W_{t-1}, log (YR/YR^{*}), t.

IV.3.3B Two-Stage Least Squares Results

The results of the 2SLS estimation are presented in Table IV.7. As they are not substantially different from the OLS results, the discussion only highlights some interesting features.

The non-EEC labour imports equation, (15), differs from the OLS equation in that the wage change coefficient is slightly higher, as is the elasticity with respect to vacancies. The estimates for the speed of adjustment coefficient are identical in both cases and the elasticity with respect to labour supply is slightly lower in the present case.

The estimates of the parameters of the Italian migration equation (20) do not differ substantially from the OLS estimates in Table IV.2. The strong impact of real wage and unemployment differentials is once more confirmed here, and the t-statistics for the 2SLS estimates

TABLE IV.7

2SLS ESTIMATES FOR LABOUR MOBILITY AND WAGE ADJUSTMENTS: WEST GERMANY, 1960-1977

Equation		$\bar{R}^2$	DW	ρ	n
(15)	$\log F_t = \underset{(3.963)}{107.24} + \underset{(3.582)}{3.004}\Delta\widehat{\log W}_t + \underset{(3.130)}{0.204}\widehat{\log V}_t - \underset{(-3.895)}{6.152}\widehat{\log(I+G)}_t + \underset{(12.879)}{0.624}\log F_{t-1}$	.987	2.594	--	17
(20)	$\log I_t = \underset{(13.944)}{7.750} - \underset{(-4.807)}{0.308}\log\left(\frac{RWI}{\widehat{RW}}\right)_t + \underset{(10.338)}{0.252}\log\left(\frac{URI}{\widehat{UR}}\right)_t + \underset{(7.638)}{0.353}\log I_{t-1}$	.999	2.225	-0.520 (-2.512)	17
(23)	$(100)\Delta\log W_t = \underset{(3.192)}{3.404} + \underset{(4.203)}{1.006}(100)\Delta\widehat{\log P}_t - \underset{(-1.481)}{1.212}\left[\frac{(100\widehat{UR})_t^{-0.25}-1}{-0.25}\right] + \underset{(2.595)}{0.233}\left[\frac{(100\widehat{VR})_t^{4.21}-1}{4.21}\right]$	.674	0.952	--	17
(23)	$(100)\Delta\log W_t = \underset{(2.371)}{3.252} + \underset{(3.451)}{1.007}(100)\Delta\widehat{\log P}_t - \underset{(-0.917)}{0.793}\left[\frac{(100\widehat{UR})_t^{-0.25}-1}{-0.25}\right] + \underset{(3.169)}{0.306}\left[\frac{(100\widehat{VR})_t^{4.13}-1}{4.13}\right]$	.725	1.612	0.500 (2.380)	17
(26)	$\log V_{R_t} = \underset{(-10.474)}{10.181} - \underset{(-10.846)}{0.866}\widehat{\log UR}_t - \underset{(-3.209)}{0.465}\widehat{\log\left(\frac{F+I}{F+I+G}\right)}_t + \underset{(4.159)}{0.091}t$	.958	2.263	--	17
(29)	$\log UR_t = \underset{(-6.187)}{-3.965} \underset{(-2.444)}{-0.221}\log(YR/YR^*)_t$	.699	1.911	0.906 (2.131)	17

t statistics in parentheses

n is the number of observations

ρ is the autocorrelation coefficient

are substantially lower than the ones in the OLS estimates. The estimate of the speed of adjustment coefficient, μ, is now 0.647 which is very close to the OLS estimate.

Two estimates of the Phillips curve are presented, without (23.I) and with (23.II) autocorrelation correction, both based on the Box-Cox transformation. The wage change and the price change variables enter linearly and the vacancy and unemployment rates are transformed. The values of the transformation parameters are $\theta = -0.25$ and $\delta = 4.21$ in equation (23.I), and $\theta = -0.25$ and $\delta = 4.13$ in equation (23.II).

Unlike the OLS results, the unemployment rate is insignificant in both versions of the equation. The vacancy rate emerges as the most favoured excess demand variable in the wage adjustment equation, and the elasticity of wage change with respect to it is substantially higher than the estimate obtained by OLS. From equation (23.II) a 1% increase in the vacancy rate leads to about 1/3 of 1% increase in the rate of wage change. The coefficient of inflation is essentially equal to unity in both versions of the equation and statistically different from zero. The equation therefore, suggests absence of money illusion.

The coefficients of the independent variables in the excess demand equation are correctly signed, statistically significant, and uniformly higher in the 2SLS than in the OLS results. The utilization of foreign

labour lowers the vacancy rate (and for a given level of the unemployment rate, shifts the V-U relationship closer to the origin) with an elasticity close to 1/2.

In order to assess the impact of labour mobility on wage adjustment, from the IV estimation results, use is made of the excess demand equation (26) and of the Phillips curve equation (23). From the autocorrelation-corrected version of the latter equation, the elasticity of wage change with respect to the vacancy rate, calculated at the mean values, is $e_{VR} = 0.516$. Therefore, as in equation (31) previously, the effect of labour mobility on wage adjustment is the product of $(e_{VR})(j) = -0.157$. This implies that, for a given unemployment rate, the impact of labour demand (expressed by the vacancy rate) on wage determination is restrained through the utilization of foreign labour. That is, a 1% increase in the proportion of foreign workers in West Germany gives rise to about 1/6 of 1% reduction in the rate of wage increase. Clearly, while the effect is not as large as one might have hypothesized, it confirms the premise of this chapter that labour mobility, by affecting the state of excess demand for labour, influences the character of wage adjustments. Finally, the unemployment rate equation (29) is identical to the one reported in Table V.6 and requires no further discussion.

IV.4 Summary and Conclusions

The purpose of the present chapter was two-fold: first, to analyse the phenomenon of labour imports and labour mobility as a response to a disequilibrium process by which wage adjustments are influenced, and secondly, to provide an empirical application of the model to the case of the major Western European labour importer, West Germany. To conclude this chapter, the main points of the analysis are summarized.

(1) An aspect of openness of modern economies, often ignored, is the openess of the labour market. While openess in the sense of capital mobility has attracted extensive attention, labour mobility has generally been treated as a longer-run phenomenon because of information and transaction costs and risk aspects that tend to make international migration adjustments slow. Labour mobility in Western Europe, and more specifically, the extent of labour imports, cast doubt on this view since, as shown in the empirical analysis, they respond quite quickly to the state of disequilibrium in the source and host countries.

(2) Labour mobility of Italians (EEC nationals) provides a strong confirmation of the human capital theory of spatial redistribution of labour forces.

Similarly, the government reaction function provides strong support to the hypothesis that the state of the labour market in Germany is a significant determinant of imports of non-EEC labour from the Southern periphery to the industrial European north. Estimates of the speed of adjustment coefficients suggest that substantial employment adjustments have taken place through international migration. And the government reaction function suggests that the West German authorities view non-EEC labour as substitute for West German and Italian labour.

(3) Labour imports represent an indirect method of government intervention in the labour market. The state of excess demand becomes endogenous and, by reducing occupational imbalances, labour imports can shift the V-U relationship towards the origin. The empirical analysis suggests that the magnitude of the reduction in the vacancy rate is close to 0.40% (0.46% in the 2SLS estimates) per 1% increase in the utilization of foreign labour.

(4) As a result of the inward shift of the V-U relationship, the slope of the short-run Phillips curve is influenced by labour mobility. The empirical analysis suggests that the effect of labour mobility on the structure of excess demand and the consequent

effect on wage changes amounts to 1/5 of 1% of the wage adjustment per 1% change in the utilization of foreign labour. Two more effects are obtained from the wage adjustment equation: first, the coefficient of inflation is unity, or not statistically different from unity, confirming theoretical arguments and empirical research findings from other countries. Secondly, the wage equation provides direct support to the notion that, in a near full employment economy (like West Germany's during most of the period under consideration) the unemployment rate alone underpredicts the degree of tightness of the labour market. Instead, the vacancy rate emerges as a strong determinant of wage adjustments and the demand side of the labour market influences wage changes directly.

(5) The adjusted unemployment rate employed in this analysis responds to deviations of actual from full employment real output by an elasticity equal to 0.221. This is much lower than respective estimates of Okun's law obtained for the U.S. and Canada. The full employment unemployment rate, on the other hand, is also found to be lower, 1.89%.

(6) Finally, the process of integration in the European Community has been promoted substantially by

the free mobility of EEC nationals. The estimates of the Italian migration equation suggest that the degree of integration between the German and the Italian labour markets is high. Further, the results provide evidence that the choice set facing Italian workers is not alternative employment and earnings in Italy, but in Italy and West Germany, and more generally, in the EEC-wide labour market. This information helps us gain a better understanding of the process of economic integration and complements the existing evidence on integration in the product and capital markets of the European Community.

FOOTNOTES

Chapter IV

1. See, for instance, the Denton and Spencer (1974) simulation of an economic-demographic model to analyse the impact of population and labour force changes on the behaviour of a two-country international economy.

2. The main empirical studies concerned with the implications of labour mobility in the specific case of Western Europe were reviewed in Chapter III, Section III.3 above.

3. While migration is not generally thought of as producing significant immediate or short-run effects on host countries, because of the relative international immobility of labour, its long-run implications have been studied extensively. For example, Thomas (1954) has analysed the relationship between economic variables and transatlantic population movements, and Denton and Spencer (1974) have studied the linkages between countries in an international economy through labour migration. Factor mobility is also a common subject of study in the pure theory of international trade. The basic long-run proposition regarding labour mobility and the character of adjustment is that relative factor prices adjust to factor proportions, which are endogenous as a result of labour migration. See for instance, Kenen (1971).

4. "Controlled labour migration" is here used to indicate migration induced by labour market considerations of host countries and linked to employment purposes, of the nature found in the regulation of non-EEC labour imports discussed in Chapter III, Section III.2.

5. For references to this literature, see Footnotes 13 and 16 below.

6. This assumption is not unrealistic. In fact, there is some evidence that West German labour supply is backward bending. The Bonn Econometric model of the West German economy reports a

participation rate equation for West Germans which is slightly negatively sloped with respect to real consumption per capita.

7. The implications of labour migration for the Phillips curve have been discussed by Brechling (1973) in the context of regional unemployment. Brechling shows that the long-run Phillips curve is influenced by the distribution of unemployment in the context of the non-linear aggregation hypothesis, and also by the distribution of unemployment between sectors of weak or strong expectational leadership. The latter result is obtained through a model of migration.

8. An original contribution to the theory of optimum economic policy can be found in Theil (1964). For subsequent developments along these lines, see Fisher (1970), Pissarides (1972) and Friedlaender (1973). The political business cycle model also provides some interesting hypotheses about government behaviour towards choices of policy instruments, where the main objective is the maximization of the probability of re-election. For the case of West Germany, Frey and Schneider (1979) find that the government's popularity is elastic with respect to unemployment, inflation and growth of disposable income.

9. Although the model does not incorporate return migration, it is consistent with the existence of returning migrants. The critical equation which should incorporate return migration is the adjustment function (14). Assuming that the government adjusts the desired stock of foreign labour, F^*, in light of last period's stock, and assuming that a constant proportion, β, of last period's stock represents return migration, (14) could be written as:

$$\left(\frac{F_t}{(1-\beta)F_{t-1}}\right) = \left(\frac{F_t^*}{(1-\beta)F_{t-1}}\right)^{\lambda}$$

or

$$\left(\frac{F_t}{F_{t-1}}\right) = \left(\frac{F_t^*}{F_{t-1}}\right)^{\lambda}(1-\beta)^{(1-\lambda)}$$

Clearly, then, the presence of return migration should affect the estimate of the constant in equation (15) but not the estimate of the speed of adjustment, λ.

Return migration is difficult to model in this context because it consists of a voluntary and an involuntary component, the former representing the behaviour of workers, the latter the behaviour of the government in deciding not to renew work permits. If the government rotates the stock of foreign workers in a predictable manner, then it is reasonable to assume that return migration represents a constant proportion of F_{t-1}.

10. Salvatore (1977, 1980) finds that, in his studies of internal migration in Italy, labour mobility can be viewed as a response to earnings and unemployment differentials between the North and the South, and he concludes that policies to halt this reallocation of labour should be directed at lowering unemployment in the South.

11. The human capital theory of spatial redistribution of the labour force has mainly been applied to internal migration. For a review of this relatively large body of literature, see Greenwood (1975).

12. For instance, Holt (1970a) suggests that vacancies "play a more active role in driving wage changes than does unemployment" a hypothesis he sees supported by European data. A similar view is shared by Resnick (1975) in his analysis of a macroeconometric model for Western Europe, where he hints that vacancies, rather than unemployment, is the appropriate index of excess demand. We appear to be the first to utilize vacancies and unemployment in a Phillips-type equation for West Germany. Parkin et. al. (1976) provide similar evidence in their study for the U.K., where they find that "the demand side of the labour market is the principal source of explanatory power" in wage determination.

13. Flanagan's study examined the determinants of the V-U relationship, and its implications for the Phillips curve, in three countries: U.K., Sweden and the U.S.A. He found that the structure of excess demand is the major factor affecting the slope and position of the individual Phillips curves.

14. Such factors are: the speed and efficiency of the labour market in matching workers and jobs; population growth, which affects participation rates; the demographic composition of the labour force; workers' mobility characteristics and the skill content of labour demand; the distribution of labour demand and supply across regions, industries and firms. Bowden (1980) has examined the comparative statics of the V-U relationship with respect to some of these shift parameters.

15. Holt shows that the V-U relationship can be represented by the product of the vacancy and unemployment rates, as follows:

$$(VR)(UR) = (F)(T_S)\left(\frac{1}{P_{0a}}\right)\left(\frac{1}{L}\right)(S)(IMB)$$

where

F = turnover rate

T_S = mean search time

P_{0a} = offer-acceptance probability

L = labour force, representing scale economies

S = degree of segmentation of the labour market

IMB = degree of allocation of vacancies and unemployment among different labour market segments, an imbalance effect

16. The constant, g, is obtained on the hypotheses the quit and lay-off components of F in his equation, noted in Footnote 14, fluctuate cyclically and

countercyclically, respectively, so that F will likely remain approximately constant over the cycle; and that T_S and P_{0a}, in the same equation, will also remain essentially constant over the cycle, and for a given L. Driehuis (1978) too, makes these same assumptions. g, then, represents all components of Holt's equation except S and IMB.

17. The question of the stability of the V-U relationship has been examined by several authors. There is some concensus that, in the post 1967 period, the V-U relationship in many countries has shifted to the right. Driehuis (1978) finds this for Germany, France, U.K., and the Benelux countries, and he attributes the shift to search behaviour (search structuralism). On the British experience, Gujarati (1972) and Taylor (1972) have debated the causes of the outward shift. Bowers (1976) provides an overview of the issues and a summary of the research of the National Institute of Economic and Social Research. Most authors test the stability of the V-U relationship by regressing vacancies (unemployment) against unemployment (vacancies) without attempting to introduce the determinants of the structural shift in the analysis. The present paper identifies the degree of utilization of foreign labour as shifting the V-U relationship towards the origin.

18. We can use the elasticity estimate of non-EEC labour imports with respect to the sum of Italian and West German labour supply to obtain an estimate of the displacement the latter cause on the utilization of the former at the margin. The elasticity is:

$$\frac{\partial \log F_t}{\partial \log (I+G)_t} = \frac{\partial F_t}{\partial (I+G)_t} \frac{(I+G)_t}{F_t} = -6.212$$

Therefore,

$$\frac{\partial F_t}{\partial (I+G)_t} = (-6.212)\left(\frac{F_t}{(I+G)_t}\right)$$

The mean value of the ratio $F_t/(I+G)_t$, over the

sample period is 0.045. Therefore,

$$\frac{\partial F_t}{\partial (I+G)_t} = -0.280$$

which suggests that a one-man increase in $(I+G)_t$ does not lead to a one-man displacement of non-EEC workers, but rather a little less than one-third.

19. Kindleberger (1973) has suggested that, due to international labour mobility in the EEC, tendencies towards factor price equalization are present, primarily among low wage occupations where the major component of the foreign labour force is employed. The results in Table IV.2 suggest that, due to the relatively high elasticity of Italian migration with respect to wage and unemployment differentials, these tendencies may be stronger than conventionally believed. However, further research is required to establish their significance.

20. The linear version of the Phillips curve yields the following results:

$$\Delta \log W_t = -3.557 + 0.858 \Delta \log P_t + 0.684\ UR_t + 4.105 VR_t$$

$$(-1.089)\quad (3.479)\qquad (1.063)\qquad (3.331)$$

$$\bar{R}^2 = .625$$

$$DW = 1.311$$

Correcting the equation for first-order autocorrelation yields

$$\Delta \log W_t = -2.398 + 0.815 \Delta \log P_t + 0.501 UR_t + 3.816 VR_t$$

$$(-0.644)\quad (2.382)\qquad (0.658)\qquad (2.913)$$

$$\bar{R}^2 = .611$$
$$DW = 2.084$$
$$\rho = 0.500$$
$$(2.380)$$

Furthermore, the logarithmic (in VR and UR) version yields:

$$\Delta \log W_t = 2.089 + 0.879 \Delta \log P_t + 0.399 \log UR_t + 5.280 \log VR_t$$

$$(0.864) \quad (3.063) \qquad (0.189) \qquad (1.396)$$

$$\bar{R}^2 = .517$$
$$DW = 1.311$$

and, after first-order autocorrelation correction, we obtain:

$$\log W_t = 3.286 + 0.794 \Delta \log P_t - 0.353 \log UR_t + 4.172 \log VR_t$$

$$(1.049) \quad (2.073) \qquad (-0.137) \qquad (0.948)$$

$$\bar{R}^2 = .510$$
$$DW = 1.895$$
$$\rho = 0.523$$
$$(2.671)$$

Comparing the above equations with the versions reported in Table IV.4, it is clear that the linear and logarithmic forms perform decidedly worse than the transformed version for three reasons: the unemployment rate coefficient is insignificant and incorrectly signed in three out of the four cases; in the logarithmic version, the vacancy rate coefficient is insignificant and in all versions the price coefficient implies the existence of money illusion; and the explanatory power of the equations is less than the one of the equations in Table IV.4

21. The elasticity at the means of two Box-Cox transformed variables is:

$$e_{xy_i} = (B_{xy_i}) \left(\frac{\bar{x}}{\bar{y}_i}\right)^{-\lambda}$$

where x is the dependent variable, y_i is the ith independent variable, B_{xy_i} is the regression coefficient of variable y_i and λ is the transformation parameter. See Chiang (1977) on this matter.

22. The sample was divided into several sub-periods with the use of a dummy variable for and including, 1965, 1969, 1970, 1971, 1973 and no evidence of a structural shift was found. Regressions for D1968 reported in Table IV.5 are representative.

CHAPTER V

AN ANALYSIS OF THE DETERMINANTS OF LABOUR IMPORTS: A MODEL OF LABOUR IMPORTS DISTINGUISHED BY COUNTRY OF ORIGIN

V.1 Introduction

Conventional migration literature views labour mobility as a supply determined phenomenon, whose basis is the human capital decision framework. Mobile labour is typically distinguished by region or country of origin only in so far as economic characteristics of the source and host locations enter the individual utility functions[1]. It is generally argued that individuals will migrate from location i to location j if the(present value of the) net benefits associated with the decision are positive. Net benefits are assumed to be related to real wage differentials or to unemployment differentials between locations i and j. The model implicitly assumes that there is a common labour market between the regions with freely mobile labour. While this assumption is realistic as a description of labour markets within countries, or between countries forming a customs union with a common

labour market, such as the European Economic Community, it is inadequate as a general factual description of international labour mobility. Unlike internal migration, international migration is impeded by a variety of economic and non-economic barriers, prominent among which is the regulatory power of the authorities of the host countries to control immigration. To the extent this regulatory power is used to influence the state of the labour market, and more specifically, to moderate labour market imbalances, labour demand will influence the flows of migrants.

The discussion of the bilateral agreements in Chapter II above suggested that the ultimate authority regarding the utilization of non-EEC labour is the government of the host Western European countries. Naturally, the regulatory power of the government extends not only to the size and timing of immigration but also to the composition of labour imports by country of origin. A broad characteristic of labour imports in the host countries is that they are considerably diversified, with several nationalities being currently involved. The pattern of utilization by country of origin in the representative case of West Germany is shown for various years in Table V.1. Thus, while the share of foreign workers in the non-agricultural labour force in West

TABLE V.1

THE COMPOSITION OF LABOUR IMPORTS (%): WEST GERMANY

	1960	1965	1970	1975	1977
Total*	1.22	5.05	7.69	8.30	7.68
Italy	43.55	30.59	19.59	14.34	15.15
Spain	3.38	15.01	8.80	6.10	5.20
Greece	1.46	15.38	12.42	9.62	8.31
Portugal	0.09	1.15	2.29	3.35	3.19
Yugoslavia	3.15	5.26	21.71	20.39	19.98
Turkey	0.89	10.91	18.15	26.65	27.20

SOURCE: Calculated from Bundesanstalt für Arbeit Jahrenszahlen, various issues.

* foreign stock is % of non-agricultural labour force; all other percentages refer to the share of nationality i in the total foreign stock.

Germany rose systemmatically through time, the share of some nationalities has been rising and others have been falling. Most notably, the share of Italians the freely mobile component of foreign labour in Western Europe, experienced a substantial decline between 1960 and 1975, from over 43% to about 14%. The share of Spanish and Greek workers increased in the very early period and then declined, while the share of Portuguese, Yugoslavian and Turkish workers rose substantially during the period. By 1977, Turkish workers represented the largest foreign population in West Germany (27.20%), Yugoslavians were second (20%) and Italians third with a little over 15%. It is clear from this table that substantial diversification of the foreign labour force in West Germany has taken place, from the beginning of the 1960s, and that the composition of labour imports has changed over time. This chapter places the diversification of labour imports in a labour market context and relates the mix of workers to optimizing behaviour of the authorities.

Distinguishing internationally mobile labour by country of origin has been a common feature of studies of international migration[2]. Thus, Wilkinson's (1970) study of European migration to the U.S. is representative of several studies that disaggregate flows of labour by country of origin, based on the

assumption that individuals maximize an expected utility function in making locational choices. The essential conclusion of this type of study is that migration functions (supply functions) will differ in their slope characteristics because individual marginal rates of substitution, between locations and their economic properties, differ. Empirical evidence appears to support this view[3].

The model developed in the present chapter extends this supply oriented literature by emphasizing the demand side of the process of the spatial redistribution of labour forces. The model incorporates ideas from the theory of discrimination in labour markets and utilizes a distinction between wage and non-wage costs associated with the employment of foreign labour. As a consequence, it provides an analysis of labour imports by country of origin, which is consistent with economic behaviour.

As the model is designed to elucidate the proximate determinants of the diversification of foreign labour in Western Europe, the nature of the institutional arrangements is significant. The dominant feature is, as discussed in Chapter II, that employment of foreign labour is of a temporary nature. This stands in sharp contrast with the experience of transatlantic migration which, for the most part, has been of a permanent nature.

The model recognizes this aspect by treating the decision regarding the employment of foreign labour in a manner similar to employment decisions in the neoclassical theory of the firm.

Aside from the theoretical interest in the subject, an analysis of the diversification of foreign labour raises a major additional question: Does the changing composition of foreign labour simply represent changing supply conditions in labour exporting countries or do conditions in the host country play a role? More specifically, does discrimination matter in the spatial redistribution of labour forces?

The chapter is divided in three sections, the present inclusive. Section V.2 presents the analytical framework, and is divided into the following subsections: in subsections V.2.1-V.2.4 the concepts of preferences, production and costs are presented and interpreted. In subsections V.2.5-V.2.7 the analytical solutions for two cases are presented. Finally, Section V.3 summarizes and concludes. The details of the comparative static results are presented in Appendix AV.

V.2 Analytical Framework and Model

V.2.1 The Model

The basic structure of the model involves a maximization problem whose solution yields optimum stocks of foreign labour by country of origin, and consequently, defines the optimum composition of the total foreign stock. In order to emphasize the demand side of the process, foreign labour, distinguished by country of origin, is treated as heterogeneous in preferences but as homogeneous in production, although it is relatively simple to generalize to being heterogeneous in production too. The model recognizes that the employment of foreign labour is costly and that wage and non-wage costs associated with labour imports essentially diminish the size of output available to domestic (citizen) consumers.

Two variants of the basic model are discussed: first, a case analytically equivalent to a profit maximization decision, and second, a case analytically equivalent to a cost minimization decision. It is only the latter however, that yields signable comparative static results that would allow empirical testing should data become available.

The model has three components: a preference

component, a production component and a cost component. Each is now discussed separately.

V.2.2 Preferences

Assume that the preferences of the authority of the host country can be presented by a function of the form:

$$U = U(E, F_1, \ldots, F_n) \tag{1}$$

where

E = real output available to citizen consumers, defined later;

F_i = stock of foreign labour from source country i ($i = 1, \ldots, n$)

The properties of (1) are as follows:

$$\frac{\partial U}{\partial E} > 0, \qquad \frac{\partial^2 U}{\partial E^2} < 0$$

$$\frac{\partial U}{\partial F_i} < 0 \qquad \frac{\partial^2 U}{\partial F_i^2} < 0 \tag{2}$$

Thus, it is assumed that real output available to domestic consumers yields positive but diminishing marginal utility while negative marginal utility associated with the presence of foreign labour indicates the presence of discriminatory tastes. The marginal

disutility with respect to foreign labour is also assumed to be increasing, implying that disutility rises as additions to the stock of labour from country i are accumulated[4].

Discriminatory tastes may be attributed to the authority or to the domestic citizens as consumers or producers (employees or employers). A utility function of this form is common in the literature on discrimination in labour markets[5] (for example, Arrow (1972)), where one finds profits in place of output available to domestic consumers, E, and different types of employees (e.g., blacks or women) in place of the F_i's.

Citizens as producers or consumers may have discriminatory tastes against certain nationalities because of historical reasons, or reasons of cultural heterogeneity or economic reasons associated with actual or perceived productivity differences between nationalities. The authority, on the other hand, may act in a discriminatory manner as a result of implicit migration agreements complementing bilateral trade agreements. In a more fundamental sense, however, the authority's discriminatory tastes may be thought of as reflecting the citizen population's preferences. It is assumed, therefore, that the utility function, defined in (1), describes the preferences of the citizen population, which the authority seeks to maximize.

The postulate of a utility function seems warranted for three reasons. First, there is explicit institutionalized discrimination against certain nationalities in the European Economic Community to the extent that they are non-EEC members. Secondly, historical, cultural or linguistic factors may enter the decision to import labour from certain countries[6], because they determine a priori the potential of integrating new members into the national labour force and into society, and ultimately, the economic costs related to policies of multiculturalism (Rist (1978)). Finally, there is considerable evidence of discrimination against certain nationalities in Western Europe expressed in the form of disutility associated with their presence, as for instance, in housing market segregation[7].

V.2.3 Production

Output produced by the host economy is assumed to be determined by a production function of the form:

$$Q = Q(K, D, F^*) \qquad (3)$$

where Q = real output

K = capital stock

D = domestic (citizen) labour

F^* = aggregate stock of foreign labour

Q is assumed to exhibit the usual properties associated with well-behaved production functions. As foreign labour is distinguished by country of origin and is assumed to be homogeneous in production[8], F^* represents an aggregate quantity of foreign labour defined as:

$$F^* = \sum_i F_i \qquad (4)$$

For simplicity, capital and domestic labour are assumed to be inelastically supplied, leaving F^* as the only variable component of employment to be determined.

V.2.4 Costs

Two types of cost associated with the employment of foreign labour are distinguished, wage and non-wage costs. The former defines the wage bill paid to foreign labour, and for simplicity, we assume that all foreign workers are paid the same wage, W, reflecting their identical productivity. This assumption is also consistent with the practice of labour importing countries of paying the same wage to all foreign workers

for the same jobs. Assume further that W is exogenously fixed by social considerations, such as minimum wage laws, or notions of a just wage, etc., and that the size of labour imports is not large enough to affect the level of W. The wage bill to foreign labour is, therefore, defined as:

$$WB = \sum_i WF_i \qquad (5)$$

where WB = wage bill

The wage bill paid to foreign labour represents one component of the cost of labour imports which reduces the size of output available to domestic consumers. WB may be thought as representing the cost of imported physical labour services in the host country, in exchange for the foreign labour's contribution in production. The wage bill represents a reduction in output available to domestic consumers not only because it is paid to foreign workers, but also because a large proportion of it is exported to source countries as remittances[9], as mentioned in Chapter II. The notion is general enough to accommodate different propensities to remit earnings by nationality.

The second component of costs relates to recruiting, and other employment costs, associated with labour imports. Such costs have already been identified

and incorporated into the neoclassical theory of the firm, and are thought to take the form of hiring, screening and training costs[10]. In the present context, such costs refer to establishing facilities to operate a scheme of labour imports, to disseminating information, to providing accommodation and organizing special services for the foreign population, screening suitable migrants, and the like. The essential features of non-wage costs are that, on the one hand, they utilize real resources and consume real output, thus reducing output available to domestic consumers, and on the other hand, they are very likely to vary by country of origin, because of the economic prosperity within the domestic economy and because of historical and cultural ties.

The general expression for per worker non-wage costs in the present context is assumed to be of the form:

$$C_i = C_i(F_i, W/W_i\ \bar{W}/W, U_i) \qquad (6)$$

where

C_i = non-wage costs per unit of importable labour from source country i;

F_i = migrants from country i;

W = wage of the host country

W/W_i = wage ratio between the host country and country i;

$\bar{W}/W$ = wage ratio between alternative potential labour importers and the host country;

U_i = unemployment (rate) in source country i.

While C_i may be defined in more specific terms, the choice of the arguments here is dictated by the desire to obtain variables common to the rest of the migration literature[11,12].

The slope properties of C_i are assumed to be as follows:

$\frac{\partial C_i}{\partial F_i} > 0$: non-wage costs for labour from country i is an increasing function of the quantity imported;

$\frac{\partial^2 C_i}{\partial F_i^2} > 0$: acquisition of workers of certain quality leads to increasing marginal cost

The relationship between C_i and F_i is shown in Figure V.1.

$\frac{\partial C_i}{\partial (W/W_i)} < 0$: the greater the wage in the host country relative to the wage in source country, i, the lower the acquisition cost per unit of importable labour, because the larger the population that is potentially mobile will be;

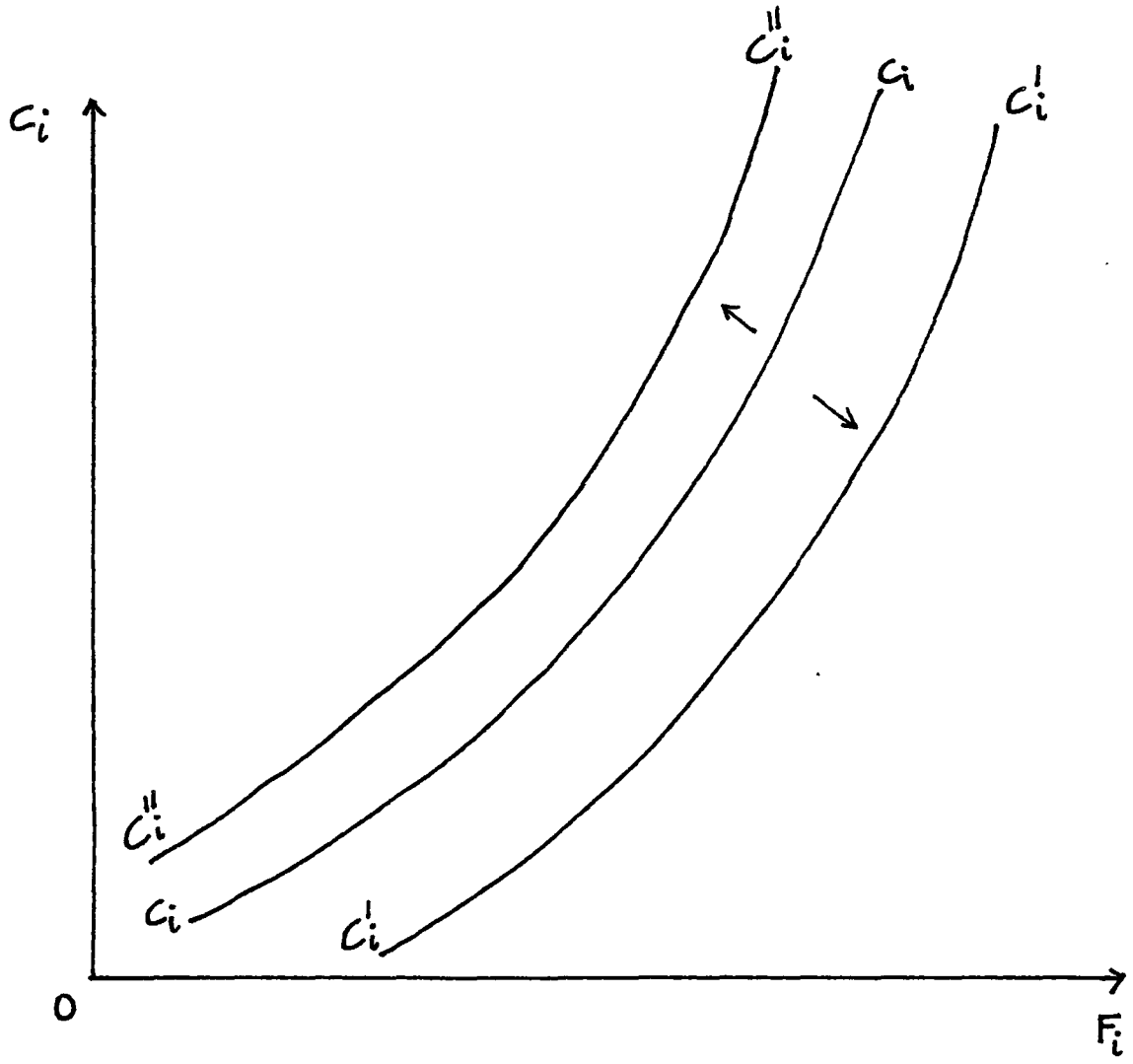

FIGURE V.1: Per Worker Non-Wage Cost Functions Associated with Labour Imports.

$\frac{\partial C_i}{\partial (\overline{W}/W)} > 0$: the greater the wage paid by other labour importers relative to the host country in question, the higher the acquisition cost per worker, because workers will choose to migrate to the country with highest earnings potential;

$\frac{\partial C_i}{\partial U_i} < 0$: the higher the unemployment (rate) in source country i, the lower the acquisition cost per worker, because the stronger is the "push" factor in the migration process, and the larger the population that is potentially mobile will be.

The last three assumptions are directly related to variables suggested by the supply-oriented theory of migration. Thus, individual choices of spatial mobility are positively related to expected differential earnings potentials in various locations and positively related to unemployment differentials. The presence of $\overline{W}/W$ reflects the fact that several locations, in addition to the source country, enter the individual decision to migrate. The arguments of the non-wage cost function (6) can be thought of as reflecting the migration (supply)

$\frac{C_i}{\partial(\bar{W}/W)} > 0$: the greater the wage paid by other labour importers relative to the host country in question, the higher the acquisition cost per worker, because workers will choose to migrate to the country with highest earnings potential;

$\frac{\partial C_i}{\partial \frac{i}{i}} < 0$: the higher the unemployment (rate) in source country i, the lower the acquisition cost per worker, because the stronger is the "push" factor in the migration process, and the larger the population that is potentially mobile will be.

The last three assumptions are directly related to variables suggested by the theory of migration. Thus, individual choices of spatial mobility are positively related to expected differential earnings potentials in various locations and positively related to unemployment differentials. The presence of $\bar{W}/W$ reflects the fact that several locations, in addition to the source country, enter the individual decision to migrate. The arguments of the non-wage cost function (6) can be thought of as reflecting the migration (supply)

propensities of different sources of labour supply, which influence the position of C_i in Figure V.1. Thus, variables that act as "push" factors, such as U_i, shift C_iC_i to $C_i'C_i'$, while variables restricting supply towards one particular labour importer, such as a higher value of $\bar{W}/W$, shift C_iC_i to $C_i''C_i''$.

As C_i is cost per worker, the total non-wage cost (TNW) associated with the employment of foreign labour is:

$$TNW = \sum_i C_iF_i \qquad (7)$$

Equations (5) and (7) define the wage and non-wage costs to a labour importing country, associated with the acquisition and employment of foreign labour. Together with the production function (3), we can now define net output available to domestic consumers, E, as:

$$E = Q(K,D,F^*) - \sum_i WF_i - \sum_i F_iC_i \qquad (8)$$

As a first approach to the question of labour imports, we consider the case where the stocks of foreign labour do not enter the utility function. In fact, this is equivalent to maximization of E. The solution to this problem will serve as a basis for comparison to the general utility maximization solutions considered below.

Consider then, the present problem where $\partial U/\partial F_i = \partial U/\partial F_j = 0$. To maximize (1) subject to (4) and (8) we form the following Lagrangean expression:

$$Z = U(E) - \lambda\Big[E - Q(K,D,F^*) + \sum_i WF_i + \sum_i F_i C_i(F_i, W/W_i, \bar{W}/W, U_i)\Big] - \mu\Big[F^* - \sum_i F_i\Big] \tag{9}$$

The first-order conditions (assuming an interior solution) with respect to E, F_i and F^* are:

$$\frac{\partial Z}{\partial E} = \frac{\partial U}{\partial E} - \lambda = 0 \tag{10}$$

$$\frac{\partial Z}{\partial F_i} = -\lambda\{W + C_i + F_i \frac{\partial C_i}{\partial F_i}\} + \mu = 0 \tag{11}$$

$$\frac{\partial Z}{\partial F^*} = \lambda \frac{\partial Q}{\partial F^*} - \mu = 0 \tag{12}$$

Substituting (10) into (12) and the result into (11) we obtain:

$$W + C_i + F_i \frac{\partial C_i}{\partial F_i} = \frac{\partial Q}{\partial F_i} \tag{13}$$

or

$$\frac{\partial Q}{\partial F_i} = W + MFC_i \qquad (14)$$

where $MFC_i = C_i + F_i \frac{\partial C_i}{\partial F_i}$ is the marginal factor cost with respect to labour from source country i. Condition (14) suggests that net output is maximized when the slope of the production function with respect to F_i (marginal product of F_i) equals the sum of the wage and non-wage marginal costs associated with the employment of an additional unit of F_i. This condition (14) will be utilized below.

V.2 Analytical Solutions

The authority of the labour importing country is assumed here to maximize the preference function (1) subject to the definition of net output, given by (8), and to the definition of the stock of foreign labour in (4). Making the appropriate substitutions, the Lagrangean function is:

$$H = U(E,F_i,\ldots,F_n) - \lambda\Big[E - Q(K,F^*,D) + \sum_i WF_i + \sum_i F_i C_i(F_i, W/W_i, \bar{W}/W, U_i)\Big] - \delta\Big[F^* - \sum_i F_i\Big] \qquad (15)$$

Two cases may now be distinguished.

5.II.2I Case I.

Assume in the present case that the labour importing country solves the optimization problem defined in (15), by selecting the individual stocks of foreign labour and, therefore, the total stock of foreign labour, F^*, and E. The problem then requires a simultaneous solution for the total foreign labour input in the host economy, as well as its allocation between sources of supply. Since F^* is variable, Q is variable too, and the problem is analytically analogous to the problem of profit maximization in the theory of the firm.

The first-order conditions (assuming an interior solution) are:

$$\frac{\partial H}{\partial E} = U_E - \lambda = 0 \qquad (16)$$

$$\frac{\partial H}{\partial F_i} = \frac{\partial U}{\partial F_i} - \lambda(W + MFC_i) + \delta = 0 \qquad (17)$$

$$(i = 1,\ldots,n)$$

$$\frac{\partial H}{\partial F^*} = \lambda\frac{\partial Q}{\partial F^*} - \delta = 0 \qquad (18)$$

$$\frac{\partial H}{\partial \lambda} = -E + Q(K,D,F^*) - \sum_i WF_i - \sum_i F_i C_i = 0 \qquad (19)$$

$$\frac{\partial H}{\partial \delta} = -F^* + \sum_i F_i = 0 \qquad (20)$$

Substituting (16) into (18) and the result into (17) we obtain:

$$-\mu_i + (W + MFC_i) = \frac{\partial Q}{\partial F_i} \qquad (21)$$

where $\mu_i = \frac{\partial U/\partial E}{\partial U/\partial F_i}$, the marginal rate of substitution in preferences between net output E and employment of foreign labour from source country i.

μ_i is essentially what has been termed in the related literature the coefficient of discrimination[13], and represents the amount of net output the authority (or domestic citizens) is willing to trade off against an

increase in the quantity of foreign labour from source country i in the host country.

Condition (21) is an optimizing condition characterizing the labour importing country with respect to the employment of labour from recruiting country i. It indicates that the optimum stock of nationality i is such that its marginal product equals the marginal cost of employment, where the latter is the sum of wage and non-wage marginal costs, and of the marginal rate of substitution (the coefficient of discrimination) between foreign labour of nationality i and net output available to domestic consumers, μ_i.

Note that

$$\frac{\partial Q}{\partial F_i} > W + MFC_i \qquad (22)$$

by an amount μ_i, indicating that the gross marginal product of F_i is greater than its marginal employment costs and, of course, is greater than the wage.

Condition (21) is graphically interpreted in Figure V.2, for a single country i (given the level of labour imports from all other labour exporting countries). In the lower panel, (the negative of) the production function, Q, is drawn against F_i. In addition, (the negative of) the total wage bill for F_i is drawn as a straight line through the origin, OWB_i. (The negative of)

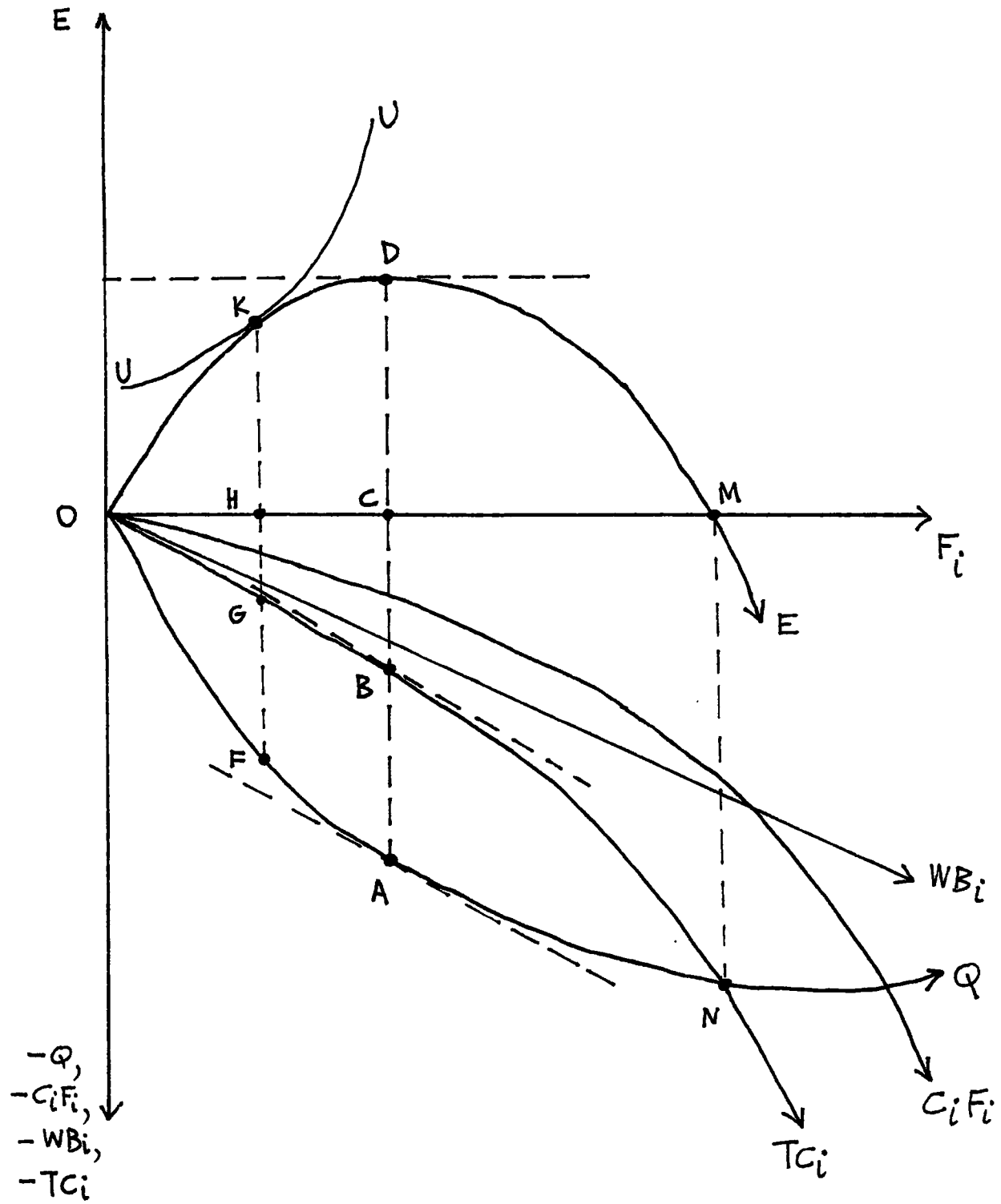

FIGURE V.2: Determination of the Optimum Quantity of Labour Imports from Country i.

The total non-wage cost for F_i is also drawn through the origin as OC_iF_i, and (the negative of) the total wage and non-wage cost for F_i is drawn as OTC_i. In the upper panel, net output available to domestic consumers, E, (the difference between Q and OTC_i) is drawn against F_i. By condition (14), E reaches a maximum when the slope of the production function (marginal product of F_i) equals the slope of the wage plus non-wage cost function, OTC_i. At this point, the slope of E is zero. E becomes zero when OTC_i intersects the production function, points M and N, respectively. Net output available to domestic consumers is maximized at point D, implying a level of employment of F_i = 0C.

UU shows a contour of the preference function in the (E,F_i) space. Since $-\mu_i > 0$, the optimum solution in the presence of discriminatory tastes is point K, implying OH employment of F_i. When compared to point D, point K is suboptimal in terms of output availability, but optimal in a utility sense, satisfying the discriminatory tastes of the host country. Clearly, the optimal employment of foreign labour from source country i will be negatively related to the degree of disutility attached to it. To the extent that this is an appropriate model of labour importing behaviour of EEC countries, employment

differentials by nationality can be partly attributed to positive or negative preferences towards different nationalities.

With respect to any pair of foreign sources of labour, the first-order conditions yield:

$$\frac{-\mu_i + (W + MFC_i)}{-\mu_j + (W + MFC_j)} = \frac{\partial Q/\partial F_i}{\partial Q/\partial F_j} \qquad (23)$$

or, since F_i and F_j are homogeneous in production:

$$-\mu_i + MFC_i = -\mu_j + MFC_j \qquad (24)$$

so that, in equilibrium, the labour importing country will equate the pecuniary and non-pecuniary (i.e., disutility) marginal costs associated with the employment of each type of labour from source countries i and j. The greater the disutility associated with labour from country i, the less the size of labour imports from country i, ceteris paribus.

Condition (24) elucidates the major determinants of the spatial redistribution of labour forces: (a) relative supply conditions, which define the behaviour of non-wage costs, and (b) relative preferences towards different nationalities, reflecting relative tastes for discrimination.

Condition (24) is a general one and can accommodate the following cases:

(i) When $MFC_i = MFC_j$, the composition of employment of foreign labour is determined only by relative disutilities, so that:

$$\mu_i = \mu_j \tag{25}$$

and labour imports from any source country will be inversely related to the degree of discrimination attached to it.

(ii) In the absence of discriminatory tastes, or when labour from countries i and j are perfect substitutes in preferences, relative marginal factor costs are the only determinants of the composition of employment, so that:

$$MFC_i = MFC_j \tag{26}$$

In the general case, the host country acts as a discriminating monopsonist, equating non-wage marginal factor costs across sources of supply.

The first-order conditions in the present case imply a set of solution equations whose general form is:

$$E^* = E(K,D,W,W/W_1,\ldots,W/W_n,U_1,\ldots,U_n,\bar{W}/W) \tag{27}$$

$$F^* = F(K,D,W,W/W_1,\ldots,W/W_n,U_1,\ldots,U_n,\bar{W}/W) = \sum F_i^* \qquad (28)$$

$$F_i^* = F_i(K,D,W,W/W_1,\ldots,W/W_n,U_1,\ldots,U_n,\bar{W}/W) \qquad (29)$$

$$(i = 1,\ldots,n)$$

Equations (27) and (28) and the n equations in (29) can be empirically estimated. The algebra of the comparative statics of the system is presented in Appendix AV, Case I. Consider a typical comparative static solution, that of imports of labour from country i with respect to unemployment in country i. The solution, which is obtained from system (A.1) in the Appendix, is:

$$\frac{\partial F_i}{\partial U_i} = \lambda \frac{\Delta_{ii}}{\Delta} (A_i) + \frac{\Delta_{i,n+3}}{\Delta} \left(F_i \frac{\partial C_i}{\partial U_i}\right) \qquad (30)$$

where Δ is the determinant of the matrix multiplying the differential form of the endogenous variables in (A.1) and Δ_{ij} are the respective cofactors. Solution (30) suggests that the effect of changes in unemployment in source country i on labour imports from country i can be decomposed into a substitution effect $\left[\left(\lambda \frac{\Delta_{ii}}{\Delta} (A_i)\right)\right]$ and a scale effect $\left[\frac{\Delta_{i,n+3}}{\Delta} F_i \frac{\partial C_i}{\partial U_i}\right]$. From the

differential form of the system (A.1), however, it does not appear possible to identify the term $\frac{\Delta_{i,n+3}}{\Delta}$. Hence, it is not possible to test this model in any strong way. Similar results are obtained with respect to the other variables in the system and, hence, a strong test of the theory cannot be performed.

To gain some intuition regarding the ambiguity of the solutions, consider the graphical interpretation of solution (30) in Figure V.3, which is a reproduction of Figure V.2

Points D, C, B and A identify maximization of net output available to domestic consumers in the absence of discriminatory tastes and correspond to optimum condition (14). Point K represents the optimum condition in the presence of discriminatory tastes. Assume that unemployment in country i falls. This leads to a change in the total cost function from TC_i to TC_i'. For each level of output, net output available to domestic consumers diminishes and the new position of the OE curve is OE'. Let the final equilibrium be defined by point R, where a contour of the indifference map is tangent to OE'. The movement from K to R can be decomposed into a hypothetical movement from K to S, which is the substitution effect, and a movement from S to R, which represents the scale effect. It is clear

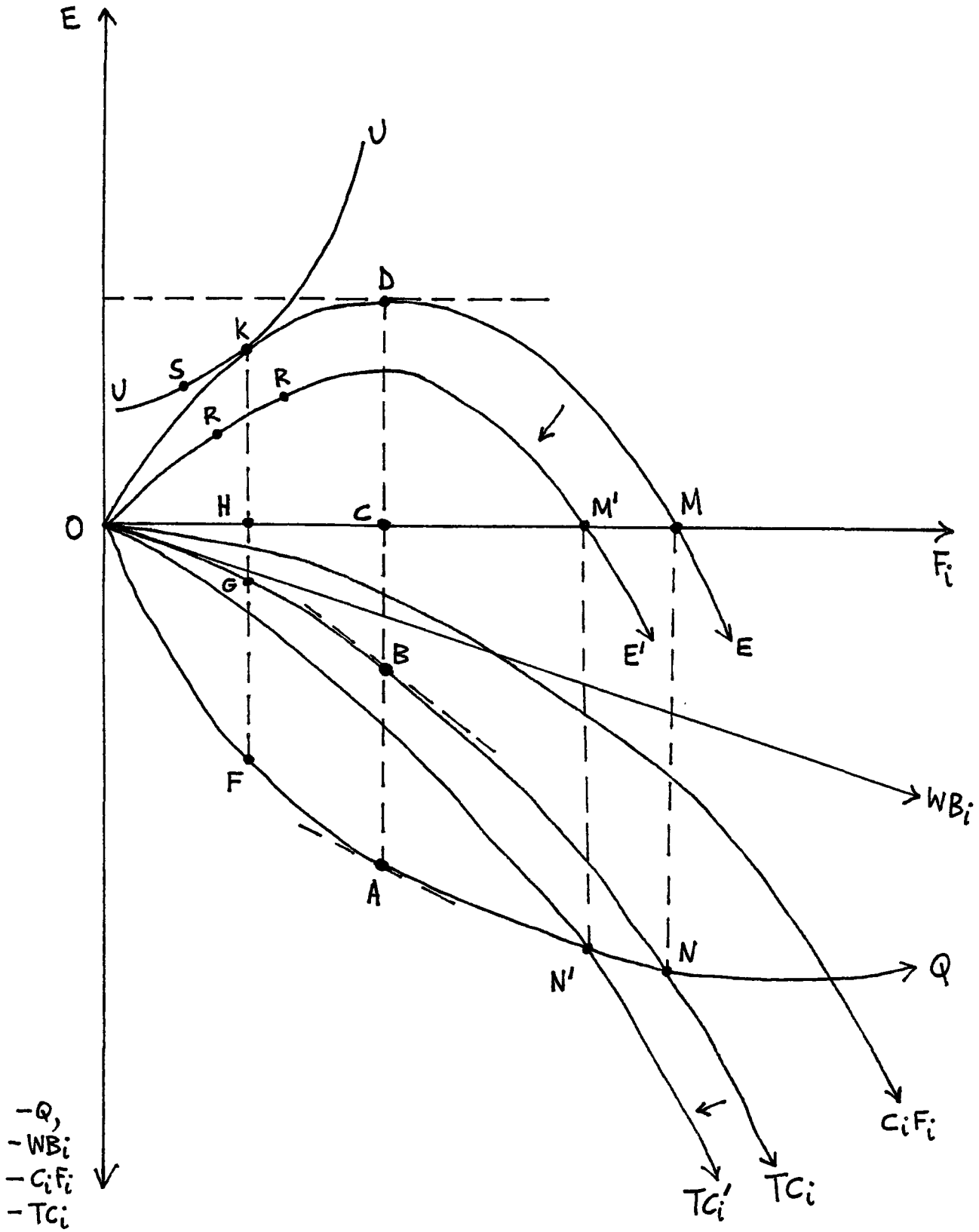

FIGURE V.3: Comparative Statics of Labour Imports from Country i with respect to Unemployment in Country i.

that the final equilibrium position R may lie to the right or to the left of the initial equilibrium K, which explains the ambiguity of solution (30). The substitution effect is, of course, signable and this prediction could serve as a test of the model. The intuitive reason why the scale effect is not signable is that the country may choose to offset the reduction in E by increasing not only F_i but also F* which in the present case is variable. This has led to the development of a second model that does allow for empirical tests of the substitution effect by assuming that F* is fixed.

V.2.7 Case II.

The essential structure of the model in this case is the same as before. The difference lies in the assumption that the aggregate labour input F^* is now assumed to be exogenously fixed and the problem becomes simply an allocation decision. Since F^* is fixed, and K and D are fixed by assumption, Q too is fixed and, therefore, the problem is analytically equivalent to cost-minimization.

The Lagrangean function now is:

$$Z = U(E,F_1,\ldots,F_n) - \lambda\{E - Q(K,D,F^*) + \sum_i WF_i + \sum_i F_i C_i(F_i, W/W_i, \bar{W}/W, U_i)\}$$

$$- \delta\{F^* - \sum_i F_i \} \tag{31}$$

The first-order conditions (assuming an interior solution) are:

$$\frac{\partial Z}{\partial E} = \frac{\partial U}{\partial E} - \lambda = 0 \tag{32}$$

$$\frac{\partial Z}{\partial F_i} = \frac{\partial U}{\partial F_i} - \lambda\left[W + MFC_i\right] + \delta = 0 \tag{33}$$

$$\frac{\partial Z}{\partial \lambda} = -E + Q(K,D,F^*) - \sum_i WF_i - \sum_i F_i C_i = 0 \tag{34}$$

$$\frac{\partial Z}{\partial \delta} = -F^* + \sum_i F_i = 0 \tag{35}$$

From (32) and (33) we can obtain:

$$-\mu_i + (W + MFC_i) = \frac{\delta}{\frac{\partial U}{\partial E}} \tag{36}$$

An equation similar to (36) can be obtained with respect to F_j, and the optimum condition in the present case is:

$$-\mu_i + MFC_i = -\mu_j + MFC_j \tag{37}$$

Therefore, in equilibrium, the labour importing country will equate the pecuniary and non-pecuniary (i.e. disutility) costs associated with labour imports from supply sources i and j. Condition (37) was also obtained as condition

(24) in the previous case.

A set of equations is implicit in the first order conditions (32) and (33), which are of the following general form:

$$E^* = E(K,D,F^*,W,W/W_1,\ldots,W/W_n, U_1,\ldots U_n,\bar{W}/W) \qquad (38)$$

$$F_i^* = F_i(K,D,F^*,W,W/W_1,\ldots,W/W_n,U_1,\ldots,U_n,\bar{W}/W) \qquad (39)$$

$$(i = 1,\ldots,n)$$

Of particular interest are the n equations in (39), which determine the optimum quantities of foreign labour distinguished by country of origin. These equations differ from similar equations obtained from a supply oriented model of migration in that the set of independent variables includes: (a) variables related to the production side of the host economy such as the capital stock and domestic employment; (b) variables related not only to the particular source of supply, but also to alternative sources of supply; and (c) F^*, as an exogenous variable.

In order to obtain comparative static solutions for the system and sign predictions for the partial derivatives of the equations, we totally differentiate the first-order conditions (32) and n (33) and the

constraints (34) and (35). The algebra is mechanical and is relegated to Appendix AV.II, Case II.

From equation (A.13) of the Appendix we can obtain:

$$\frac{\partial F_i}{\partial U_i} = \lambda \frac{\Delta_{ii}}{\Delta} (A_i) + \frac{\Delta_{i,n+2}}{\Delta} \left(F_i \frac{\partial C_i}{\partial U_i}\right) \qquad (40)$$

Result (40), which is a representative comparative static result, can be decomposed into a substitution effect $\left[\lambda \frac{\Delta_{ii}}{\Delta} (A_i)\right]$ and a scale effect $\left[\frac{\Delta_{i,n+2}}{\Delta} \left(F_i \frac{\partial C_i}{\partial U_i}\right)\right]$.

It is evident from equation (A.13) that (the negative of) $\frac{\Delta_{i,n+2}}{\Delta}$ is proportional to the response of labour imports from source country i with respect to capital (domestic labour) in the host country, where the factor of proportionality is the marginal product of capital (domestic labour). Hence, if it is possible to obtain an estimate of the marginal product of capital (domestic labour) and of $\partial C_i/\partial U_i$, it will be possible to separate out the scale effect and thus empirically test the substitution effect. Assuming that the marginal product of capital (domestic labour) is positive, and that the response of F_i with respect to capital (domestic labour) is positive, and since $\lambda>0$ from condition (32) and by the assumption of non-satiety, $A_i < 0$, $\frac{\partial C_i}{\partial U_i} < 0$ and $\frac{\Delta_{ii}}{\Delta} < 0$, as discussed in Appendix AV, Case II, result (40) is positive. Therefore, the response of labour imports from country i with respect to unemployment

in country i is positive. The intuition behind this result is that, as U_i rises, the cost curve is displaced towards the horizontal axis in Figure V.2, and the E curve is displaced upwards, implying an increase in output available to domestic consumers for a given level of aggregate output and a fixed level of F^*. The substitution effect leads to a reallocation of F^* between nationalities, also leading to an increase in the employment of F_i. Hence, the substitution and the scale effects work in the same direction, resulting in an increase in labour imports from source country i in response to an increase in U_i.

In a similar manner, the following result can be obtained:

$$\frac{\partial F_i}{\partial (\frac{W}{W_i})} = \lambda \frac{\Delta_{ii}}{\Delta} (B_i) + \frac{\Delta_{i,n+2}}{\Delta} (F_i \frac{\partial C_i}{\partial (\frac{W}{W_i})}) > 0 \qquad (41)$$

which is positive and can be decomposed into a substitution and a scale effect, both arising as a result of the change in the wage ratio (W/W_i) which alters the cost structure of labour imports and the position of the E curve in Figure V.2.

Finally, consider the response of F_i with respect to unemployment in source country j:

$$\frac{\partial F_i}{\partial U_j} = \lambda \frac{\Delta_{ij}}{\Delta} (A_j) + \frac{\Delta_{i,n+2}}{\Delta} \left(F_j \frac{\partial C_j}{\partial U_j}\right) \qquad (42)$$

Result (42) cannot be signed a priori because Δ_{ij}, the off-diagonal minor, cannot be signed. A symmetry property can be noted, however, concerning the substitution effects which can be stated as:

$$\frac{\left.\frac{\partial F_i}{\partial U_j}\right|_S}{A_j} = \frac{\left.\frac{\partial F_j}{\partial U_i}\right|_S}{A_i} \qquad (43)$$

where the numerators in (43) indicate the substitution effects.

Equations (40), (41) and (42) represent typical comparative static results which, unlike the results obtained in Case I previously, are empirically testable because the scale effect can be identified. For instance, with reference to result (40), estimates of the parameters of the cost function i and of the production function would allow us to separate out the scale effect and obtain an estimate of the substitution effect. Furthermore, with reference to the result (42), the symmetry property of the equations can be tested. It is clear, though, that substantial amount of empirical detail is required to perform a rigorous test of the model.

The system of equations, implied by optimum condition (37), highlights the main interdependencies characterizing the labour imports scheme presented in this chapter. These interdependencies are defined by variables related to domestic production and preferences and also by variables related to a set of potential labour suppliers and to a set of potential labour importers. Two unambiguously signed comparative static results (40) and (41), relate to variables common in the human capital theory of migration: unemployment in source countries and real wage differentials. While these variables enter the analysis as a result of individual utility maximizing behaviour in the human capital model, they enter the present model as shift variables in the non-wage cost function. Their predicted signs are the same as in the supply-oriented theory. However, what distinguishes the equations of the present model from similar equations obtained from the supply-oriented theory, is the set of independent variables suggested that should determine the mix of workers and the composition of the foreign labour stock by country of origin.

While the model proposed in this chapter should primarily be considered as a contribution to the theory of labour redistribution in space, it has also been designed to have empirical relevance, as

should be clear from the choice of the concepts utilized. However, lack of data availability[14] prevents a rigorous empirical test of the theory. As in all utility explanations of economic behaviour, the model yields a set of reduced form equations which define the dependent variables in terms of a set of exogenous independent variables, as in equations (38) and (39) above. Net output available to domestic consumers and the optimum stocks of foreign labour by nationality are simultaneously determined, although endogenous variables do not appear as independent variables in the equations. To avoid such problems as cross-equation error correlation, a proper estimation technique would be the seemingly unrelated regressors method. Finally, as in other models of similar nature, such as consumer demand systems or interrelated factor demand models, the present model permits testing of the symmetry properly and it does not yield signable predictions about the effect on labour imports from one source of supply with respect to variables related to other sources of supply.

V.3 Summary and Conclusions

One characteristic of the profile of foreign labour in Western Europe is the diversification of labour imports by several sources of supply. The purpose of the present chapter has been to provide an analysis that accounts for the composition of foreign labour distinguished by country of origin. Unlike conventional approaches to migration, the model developed here emphasizes the role of the demand side in the process of the geographic redistribution of labour. This emphasis on the demand side is warranted because labour imports are controlled by the authorities of the labour importing countries, which determine the size and timing of immigration. Supply relationships are also significant, however, to the extend that they affect the cost of acquisition of foreign labour from different sources of supply.

The model has preference, production and cost components and its structure is that of a constrained optimization problem. Supply conditions (such as unemployment or real wages in source countries) emerge through the cost component as only one determinant of the composition of labour imports. The preference side of

the economy, represented by a utility function, emerges as another determinant, with relative preferences towards different nationalities influencing the mix of workers from different sources of supply. Preferences here play a role similar to their role in discrimination models and this appears to be a fruitful approach to explain the observed diversification of foreign labour in Western Europe. The presence of discriminatory tastes against certain nationalities yields an outcome which is suboptimal to an outcome associated with non-discriminatory behaviour. The nature of the suboptimality is that countries (or governments), that act in a discriminatory fashion, will restrict the quantity of labour imported from least favoured sources of supply, thus sacrificing real output to satisfy discriminatory tastes.

The model provides insights into certain elements of the bilateral framework regulating flows of workers from non-EEC countries. For example, the cooperation of the authority of labour exporting countries, stipulated in the bilateral agreements, can be seen as a means by which the costs of acquiring foreign workers are reduced, since part of the responsibility of screening and identifying exportable manpower lies with her.

Finally, the model yields qualitative predictions regarding the impact of variables characterizing the state of the labour market of labour exporting countries on labour imports. Although these predictions can be empirically tested, the statistical information necessary to perform such tests is unavailable at the present time.

APPENDIX AV

THE COMPARATIVE STATICS OF THE MODEL

AV.I. Case I.

Totally differentiating the first-order conditions (16), n (17) and (18) and the constraints (19) and (20), and rearranging the system in a matrix form, we obtain:

$$
\begin{bmatrix}
U_{11}-\lambda(N_1) & \cdots & U_{1n} & U_{1E} & 0 & -M_1 & 1 \\
\vdots & & \vdots & \vdots & \vdots & \vdots & \vdots \\
U_{n1} & \cdots & U_{nn}-\lambda(N_n) & U_{nE} & 0 & -M_n & 1 \\
U_{E1} & \cdots & U_{En} & U_{EE} & 0 & -1 & 0 \\
0 & \cdots & 0 & 0 & \lambda\dfrac{\partial^2 Q}{\partial F^{*2}} & \dfrac{\partial Q}{\partial F^*} & -1 \\
-M_1 & \cdots & -M_n & -1 & \dfrac{\partial Q}{\partial F^*} & 0 & 0 \\
1 & \cdots & 1 & 0 & -1 & 0 & 0
\end{bmatrix}
\begin{bmatrix} dF_1 \\ \vdots \\ dF_n \\ dE \\ dF^* \\ d\lambda \\ d\delta \end{bmatrix}
=
$$

$$
=
\begin{bmatrix}
\lambda & \lambda(A_1) & \cdots & 0 & \lambda(B_1) & \cdots & 0 & \lambda(D_1) & 0 & 0 \\
\vdots & \vdots & & \vdots & \vdots & & \vdots & \vdots & \vdots & \vdots \\
\lambda & 0 & \cdots & \lambda(A_n) & 0 & \cdots & \lambda(B_n) & \lambda(D_n) & 0 & 0 \\
0 & 0 & \cdots & 0 & 0 & \cdots & 0 & 0 & 0 & 0 \\
0 & 0 & \cdots & 0 & 0 & \cdots & 0 & 0 & \lambda\dfrac{\partial Q}{\partial F^* \partial K} & \lambda\dfrac{\partial W}{\partial F^* \partial D} \\
\sum\limits_i F_i & F_1\dfrac{\partial C_1}{\partial U_n} & \cdots & F_n\dfrac{\partial C_n}{\partial U_n} & F_1\dfrac{\partial C_n}{\partial(\frac{W}{W_1})} & \cdots & F_n\dfrac{\partial C_n}{\partial(\frac{W}{W_n})} & \sum F_i\dfrac{\partial C_i}{\partial(\frac{W}{W})} & \dfrac{\partial Q}{\partial K} & \dfrac{\partial Q}{\partial D} \\
0 & 0 & \cdots & 0 & 0 & \cdots & 0 & 0 & 0 & 0
\end{bmatrix}
\begin{bmatrix} dW \\ dU_1 \\ \vdots \\ dU_n \\ \vdots \\ d(W/W_1) \\ \vdots \\ d(W/W_n) \\ d(\frac{\bar{W}}{W}) \\ dK \\ dD \end{bmatrix}
$$

(A.1)

where $$N_i = \frac{\partial C_i}{\partial F_i} + \left[\frac{\partial C_i}{\partial F_i} + F_i \frac{\partial^2 C_i}{\partial F_i^2}\right] > 0 \qquad (A.2)$$

$$M_i = W + (C_i + F_i \frac{C_i}{F_i}) > 0 \qquad (A.3)$$

$$A_i = \frac{\partial C_i}{\partial U_i} < 0 \qquad (A.4)$$

$$B_i = \frac{\partial C_i}{\partial (\frac{W}{W_i})} < 0 \qquad (A.5)$$

$$D_i = \frac{\partial C_i}{\partial (\frac{\overline{W}}{W})} > 0 \qquad (A.6)$$

$$(i = 1,\ldots,n)$$

and $U_{ii} = \frac{\partial 2_U}{\partial F_i^2}$ and $U_{iE} = \frac{\partial 2_E}{\partial F_i\, E}$ $\qquad (i = 1,\ldots,n)$.

For equations (A.4)-(A.6) it was assumed that the cross partials with respect to F_i (such as $\frac{\partial^2 C_i}{\partial U_i \partial F_i}$) are zero. (A.2)-(A.6) are then signable given the assumptions regarding the slope of the non-wage cost function discussed in Section V.2.4 above. Solving (A.1) for dF_i we can obtain comparative static results one of which was solution (30) in the text.

A.V.II Case II.

Totally differentiating the first-order conditions (31) and n (32) and the constraint (33) and (34), and rearranging the system in a matrix form, we obtain:

$$
\begin{bmatrix}
U_{11}-\lambda(N_1) & \cdots & U_{1n} & U_{1E} & -M_1 & 1 \\
\vdots & \ddots & \vdots & \vdots & \vdots & \vdots \\
U_{n1} & \cdots & U_{nn}-\lambda(N_n) & U_{nE} & -M_n & 1 \\
U_{E1} & \cdots & U_{En} & U_{EE} & -1 & 0 \\
-M_1 & \cdots & -M_n & -1 & 0 & 0 \\
1 & \cdots & 1 & 0 & 0 & 0
\end{bmatrix}
\begin{bmatrix} dF_1 \\ \vdots \\ dF_n \\ dE \\ d\lambda \\ d\delta \end{bmatrix}
=
$$

$$
=
\begin{bmatrix}
\lambda & \lambda(A_1) & \cdots & 0 & \lambda(B_1) & \cdots & 0 & \lambda(D_1) & 0 & 0 & 0 \\
\vdots & \vdots & \ddots & \vdots & \vdots & \ddots & \vdots & \vdots & \vdots & \vdots & \vdots \\
\lambda & 0 & \cdots & \dot{\lambda}(\dot{A}_n) & 0 & \cdots & \lambda(\dot{B}_n) & \lambda(\dot{D}_n) & \dot{0} & \dot{0} & \dot{0} \\
0 & 0 & \cdots & 0 & 0 & \cdots & 0 & 0 & 0 & 0 & 0 \\
\Sigma F_i & F_1\frac{\partial C_1}{\partial U_1} & \cdots & F_n\frac{\partial C_n}{\partial U_n} & F_1\frac{\partial C_1}{\partial(\frac{W}{W_1})} & \cdots & F_n\frac{\partial C_n}{\partial(\frac{W}{W_n})} & \Sigma F_i\frac{\partial C_i}{(\frac{\bar{W}}{W})} & -\frac{\partial Q}{\partial K} & -\frac{\partial Q}{\partial D} & -\frac{\partial Q}{\partial F^*} \\
0 & 0 & \cdots & 0 & 0 & \cdots & 0 & 0 & 0 & 0 & 1
\end{bmatrix}
\begin{bmatrix} dW \\ dU_1 \\ \vdots \\ d\dot{U}_n \\ d(\frac{W}{W_1}) \\ \vdots \\ d(\frac{W}{W_n}) \\ d(\frac{\bar{W}}{W}) \\ dK \\ dD \\ dF^* \end{bmatrix}
$$

(A.7)

where

$$N_i = \frac{\partial C_i}{\partial F_i} + \left[\frac{\partial C_i}{\partial F_i} + F_i \frac{\partial^2 C_i}{\partial F_i^2}\right] > 0 \qquad (A.8)$$

$$M_i = W + \left(C_i + F_i \frac{\partial C_i}{\partial F_i}\right) > 0 \qquad (A.9)$$

$$A_i = \frac{\partial C_i}{\partial U_i} < 0 \qquad (A.10)$$

$$B_i = \frac{\partial C_i}{\partial \left(\frac{W}{W_i}\right)} < 0 \qquad (A.11)$$

$$D_i = \frac{\partial C_i}{\partial \left(\frac{W}{W}\right)} > 0 \qquad (A.12)$$

and $U_{ii} = \frac{\partial^2 U}{F_i^2}$ and $U_{iE} = \frac{\partial^2 \partial}{\partial F_i \partial E}$ $(i = 1,\ldots,n)$.

For equations (A.10)-(A.12) it was assumed that the cross partially with respect to F_i (such as $\frac{\partial^2 C_i}{\partial U_i \partial F_i}$) are zero. (A.8)-(A.12) are signable given the assumptions regarding the slope of the non-wage cost function discussed in Section V.2.4 above.

Solving (A.7) for dF_i we obtain:

$$dF_i = \frac{1}{\Delta}\left[\sum_i \lambda\,\Delta_{ii} + \Delta_{i,n+2}\sum_i F_i\right] dW$$

$$+ \frac{1}{\Delta}\left[\lambda\Delta_{ii}(A_i) + \Delta_{i,n+2}\,F_i\,\frac{\partial C_i}{\partial U_i}\right] dU_i$$

$$+ \frac{1}{\Delta}\left[\sum_{i\neq j} \lambda\Delta_{ij}(A_j) + \sum_{i\neq j}\Delta_{i,n+2}\,F_j\,\frac{\partial C_j}{\partial U_j}\right] dU_j$$

$$+ \frac{1}{\Delta}\left[\lambda\Delta_{ii}(B_i) + \Delta_{i,n+2}\,F_i\,\frac{\partial C_i}{\partial\left(\frac{W}{W_i}\right)}\right] d\left(\frac{W}{W_i}\right)$$

$$+ \frac{1}{\Delta}\left[\sum_{i\neq j} \lambda\Delta_{ij}(B_j) + \sum_{i\neq j}\Delta_{i,n+2}\,F_j\,\frac{\partial C_j}{\partial\left(\frac{W}{W_j}\right)}\right] d\left(\frac{W}{W_j}\right)$$

$$+ \frac{1}{\Delta}\left[\sum_i \lambda\Delta_{ii}(D_i) + \Delta_{i,n+2}\sum_i F_i\,\frac{\partial C_i}{\partial\left(\frac{\overline{W}}{\overline{W}}\right)}\right] d\left(\frac{\overline{W}}{\overline{W}}\right)$$

$$+ \frac{1}{\Delta}\left[-\Delta_{i,n+2}\right]\frac{\partial Q}{\partial K}\,dK$$

$$+ \frac{1}{\Delta}\left[-\Delta_{i,n+2}\right]\frac{\partial Q}{\partial D}\,dD$$

$$+ \frac{1}{\Delta}\left[\Delta_{i,n+3} - \Delta_{i,n+2}\,\frac{\partial Q}{\partial F^*}\right] dF^* \qquad \text{(A.13)}.$$

where Δ is the determinant of the matrix multiplying the endogenous variables in (A.7) and Δ_{ij} are the respective cofactors. It is clear that the sign of Δ (which is, of course, an (n x 2) x (n x 2) Hessian determinant) can be determined once n is know, since it is given by the expansion of the full matrix (the bordered Hessian) multiplied by $(-1)^n$. Once n is known Δ_{ii} can also be signed, as the second-order condition for utility maximization requires that the principal minors (the cofactors of the diagonal elements) should alternate in sign. Therefore, Δ_{ii}/Δ can unambiguously be signed because Δ_{ii} is a principal minor smaller than Δ by one row and one column and, hence, their ratio must be negative. Δ_{ij}, the off-diagonal minors, cannot be signed (for a discussion of the mathematics of utility maximization, see Hadar (1971), especially p. 182).

FOOTNOTES

Chapter V

1. Migration decisions are discrete in nature and all potential locations, identified by their characteristics should enter the individual's utility function. A model appropriate for such decisions is that of McFadden (1974). His analysis provides a general model of qualitative choice behaviour. Applied to migration, it implies that an individual's choice of location can be described by a utility maximization problem, and the conditional probability of randomly selecting an individual migrating to location x can be written as

$$P(x/S,B) = \frac{e^{\nu(s,x)}}{\sum_{y \in B} e^{\nu(s,y)}}$$

(McFadden (1974), equation (12))

where $P(x/s,B)$ = conditional probability of choice of location x, subject to a taste index s, and all possible alternative states B:

ν = utility function

y = alternative locations (choices)

As is clear from this equation economic characteristics of location x and all other alternative locations, y, belonging to the feasible set B, enter the utility function. In consequence, arguments in empirical migration literature, that distinguish locations (regions, neighbourhoods, countries) by their economic properties, can be introduced on the grounds that they represent alternative choice situations, given the taste component. McFadden provides the statistical properties of the model, and for an application, see Domencich and McFadden (1975).

2. An analogous decomposition is the geographic pattern of international trade. For a utility theory of the pattern of international trade, see Armington (1969).

3. See Wilkinson (1970) and references therein.

4. The utility function (1) satisfies the usual convexity properties. To see this, consider the case where there is only one type of labour, F. (1) then can be written as:

$$U = U(E,F)$$

The marginal rate of substitution is:

$$\frac{\partial E}{\partial F} = - \frac{U_F}{U_E} \quad .$$

Differentiating the marginal rate of substitution with respect to F and substituting for $\partial E/\partial F$ in the resulting expression we obtain

$$\frac{\partial^2 E}{\partial F^2} = - \frac{U_E^2 U_{FF} - 2U_E U_F U_{EF} + U_F^2 U_{EE}}{U_E^3}$$

which, for convexity to hold, must be positive. Since $U_E^3 > 0$, convexity is satisfied if

$$U_E^2 U_{FF} - 2U_E U_F U_{EF} + U_F^2 U_{EE} < 0$$

which is a sufficient condition for strict convexity. Convexity in this context implies that the marginal rate of substitution, which is positive, is increasing. Such an indifference curve is shown in Figure V.1 in the text.

5. The utility function (1) is the simplest one possible and it is adopted here in order to be able to obtain qualitative results without unnecessary complexity. Alternative forms, that can be utilized to represent preferences, may be defined over the relative proportions of different nationalities in the host country, or over net output per head of domestic (or total) population in the manner of the theory of the labour managed firm. The case of absence of disutility is, of course, a special case where $U_{F_i} = 0$. As in most utility explanations of economic behaviour, the model is designed to yield qualitative predictions, which, however broad, are intuitively reasonable and consistent.

6. See Heijke and Klaassen (1977) for the role of linguistic factors in migration in Europe. Also, French colonial ties explain the presence of Algerian and Moroccan workers in France.

7. Rist (1978) mentions several cases that can be interpreted as expressions of preferences towards foreign workers in general, and towards certain nationalities in particular. Thus, an overt expression of disutility was the "Schwarzenbach", the Swiss referendum on whether to expel foreign workers or not; the anti-Turkish riots in Rotterdam in 1972; the anti-Algerian riots in Marseilles in 1973; the bomb explosions at the Turkist consulate office in Zurich in 1976, etc. In addition, Rist notes that, in 1977 five of the largest West German cities (Cologne, Frankfurt, Hannover, Munich and West Berlin) requested, and were granted, that no more settlement of foreign workers be allowed since a rate of 6% of foreigners in the city population had been reached.

8. The assumption of homogeneous foreign labour is adopted for simplicity. The model can easily be extended to accommodate the case of heterogeneous foreign labour, where F* could be an index of productivity-weighted foreign labour input of the form:

$$F^* = \sum_i a_i F_i$$

where a_i is a productivity weight for labour from country i, reflecting, more generally, the human capital content of the internationally mobile manpower. To have such heterogeneity, however, seems to call for explicit treatment of different wage rates for different nationalities, reflecting their differential productivity. The model is robust to such modifications.

9. Export of remittances may have no long-run implications for the labour importing country, since as a result of the international exchange of commodities, they are recycled and redistributed towards the host countries. Even in the short-run the effect may be negligible as migrants' remittances are often spent on imports from the host country.

10. Nickell (1978) provides an analysis of the implications of non-wage costs for the cyclical behaviour of labour demand. Hart and Robb (1980) extend this literature to endogenous fixed costs.

11. Clearly, other relevant arguments are population, the age/sex composition of the labour force, the educational attainment of the population, the rural/urban distribution of the labour force, etc. All these will act as shift parameters on the non-wage cost function (9).

12. The non-wage cost function, defined by (6), is static in nature since we abstract in this model from problems associated with the dynamics of accumulation of a stock of foreign workers in the host country. It is clear that if part of the stock of foreign workers in period t is replenished, because of voluntary or government-induced turnover, the character of the problem is equivalent to an investment decision, and the nature of the costs could be analysed, in a manner similar to adjustment costs models in the theory of investment (as, for example, in Gould (1976)). Thus, in a dynamic framework, the authority would be maximizing a utility function in an intertemporal sense, subject to a set of constraints defining the path of capital accumulation and the path of labour accumulation, in view of investment and labour import costs and in view of the nature of the adjustment behaviour. Such extensions of the model are possible, but they elucidate the nature of the optimum accumulation process rather than the determinants of the diversification of labour imports, which are the subject of this chapter.

    The non-wage cost function (6) is, of course, consistent with the assumption that all workers turn over each period, so that the authority is engaged in a process of rebuilding the stock of foreign labour each period from the start. Clearly, this assumption oversimplifies the character of the process but it preserves the essential features of the decision-making problem analysed presently.

    Finally, it may be worth exploring the case where non-wage costs are fixed in a more complex model which not only would determine optimum stocks of labour by nationality but it would also determine the length of stay of foreign workers in a host country.

13. Becker defines the discrimination coefficient of an employer against an employee as "the value placed on the non-pecuniary cost of employing him" (p. 153). In the present case, the discrimination coefficient represents the amount of net output the country is willing to forego in order to prevent employment of a worker from country i.

14. An empirical application of the model requires data on variables specific to sources of supply, such as unemployment and real wage rates in source countries. In addition, other data identifying the recruiting cost function are essential in order to be able to obtain an estimate of the scale effect in the equations. Such data are not readily available at the present time.

CHAPTER VI

CONCLUDING SUMMARY AND SUGGESTIONS FOR FURTHER RESEARCH

VI.1 Introduction

The main contribution of this dissertation relates to two themes. The first theme concerns the impact of labour mobility on labour market adjustments, and more specifically, on the character of wage adjustments and on the state of excess demand for labour. The second theme relates to the question of the composition of the stock of foreign labour, by country of origin, under conditions of imperfect substitutability in preferences and with differential costs associated with the acquisition of foreign labour. Background on intra-European labour mobility was provided in the discussion of the institutional framework and dimensions of migration in Western Europe, and in the survey of research stimulated by it. The purpose of the present chapter is two-fold. First, to provide, in Section VI.2, a concluding summary of the material of the previous chapters. Secondly, to suggest in Section VI.3, directions for further research and some thoughts about the potential implementation of temporary labour imports in the U.S.A., in view of the Western European experience.

VI.2 Concluding Summary

The major characteristics of the labour markets in Western Europe and its periphery in the post-World War II period were the persistence of labour shortages in the former and labour surpluses in the latter. Reallocation of labour from the South (periphery) to the North (core) assumed significant dimensions in the post-1958 period, based on the notion that exchange in the form of transfers of labour would be beneficial to both parties. While initially the OECD designed a framework to regulate international labour mobility on a multilateral basis, the most important components of mobile labour in Western Europe have been controlled by bilateral agreements on the one hand, and by the free mobility arrangements of the EEC on the other. These arrangements have given preferential treatment in employment to EEC citizens and have placed non-EEC workers (the quantitatively largest component of mobile manpower in continental Europe) in an inferior labour market position.

The institutional framework was developed mainly in order to facilitate manpower mobility to accommodate labour demand in the host countries. And while the initial intention of the scheme of labour imports was to promote the attainment of short-term

output and employment objectives, the utilization of foreign labour in Western Europe gradually assumed a more structural and a more permanent character. Foreign workers are predominantly utilized in unskilled, relatively low paying occupations, with limited promotion and training opportunities, and for relatively short duration, contractually defined, period of employment. Western European labour markets appear segmented, with domestic and foreign workers defining two complementary, rather than competing, groups.

Descriptive evidence suggests that the institutional framework, regulating workers' mobility, facilitated migration of substantial magnitude. The evidence is also suggestive of the possibility that both the skill content of labour demand as well as the occupational structure of Western European labour markets have been influenced by the availability of unlimited supplies of labour. Another influence was examined in this dissertation, where the character of wage adjustments and of the state of excess demand for labour were studied in relation to labour mobility. The basic hypotheses of this analysis were: first, that wage adjustments, responding to the state of excess demand in the labour market, are simultaneously determined with quantity adjustments which take the form of

migration-induced shifts in labour supply; and secondly, that wage adjustments are responsive to the characteristics of the structure of the labour market, represented by the vacancies-unemployment (V-U) relationship. A subsidiary set of hypotheses, related to migration, were incorporated into the analysis to complete a model of an open labour market. The empirical analysis confirms the view that labour supply adjustments, in the form of government-induced or autonomous migration, play a major role in the determination of the state of excess demand for labour and, indirectly, in wage determination in West Germany. The empirical evidence provided complements, and confirms the findings of, other studies. The analysis suggests that the transition from one employment-output configuration to another, as shown by the Phillips curve, is eased by the availability of internationally mobile labour. The task of stabilization policy is thus facilitated by the control of labour imports by the authority and, in the short-run, the slope of the Phillips curve is made flatter as a consequence of controlled migration.

As labour imports represent a form of indirect government intervention in the labour market, the need for a behavioural theory of government policy is called for. Unlike internal EEC migration, which is institutionally uninhibited, international migration is

formally controlled by the authorities of the receiving countries which regulate the size and composition of foreign born nationals entering their borders. This demand aspect (that is, control by the labour demanding countries) has been ignored, in favour of the supply oriented human capital approach which has dominated the migration literature. The demand aspect, is however, addressed in the present dissertation by incorporating elements of the theory of the firm, and of the theory of discrimination in labour markets, to arrive at the approximate determinants of the diversification of foreign labour in Western Europe. The theoretical framework incorporates discrimination on the basis of nationality (which may be a reflection of cultural and/or economic elements) as one set of factors explaining the observed distribution of non-EEC labour in Western Europe. It thus represents an extension of the discrimination literature to the international labour market and complements the human capital theory of migration.

VI.3 Suggestions for Further Research

The experience of Western Europe with transfers of labour has raised several questions of theoretical and policy interest, deserving further analysis but being beyond the scope of this dissertation. In the

present section, we discuss potential extensions of the research presented in Chapters IV and V, discuss issues for further research, and finally discuss the potential implementation of a temporary labour imports scheme in the U.S.A. in view of the Western European experience.

As was clear from the discussion in Chapters IV and V, the analyses were aggregate in nature, substantially ignoring detailed aspects of labour market characteristics and adjustment processes. With respect to the chapter on wage adjustments, three major extensions seem promising. First, the government reaction function could be refined to include a set of more specific objectives as independent variables, such as the age/sex and skill composition of the labour force. Secondly, the analysis of migration behaviour could be disaggregated by sex and its impact on sex-disaggregated wage adjustments could be examined, in order to obtain a more complete picture of the inter-dependence of national labour supply, labour supply shifts and wage determination. Thirdly, occupational and regional dimensions of labour imports could be analysed in order to arrive at a more complete assessment of the impact of labour mobility on the character of labour market adjustments.

The most important extension of the theoretical model of Chapter V would be to examine its empirical performance when data becomes available. It would be especially useful to try to test it against the alternative

human capital framework. In this connection, the role of discrimination in accounting for observed employment differentials might be examined empirically and compared to the pattern of discrimination in domestic labour markets. At the theoretical level, the model could be extended to deal with, among other things, differential marital patterns (including working vs. non-working spouses) differential turnover rates and differential remittance rates by nationality.

More general issues calling for extensive analysis may be divided into two categories: issues arising in the context of domestic labour markets, and issues related to the international division of labour and to the pattern of international specialization and devleopment.

The major issue in domestic labour markets analysis arises from the basic neoclassical proposition that factor supplies determine relative factor prices and, therefore, to a great extent, the personal distribution of income. As migration and, more specifically, labour imports, shift the labour supply curve of the economy, factor proportions change and factor prices adjust to accommodate the increased supply of labour. How do labour imports, in fact, influence the personal distribution of income? It is useful to recognize that foreign workers in Western Europe are basically unskilled,

in comparison with workers in host countries. As the supply of unskilled workers increases through migration[1] so too does the wage differential between skilled and unskilled workers. In response to a widening wage differential, domestic workers will be attracted towards skilled occupations. This will tend to compete away the advantage of skilled workers and could benefit other factors of production. Our understanding of these links between migration and income distribution is quite limited and models that could shed light on these issues would be quite valuable.

A second issue in labour market analysis pertains to the paradigm of the broad group of hypotheses known as the segmented labour market theories[2]. As mentioned earlier, the characteristics of employment of foreign workers in Western Europe are in accordance with the stylized facts segmented market theorists draw upon to characterize the structure of labour markets: instability in employment, discrimination, low pay and lack of training and promotion opportunities define the secondary (external) labour market, while the opposite characteristics define the primary (internal) labour market. These stylized facts suggest that foreign workers constitute a secondary labour market in host countries, and these labour markets would seem to be appropriate places for the segmented labour market theorists to

look for support of their views.

We now turn to the general issue of migration and the pattern of international specialization and development. As mentioned previously, labour imports have been viewed as a form of international cooperation through which gains are available by transfers of labour from manpower surplus to manpower deficit countries. For the labour exporting countries, the alleviation of unemployment through labour exports, the utilization of remittances for balance of payments and capital formation purposes and the exploitation of the human capital of returning workers trained abroad, have been considered as contributing to economic development. The extent of this contribution has, however, come into question as the income gap between labour importing and exporting countries has increased, as the hypothesized channelling of remittances towards capital formation has not materialized[3] and as the human capital of returning workers has not been as significant as expected[4]. Further, labour exporting countries have recognized that the selectivity of labour imports has deprived them of the most dynamic and skilled workers[5]. Finally, the experience of recessions has led to the realization that labour imports and exports follow closely the cyclical behaviour of the host economies and impose the burden of unemployment on the source economies often at a time of

recession at home.

A policy of reallocation of economic activity, as an alternative to labour imports, has therefore been proposed by several international organizations (notably the OECD and the ILO). This would be accomplished through transfers of capital towards countries with surplus labour. One force behind this view is that the international competitive position of some labour exporting countries has improved, reflecting their comparative advantage in low-skill intensive products. Labour importing countries can not compete in the same products in the long-run. An additional force is that as trade liberalization proceeds, and especially with the expansion of the EEC to include more labour exporters (Turkey, Spain and Portugal), economic activities will tend to be reallocated and competition is believed to give rise to substantial disemployment in host countries[6].

The spatial reallocation of economic activities provides a potential solution to problems of under-development and more specifically, to income disparities between industrial Europe and its periphery. It may also alleviate problems arising from inefficient industrial production in host countries, sustained by a combination of tariffs and imports of cheap labour, by re-aligning production along lines consistent with comparative advantage. However, to implement such a policy will be

difficult and will require overcoming the following problems: (a) absence of a multilateral framework or of bilateral agreements, facilitating transfers of capital of the magnitude envisaged may not provide the necessary security in international investments and may lead to unequal distribution of benefits, thus negating the purpose of such policies; (b) capital transfers, even though politically palatable within an enlarged EEC, may not totally substitute for labour imports, as foreign workers are employed in secondary labour markets, accommodating the process of occupational upgrading of the domestic labour force. Therefore, a policy of capital transfers should be accompanied by policies directed towards restructuring of the labour market in host countries in order to decrease dependence on foreign labour and reverse the migratory flow; (c) a tradition of explicit protection in the form of tariffs and quotas, and of implicit protection provided through the utilization of foreign labour[7] has created special interest groups in host economies[8]. It is likely that these groups will resist adjustment policies that shift the distribution of income against them. The design of a compensation mechanism is therefore necessary to accommodate the transition period.

The above discussion suggests that substantial

unexplored consequences of intra-European migration remain to be analysed, and these are of significance not only for the host but also for the source countries and for the spatial distribution of economic activity in the European continent and its periphery. Yet while the European countries have halted recruitment from abroad, a similar scheme is currently being debated in the U.S.A. in connection with Mexican migration[9]. We conclude the dissertation by drawing upon the European experience to shed some light on the potential impact of temporary labour imports from Mexico on the U.S.A. labour market, and consider the proposal in the context of Mexico's development strategy.

The U.S.A., in fact, implemented a temporary labour imports scheme between 1942 and 1964, in response to shortages of agricultural labour[10]. A common feature of the U.S.A. and the European experience is that what was initially thought of as being temporary migration assumed a more permanent character and that the process gained a momentum of its own. This is evident from the (relatively larger in the U.S.A.) number of illegal immigrants[11]. A second common feature relates to the fact that foreign workers have been employed predominantly in what is called the secondary labour market[12]. A third common feature is that the costs of

integrating semi-permanent migrants into the host country's society appear to be substantial.

As in the case of Western Europe, utilization of a flexible labour force, in response to short-term variations in labour demand, can provide a significant degree of flexibility in the management of the supply side of the host economy. For macroeconomic purposes imports and exports of labour implemented in a cyclical fashion can restrain the impact of aggregate demand on wage changes and the impact of recession on domestic employment. However, regional labour markets may be adversely affected by the employment of foreign labour in two ways. First, competition with similarly skilled domestic workers leads to wage depression, and there already exists some evidence confirming this effect in the case of the U.S.A.(see Smith and Newman (1977))[13]. As a result, domestic workers may be discouraged from entering the labour market, outward migration may be induced, necessitating further expansion in the employment of foreign labour, and unemployment of domestic workers can rise in response to wage depression, for a given level of welfare assistance[14]. Secondly, cheap labour can sustain inefficient economic activities, inhibiting innovation and contributing to regional income disparities, thus inducing additional migration

of domestic workers towards high wage regions and increasing the dependence of the regional labour market on labour from abroad. Therefore, the regional distribution of income can be adversely affected as a consequence of such policies.

In view of the proposal regarding capital transfers as substitutes for labour migration, a temporary labour imports scheme between the U.S.A. and Mexico should also be considered in the context of Mexico's economic development, and more specifically, in the distributional and employment impact of the growth path chosen[15]. The major determinants of Mexican out-migration are economic, arising from real income and unemployment differentials. Development policies directed towards evening the distribution of income, promoting employment and adopting technologies appropriate to a labour surplus economy, would increase the utilization of potential migrants within Mexico and reduce the size of exportable surplus manpower. To promote such development policies, the U.S.A. should perhaps encourage Mexican agricultural development and relocation of economic activities south of the border, rather than encourage the establishment of border plants. As in the Western European case, the need for bilateral or multilateral cooperation in this context is clear.

FOOTNOTES

Chapter VI

1. Occupational crowding has already been noted in the U.K. See Mayhew and Rosewell (1978).

2. The theories have been surveyed by Cain (1976) who concludes that they do not offer a coherent alternative paradigm to the conventional neoclassical theory. Wachter (1974) has not found evidence that the dual labour market approach can usefully characterize the U.S.A. labour market either. See, however, Piore's (1974) discussion of Wachter's (1974) paper for a view supporting the dual approach.

3. Paine (1974), p. 133-135) notes that, in the case of Turkey, about 50% of migrants' savings, while away or soon after return, were spent on consumption goods, but there is no evidence about the proportion spent on imported consumption goods. A small proportion was spent on producers goods and on agricultural and industrial machinery. To conserve foreign exchange, the Turkish government allowed returning workers to import consumer goods free of duty into the country.

4. Paine (1974), p. 132-133) reports from the results of the Turkish State Planning Organization (S.P.O.) survey that less than 10% of the returning workers had received any formal training and as many as 11% had worked in occupations less skilled than the ones they held in Turkey before departure.

5. Böhning (1975) notes that loss of skilled manpower has created difficulties in regional and local labour markets, inhibiting growth. Paine (1974) confirms this view for the case of Turkey and adds that employers in source countries are reluctant to train workers who might migrate. The employers' behaviour can easily be explained with reference to general human capital accumulation and the distribution of its costs. As a result, employers may be induced to adopt more capital intensive techniques which are not consistent with the factor endowments of the source country. Böhning (1975, p. 36) quotes from the OECD Economic Survey

of June 1973 on Yugoslavia that 230,000 skilled workers had left the country and that, according to his own estimates, labour exports during the 1960s had left socialized manufacturing with about 600,000 skilled workers and had enriched foreign countries by about 200,000 skilled workers, half of whom he considers permanent lost. Finally, for the case of Turkey, there is evidence that the major source of exportable labour was not agriculture, a sector facing conditions of excess labour supply, but textiles, shipbuilding, etc., activities with needs for skilled workers. The skill drain phenomenon adds another dimension to the North-South dialogue, in that it represents a net transfer of human capital from the source to host countries. In this respect, it is similar to the "brain drain" that has already attracted substantial attention. See the papers in Bhagwati (ed., 1976) and in Bhagwati and Partington (ed., 1976).

6. The most important studies in the area are by Hiemenz and Schatz (1976, 1977, 1979) in which they analyse the impact of intensified competition between West Germany and Turkey and Spain in relatively low-skill intensive internationally traded goods. They estimate that between 1977 and 1985 nearly 10% of West German manufacturing employment will be laid off, and if trade liberalization proceeds faster, the proportion will rise. The sectors hardest hit are employers of women and unskilled workers, groups that will suffer most from redundancy. They further note that these sectors have survived international competition by a combination of explicit protection and imports of unskilled labour. On the other hand, human capital intensive West German sectors have successfully competed in the international market, suggesting that West Germany's comparative advantage lies in these activities. This has also been independently confirmed by Stern (1976) and by Steinherr and Runge (1977) who suggest that policies of labour imports are inconsistent with West Germany's factor endowment (human and physical capital abundance), and that West Germany should specialize in human capital intensive products.

In a series of studies of Switzerland, Maillat, Jeanrenaud and Widmer (1976, 1977a, 1977b) also find that a redistribution of economic activities between Switzerland and labour exporting countries

could be feasible. The areas they identify as transferable are textiles and clothing, food, some metalwork activities and some engineering activities. For a complete analysis of the adjustment potential for the case of Switzerland, see Feller's (1977) essay.

7. It is interesting to note that the pattern of protection in the EEC has been biased towards unskilled labour. This, of course, according to the Stolper-Samuelson theorem, should raise the wage of the protected factor. Constantopoulos (1974) finds that, among the other EEC countries, Germany provided the smallest degree of protection of unskilled labour. Together with the fact that West Germany has been importing unskilled labour, it appears that the benefits from protection (raising the wage of unskilled labour) have possibly been offset by the import of foreign labour. It further suggests that West Germany is aware of the forces of international competition and is inclined towards rationalization of its production structure.

8. The difficulties associated with the process of adjustment and with the existence of special interest groups, notably employers, are evident from a survey conducted by Maillat, Jeanrenaud and Widmer (1977b) for the case of Switzerland. Thus, they find that 66% of the respondents encountered expansion difficulties as a result of migration restrictions (mostly the textile and clothing manufacturers), and most suggested that production rationalization is the alternative they were considering. Further, they conceded that availability of foreign labour has been profitable. Regarding the possibility of transfer of employment, the majority of the respondents would choose to locate in industrial Europe rather than in labour exporting countries.

9. A proposal for such a scheme came from Mexico's President Lopez Portillo during his official visit to Washington, early in 1979. President Carter had also mentioned the possiblity in his 1976 immigration proposals to Congress. President Reagan has proposed to establish a guest worker program permitting 50,000 Mexican workers to enter the U.S.A. for a period of up to 1 year. The proposal has aroused strong opposition from labour unions, Hispanic-American associations, population organizations and church groups in the U.S.A.

10. The program was known as the "Bracero program". See Briggs (1975) for an analysis.

11. Briggs (1975) notes that the characteristic of Mexican immigrants in the U.S.A. is that they are illegal and unregulated. Briggs notes that, in 1973, 7-12 million illegal immigrants, mostly Mexicans, were apprehended.

12. Piore has suggested that the U.S. labour market has a primary/secondary character and that Mexican workers, together with other Hispanic minorities and blacks, represent its major components. See Piore (1979b) for an analysis of the role of migration in industrial societies.

13. Smith and Newman (1977) estimate that, along the Texan border, a 20% nominal income differential between border and non-border local labour markets exists, which, after controlling for other factors, they attribute to Mexican labour supply.

14. The relationship between migration, unemployment and welfare benefits has been analysed by Cebula (1977, 1979). He finds that the level of welfare benefits, ceteris paribus, acts as a pull factor in the migration process in the U.S.A., and as a consequence, migration has a significant impact on state and local government expenditures. He finds similar support for the hypothesis for the case of the Netherlands too.

15. The character of Mexico's growth will largely be determined by the utilization of oil revenues for purposes of capital formation and development. Oil revenues represent the major source of foreign exchange for the Mexican economy, and at least one aspect of the Western European labour transfers, that of the workers' remittances as a source of foreign exchange, would be insignificant in the present case.

APPENDIX I

THE DEVELOPMENT OF THE FRAMEWORK OF FREEDOM OF LABOUR MOBILITY IN THE EEC AND CONTROL OF LABOUR IMPORTS IN WEST GERMANY

APPENDIX I

THE DEVELOPMENT OF THE FRAMEWORK OF FREEDOM OF LABOUR MOBILITY IN THE EEC AND CONTROL OF LABOUR IMPORTS IN WEST GERMANY

A summary of the main elements of the framework regulating labour mobility in Western Europe was provided in Chapter II, Section II.2. A more detailed examination is now presented.

Regulation of migratory movements in post-war Europe was first enacted by the April 16, 1948 Convention mentioned "surplus" and "deficit" countries and provided the framework for liberalizing manpower mobility, by which labour shortages would be accommodated through transfers of human resources from the former to the latter. A subsequent document, consolidating the framework of migration, was issued in 1961. The major development in this context, however, came with the formation of the European Economic Community, whose regulatory framework superceded the OECD provisions in the context of Western Europe.

While Articles 48 and 49 of the Treaty of Rome (1958) and their subsequent interpretations laid down

the essentials of freedom of mobility within the EEC, certain areas remained the exclusive domain of national workers of member states. Thus, employment in the public sector is strictly limited to citizens of member states (Rome Treaty, Art. 48(4)); reasons of law and order, public security and public health may be invoked to limit freedom of mobility (Directive No. 64/221, 1964); and foreign citizens employed in a member state are excluded from participating in the management of public law institutions and from exercising a public office (Regulation No. 1612/1968, Art. 8).

The labour market orientation of the common labour market provisions are clear in Regulation 15/1961 adopted by the EEC Council. This Regulation, which is applicable to non-seasonal and non-frontier workers, gave priority in employment to national workers. It established a vacancy clearance mechanism by which a coordinating body to control balance in the labour market of member states was instituted, the European Office for Coordinating Vacancy Clearance (EVC). In addition, two more bodies were established, the Consultative Committee (CC) and the Technical Committee (TC). The EVC was responsible for the logistics of the EEC-wide vacancy clearance, while the CC is a tripartite body, composed of government, labour and

employers, with members from each member country and playing an advisory role on matters of migration. The TC is composed of government representatives of member states and was responsible for the development of legislation.

The vacancy clearance mechanism of Regulation 15/1961, in addition to the three-week requirement for filling a vacancy by a national worker, mentioned in Chapter II, also provided that EEC workers would have their work permit renewed after one year for the same job, and after three years they should be free to obtain any job they could qualify for. Unrestricted work permits should be granted after four years of residence. As noted in Chapter II, these restrictions were eliminated in 1964 and 1968.

Council Directive No. 68/360 (October 15, 1968) and Regulation 1251/70 (June 29, 1970) extended the previous legislation to cover matters of residence and stay in the host countries. The latter provided that the right to stay in the host country is granted to a worker who, at the time of his retirement, has been residing in the host country for the last three years and working for the last twelve months (Art. 2, 1(a)); who, having resided as an employed person for at least two years, is now permanently incapacitated with regard to work (Art. 2,1(b); who, after residing and working in

one member state, "works as an employed person in the territory of another state, while retaining his residence in the territory of the first state, to which he returns, as a rule, each day or at least once a week" (Art. 2, 1(c)).

Regulation 312/76 (February 9, 1976) extended Article 8 of Regulation 1612/68, granting the right to vote to workers, nationals of member states, on trade union matters, and the right to be eligible "for the administration or management posts of a trade union" (Art. 1). And Regulation 311/76 (February 9, 1976) provided that EEC states should compile statistics on foreign workers in their territory in order to obtain comprehensive information about the state of utilization of foreign labour in the Community.

In 1976, the Council of the European Communities passed the Resolution "On an Action Programme for Migrant Workers and Members of the Families" which reviewed existing legislation (in a document transmitted by the Commission of the EEC to the Council on December 18, 1974) and re-affirmed the Community's commitment to humanizing working and living conditions for foreign workers in member states. The Commission's document made special note of "third country migrants" and observed

that:

> "migrant workers from third countries are generally treated less favourably than workers coming from the Member States, and the situation of these third country migrants varies considerably from one country to another. Migrants originating in third countries do not have the right to freely enter the territory of the host country for the exercise of employment; they are required to possess a work permit and are subject to administrative controls. The work permit is issued in accordance with national legislation and administrative laws which determine geographic and professional limits, as well as criteria for renewal and withdrawal. Permission to stay is normally linked to possession of a work permit and may be subject to particular conditions not connected with the job, e.g., prohibition to reside in certain areas. Third country migrants are liable to deportation, too often at the discretion of the host country authorities. Certain Member States do not grant equality of treatment to third country migrants in the matter of trade union rights.
>
> In the absence of specific provisions in bilateral agreements, third country migrants do not generally have equality of treatment concerning social security allowances or other conditions of living and working in general.
>
> Furthermore, migrant workers from third countries may be joined by their families only with the express permission of the host country and after a period of employment of at least one and often two, years. Transfer of wages and savings to the country of origin is sometimes restricted". (Action Programme in Favour of Migrant Workers and their Families, Bulletin of the European Communities, Supplement 3/76.)

Non-EEC workers have been imported under a system of bilateral agreements between source and host countries, which serves two purposes: (a) to facilitate the operation of the system by invoking the authority and soliciting the assistance of the contracting government; and (b) to guarantee the rights of foreign workers by establishing an international agreement. Practically all labour importing countries have signed such agreements with labour exporting countries.

As representative of these agreements, the Greek-West German Agreement of 1960 was briefly discussed in Chapter II. More details of this agreement are presented here.

The agreement defines a framework of cooperation between the Greek and the West German governments to facilitate labour mobility for the purpose of achieving full realization of the production possibilities in the two countries. Labour exports are understood to be one such means to this end.

The responsibility for the implementation of the agreement is invested with the Federal Employment Institute (FEI) and with the Greek Ministry of Labour. Both bodies are responsible for the selection and employment of immigrants (Art. 2(1)). In particular, on Germany's side, The Bundesanstalt für Arbeit (Nuremberg) can, in order to fulfill this task, establish an agency

in Greece, bearing the cost of operation, and correspondingly, the Greek Ministry can establish a similar agency in West Germany (Art. 3). These agencies, established by West Germany in all labour exporting countries, have been instrumental in the operation of the system of labour imports.

Both offices are also responsible for the initiation of labour imports. According to Articles 4 and 5, the West German Office will communicate to the Greek Ministry information about economic and occupational categories where manpower needs exist, as well as information concerning conditions of work, earnings and tax rates. This communication is characterized as an offer of employment. The Greek Ministry can, independently of the West German offer, provide information to the West German agency concerning potentially exportable Greek workers under the proviso that these workers are trained or working professionally (Art. 6(3)). In addition, the Greek Ministry will respond to the West German offer of employment stating the availability of manpower, and will communicate the offer to Greek workers. The Greek Ministry will collect the applications of Greek workers willing to work in West Germany according to the offer of employment, and it will screen the candidates on the basis of their suitability, providing them with a health and professional certificate (Art. 7(1), (2)),

and travelling documents. The West German agency will then screen the selected candidates and the final decision for employment is left with West German employers (Art. 10), the latter having to draw a contract between the worker and the firm.

The West German agency will provide selected workers with work permits ("legitimationskarte") valid for one year, which substitute for the general requirement for work in West Germany by non-West German nationals (Art. 12(2)). Upon its expiry the worker must request a regular work permit issued according to domestic laws (Art. 12(3)). Within three days after arrival, foreign workers have to obtain a residence permit from the authorities of the area where they work. Note that the "legitimationskarte" is specific to a particular employer and in a particular location.

Article 17 provides that unification of families will depend on the availability of housing and on a contractual agreement between the employer and the worker. Three other Articles also deserve special attention: Article 16 states that workers will be able to export their labour earnings subject to the host country's laws concerning exchange controls. Article 18 states that the Greek government will accept, at any time, and without further procedures, Greek workers

exported on the basis of this agreement. Finally, Article 20 states that this agreement does not supercede in its application other more favourable agreements, when the latter are binding for the West German Govermment. Such, of course, is the EEC freedom of mobility agreement discussed above. Article 20 therefore, provides explicitly that benefits from the EEC agreement would accrue to non-EEC workers and it establishes the priority of the former over the latter.

The legal position of foreign workers in West Germany is defined by the Aliens Act (Auslandergesetz) of 1965, which replaced the Third Reich's Alien Act of 1938, valid until then. The letter of the bilateral agreement is consistent with the nature and intent of the Aliens Act. As was already noted, upon expiry of the "legitimationskarte" after one year, renewal of the residence permit depends on renewal of the work permit, in the absence of which the worker has to leave the country. However, the residence permit can be denied independently of the work permit (offer) if the worker's presence is against the interest of the Federal Republic. The Act is silent on the specific definition of this interest.

Finally, the West German Citizenship Act provides that a foreign worker may be granted citizenship only after a residence period of ten years. This is a

necessary condition. However, it is not a sufficient condition, since, in addition, the applicant must fulfill requirements regarding language, absence of criminal record, etc. Even if all the requirements are fulfilled, the application may be rejected if it is not in the interest of the West German state.

The main documents utilized in this Appendix can be found in Commission of the European Communities: "Freedom of Movement for Workers Within the Community, Official Texts", Brussels, 1977.

The official agreements between Germany and labour exporting countries can be found in the government publication Dienstblatt. The following agreements were consulted:

Agreement with Greece: Dienstblatt 1960, No. 26

Agreement with Spain: Dienstblatt 1960, No. 25

Agreement with Portugal: Dienstblatt 1964, No. 24

Agreement with Yugoslavia: Dienstblatt 1969, No. 15

For the case of France and the development of French immigration policy, see Kennedy-Brenner (1979).

APPENDIX II

STATISTICAL MATERIAL: DATA AND SOURCES

II.1 TIME SERIES OF MAIN VARIABLES

APPENDIX TABLES 1-10

APPENDIX TABLE 1

STOCKS OF FOREIGN LABOUR, WEST GERMANY

(1000's)

	Total Foreign Stock	Italians	Non-EEC
1960	279.39	121.69	157.71
1961	548.92	224.58	324.34
1962	711.46	276.76	434.70
1963	828.74	286.97	541.78
1964	985.62	296.10	689.51
1965	1216.8	372.30	844.51
1966	1313.5	391.29	922.20
1967	991.26	266.80	724.45
1968	1089.9	303.97	785.91
1969	1501.4	348.98	1152.4
1970	1949.0	381.84	1567.1
1971	2240.8	408.02	1832.8
1972	2215.9	401.70	1814.2
1973	2346.8	409.45	1937.4
1974	2286.6	331.50	1955.1
1975	2038.8	292.45	1746.3
1976	1920.9	279.10	1641.8
1977	1869.5	283.31	1586.1
Mean	1463.1	315.38	1147.7

SOURCE: See Appendix Section II.2

APPENDIX TABLE 2.

NON-EEC LABOUR IN WEST GERMANY, BY NATIONALITY

(1000's)

	Greece	Portugal	Spain	Turkey	Yugoslavia
1960	4.089	.261	9.454	2.495	8.826
1961	52.284	1.155	61.819	10.130	16.217
1962	80.719	1.857	94.049	18.558	23.608
1963	116.855	2.284	119.559	32.962	44.428
1964	154.832	4.636	151.073	85.172	53.057
1965	187.160	14.014	182.754	132.777	64.060
1966	194.615	21.091	178.154	160.950	96.675
1967	140.306	17.803	118.028	131.309	95.730
1968	144.740	19.980	115.864	152.905	119.144
1969	191.210	29.534	143.058	244.335	265.036
1970	242.184	44.796	171.671	353.898	423.228
1971	268.653	58.390	186.585	453.145	478.321
1972	266.348	60.099	178.669	457.260	454.343
1973	268.408	68.994	179.157	528.414	465.611
1974	229.178	78.453	149.718	606.815	466.698
1975	196.210	68.324	124.533	543.326	415.883
1976	173.097	62.328	107.518	520.989	387.222
1977	155.475	59.653	97.226	508.647	373.666
Mean	170.350	34.092	131.600	274.670	236.210

SOURCE: See Appendix Section II.2

APPENDIX TABLE 3

NON-EEC LABOUR IN WEST GERMANY, BY NATIONALITY: MALES

(1000's)

	Greece	Portugal	Spain	Turkey	Yugoslavia
1960	3.560	.224	7.808	2.295	7.169
1961	45.520	.992	51.056	9.318	13.171
1962	56.719	1.594	69.746	16.995	19.299
1963	78.905	1.864	85.225	29.393	35.130
1964	103.271	3.718	108.159	77.127	41.915
1965	118.183	12.172	130.029	115.018	49.617
1966	116.712	17.254	122.826	133.735	71.204
1967	82.016	13.354	75.639	105.853	63.726
1968	83.704	14.383	75.316	118.648	76.879
1969	110.133	21.073	97.992	190.762	179.539
1970	139.132	32.677	121.125	276.493	297.706
1971	154.807	42.179	132.649	355.787	338.392
1972	151.243	42.339	124.442	353.149	311.778
1973	151.435	47.491	124.035	399.606	315.718
1974	130.103	53.789	102.136	448.853	306.714
1975	112.659	46.390	84.450	402.618	267.810
1976	100.156	41.922	73.094	386.904	274.435
1977	90.624	39.910	66.328	375.782	237.558
Mean	101.600	24.074	91.781	211.020	161.540

SOURCE: See Appendix Section II.2

APPENDIX TABLE 4.

WAGES AND PRICES, WEST GERMANY

	Wages	W(%)	Prices (CPI Index)	P(%)
1960	2.68	--	77.4	--
1961	2.96	9.937	79.2	2.299
1962	3.30	10.873	81.6	2.985
1963	3.55	7.302	84.0	2.898
1964	3.87	8.630	85.9	2.236
1965	4.26	9.601	88.7	3.207
1966	4.55	6.585	91.9	3.544
1967	4.69	3.030	93.4	1.619
1968	4.88	3.971	94.9	1.593
1969	5.37	9.568	96.7	1.879
1970	6.09	12.582	100.0	3.355
1971	6.82	11.321	105.3	5.164
1972	7.42	8.432	111.1	5.361
1973	8.23	10.361	118.8	6.701
1974	9.13	10.378	127.1	6.753
1975	9.85	7.590	134.7	5.807
1976	10.49	6.295	140.8	4.429
1977	11.27	7.172	146.2	3.763
Mean	6.078	8.449	103.21	3.741

SOURCE: See Appendix Section II.2

APPENDIX TABLE 5.

VACANCY, UNEMPLOYMENT, AND FOREIGN LABOUR RATES, WEST GERMANY

(%)

	Vacancy Rate	Unemployment Rate[1]	Foreign Labour Rate[2]	Foreign Labour Rate[3]
1960	1.764	1.037	1.059	1.071
1961	2.072	0.693	2.061	2.104
1962	2.149	0.594	2.664	2.737
1963	2.070	0.714	3.093	3.191
1964	2.273	0.654	3.677	3.818
1965	2.410	0.573	4.518	4.732
1966	2.009	0.630	4.890	5.141
1967	1.148	1.816	3.770	3.918
1968	1.865	1.289	4.164	4.345
1969	2.826	0.716	5.680	6.022
1970	2.973	0.600	7.291	7.864
1971	2.415	0.752	8.350	9.111
1972	2.033	1.000	8.256	8.999
1973	2.124	1.112	8.713	9.545
1974	1.179	2.381	8.549	9.348
1975	0.895	4.413	7.729	8.376
1976	0.898	4.376	7.346	7.928
1977	0.979	3.995	7.194	7.752
Mean	1.893	1.519	5.500	5.889

...continued

Series calculated from the original variables whose sources are reported in Appendix Section II.2

1: the adjusted unemployment rate is the unemployment rate for West German workers, defined as

$$\frac{\text{Unemployment}}{\text{West German Labour Force}}$$

2: foreign labour as % of total labour supply.

3: foreign labour as % of West German labour supply.

APPENDIX TABLE 6.

VACANCIES AND UNEMPLOYMENT, WEST GERMANY

(1000's)

	Vacancies	Unemployment	$\frac{\text{Vacancies}}{\text{Unemployment}}$
1960	465.08	170.68	1.718
1961	552.10	180.86	3.052
1962	573.84	154.52	3.713
1963	554.81	185.65	2.988
1964	609.19	169.07	3.603
1965	649.00	147.35	4.404
1966	539.75	161.06	3.351
1967	302.01	459.49	0.657
1968	488.32	323.48	1.509
1969	747.00	178.58	4.183
1970	794.82	148.85	5.339
1971	648.08	185.07	3.501
1972	545.85	246.43	2.215
1973	572.04	273.50	2.091
1974	315.38	582.48	0.541
1975	236.17	1074.2	0.219
1976	235.00	1060.3	0.221
1977	254.50	963.5	0.264
Mean	504.61	375.84	2.420

SOURCE: See Appendix Section II.2

APPENDIX TABLE 7.

EMPLOYMENT AND LABOUR SUPPLY, WEST GERMANY

(1000,000's)

	Total Employment	Total Labour Supply	German Labour Supply	Italian & German Labour Supply
1960	26.092	26.363	26.083	26.205
1961	26.452	26.634	26.085	26.310
1962	26.545	26.700	25.988	26.265
1963	26.608	26.794	25.965	26.252
1964	26.630	26.799	25.813	26.110
1965	26.780	26.927	25.711	26.083
1966	26.698	26.859	25.546	25.937
1967	25.829	26.288	25.297	25.564
1968	25.850	26.173	25.084	25.388
1969	26.251	26.430	24.928	25.277
1970	26.582	26.731	24.782	25.164
1971	26.650	26.835	24.594	25.002
1972	26.592	26.838	24.623	25.024
1973	26.659	26.932	24.586	24.994
1974	26.164	26.746	24.460	24.791
1975	25.303	26.377	24.338	24.631
1976	25.088	26.148	24.227	24.507
1977	25.021	25.985	24.115	24.398
Mean	26.211	26.587	25.124	25.439

SOURCE: See Appendix Section II.2

APPENDIX TABLE 8.

WAGES AND PRICES, ITALY

	Wages	Prices (CPI Index)
1960	232.0	46.4
1961	248.0	48.2
1962	286.0	52.1
1963	334.0	57.7
1964	371.0	66.0
1965	386.0	71.7
1966	401.0	73.9
1967	426.0	77.0
1968	445.0	79.7
1969	489.0	84.7
1970	606.0	100.0
1971	703.0	104.8
1972	788.0	110.8
1973	966.0	122.8
1974	1209.0	146.3
1975	1794.0	171.1
1976	2133.0	199.8
1977	2673.0	233.9
Mean	805.0	102.61

SOURCE: See Appendix Section II.2

APPENDIX TABLE 9.

LABOUR SUPPLY AND UNEMPLOYMENT, ITALY

	Labour Supply (1000,000's)	Unemployment (1000's)	Unemployment Rate (%)
1960	20.338	836.0	4.11
1961	20.728	710.0	3.42
1962	20.468	611.0	2.98
1963	19.983	504.0	2.52
1964	19.355	549.0	2.83
1965	19.530	714.0	3.65
1966	19.221	759.0	3.94
1967	19.340	679.0	3.51
1968	19.291	648.0	3.35
1969	19.074	655.0	3.43
1970	19.123	609.0	3.18
1971	19.064	1038.1	5.44
1972	18.837	1047.1	5.55
1973	18.978	1004.8	5.29
1974	19.275	997.3	5.17
1975	19.472	1106.9	5.68
1976	19.671	1182.6	6.01
1977	20.103	1377.8	6.85
Mean	19.547	834.92	4.27

SOURCE: See Appendix Section II.2

APPENDIX TABLE 10

EXCHANGE RATES

	DM/US$	LIRA/US$
1960	4.17	620.6
1961	3.99	620.6
1962	3.99	620.6
1963	3.97	622.3
1964	3.97	624.8
1965	4.00	624.7
1966	3.97	624.4
1967	3.99	623.8
1968	4.00	623.5
1969	3.69	625.5
1970	3.64	623.0
1971	3.48	594.0
1972	3.18	538.2
1973	2.67	538.0
1974	2.59	650.3
1975	2.46	652.8
2976	2.51	832.2
1977	2.32	882.3
Mean	3.47	641.2

SOURCE: See Appendix Section II.2

II.2 SOURCES OF DATA

II.2 Sources of Data

The sources of data utilized in this dissertation are set forth below. Also provided is additional information about sources of data on labour migration in Western Europe.

West Germany was chosen as a case study in this dissertation not only because she is the most prominent employer of foreign workers in Europe, but also because she provides a wealth of statistical material. The sources presently utilized are as follows:

1. Bundesanstalt für Arbeit: "Amtliche Nachrichten der Bundesanstalt für Arbeit - Arbeitsstatistik-Jahrenszahlen", annual.
   Variables: Stock of Foreign Workers
   Stock of Foreign Workers by Nationality.
   Stock of Foreign Workers by Sex.
2. Statistiches Jahrbuch für die Bundesrepublik Deutschland, annual.
   Variables: Hourly Wages of Blue-Collar Workers in Industry (in DM), both sexes.
3. Monthly Report of the Deutsche Bundesbank
   Variables: Prices (Consumer Price Index).
4. Institut für Arbeitsmarkt-und Berufsforschung der Bundesanstalt für Arbeit: "Beitrage zur

Arbeitsmarkt-und Berufsforschung: Arbeitsmarktstatistische Zahlen in Zeitreihenform", Beitrage 3.1, Ausgabe 1978.

Variables: Vacancies
Unemployment

5. Eurostat: "Population and Employment, 1950-1976" Luxemburg, 1977.

Variables: Total Employment (Civilian) in West Germany
Italian Labour Force (Civilian)
Italian Unemployment

6. ILO: "Bulletin of Labour Statistics", various issues.

Variables: Hourly Earnings in Italian Manufacturing (in lira), both sexes.

7. ILO: "Yearbook of Labour Statistics", various issues.

8. IMF: "International Financial Statistics"

Variables: Exchange Rate, DM/US$
Exchange Rate, Lira/US$

9. Institut für Arbeitsmarkt-und Bernfsforschung der Bundesanstalt für Arbeit: "Beitrage zur Arbeitsmarkt-und Berfsforschung: Arbeitszeit und Arbeitsvolumen in der Bundesrepublik Deutschland, 1960-1975", Beitrage 23.

10. Ibid:
"Arbeitsmarktstatistische Zahlen in Zeitreihenform: Jahreszahlen fur Bundeslander und Landersarbeitsamtsbezirke", Beitrage 3.2, Ausgabe 1974.

Data on intra-European labour mobility are not usually collated and published by any international agency but can mostly be found in national statistics of the labour importing countries. An extensive search was conducted and the following provide useful information about stocks and flows of workers towards northern Europe:

Netherlands: "Statistical Yearbook of the Netherlands"

Belgium: Eurostat: Social Statistics, "Emploi", early series;
"Annuaire Statistique de la Belgique";
"Bulletin de Statistique".

France: INSEE: "Bulletin Mensuel de Statistique";
INSEE: "Enquetes sur l'Emploi de ...";
(various years).
E. Vlassenko: "Donnees Complementaires sur la Structure des Salaires dans l'Industrie en 1972", Collections de l'INSEE, Serie M, Décembre 1975;
"L'Immigration en France en 1976", Statistique du Travail, Supplement au Bulletin Mensuel #49 (1977), INSEE.

Switzerland: "Statistisches Jahrbuch der Schweiz".
"Annuaire Statistique de la Suisse".

Italy: ISTAT: "Annuario di Statistiche Demografiche".
ISTAT: "Annuario di Statistiche del Lavoro".

Austria: "Statistiche Nachrishten".

Since 1973 the OECD has been reporting on migratory developments in Western Europe in SOPEMI (Systeme d'Observation Permanente des Migrations), its annual report. SOPEMI contains extensive information about, and some analysis of, labour mobility in continental Europe and Scandinavia and their southern periphery.

In an attempt to assess the state of utilization of foreign labour in member countries, the EEC established the "Action Programme for Foreign Workers", and resolved that statistics be collected. "Foreign Employees in Employment - 1975", an outcome of this effort contains a wealth of statistics by country of origin and EEC country of destination.

Finally, a broad statistical description of the evaluation of migratory developments in Western Europe up to 1970 is provided by Hume (1970).

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