

**PORTUGUESE MIGRANTS  
IN THE GERMAN LABOUR MARKET:  
PERFORMANCE AND SELF-SELECTION**

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## ABSTRACT

### Portuguese Migrants in the German Labour Market: Performance and Self-Selection\*

Using a large new data set, we analyse the labour market performance of Portuguese workers in Germany. While previous work compares wages and characteristics of migrants only to those of natives, we match the data also with an equivalent survey from the sending country. We find that Portuguese migrants as a whole are negatively selected with the exception of blue-collar workers that are the greatest group among them. The observation that Portuguese migrants earn more than comparable Germans indicates that they have higher unobservable skills. Our results confirm the effectiveness of the German guest worker system.

JEL Classification: F22, J61

Keywords: Portuguese migration, self-selection of migrants, labour market performance of migrants, migration policy

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## NON-TECHNICAL SUMMARY

Following theoretical and empirical results of the migration literature it is important for receiving countries to attract migrants with a particular endowment of skills in order to avoid negative effects of immigration on the economy and to maximize the benefits of immigration. Another well established result of the migration literature indicates that this selective demand of the host countries faces a self-selected supply of migrants. Hence, any immigration policy can choose only out of a self-selected pool of people who are willing to migrate. In spite of its importance for an effective migration policy the empirical knowledge about the self-selection process is quite limited. This paper contributes to this neglected area in the migration by asking the following questions: How do migrants compare to the population in their home country and in the host country? What does this imply for the immigration policy of the host country?

This paper analyses the self-selection process and labour market performance of Portuguese guest workers in Germany utilizing the *Beschäftigtenstichprobe* which represents a 1% sample of all workers in Germany paying social security contributions. Most of the Portuguese guest workers migrated to Germany in the 1950s and 1960s. In this time period Germany actively recruited low-skilled blue-collar workers from southern European countries. The institutional setting and the organization of this active immigration policy was highly selective. On the one hand, we study the self-selection process of Portuguese guest workers in terms of observed and unobserved characteristics by comparing the labour market performance of Portuguese guest workers relative to Germans. On the other hand, by combining the German data set with Portuguese cross-section data from 1982 and 1986 we are able to calculate predicted wages for migrants and non-migrants which enables us to get further insights into the self-selection process.

The descriptive analysis of the two data sets revealed that Portuguese workers in Germany have a lower education than Germans. Compared to Portuguese workers who stayed in Portugal, significantly more Portuguese guest workers have vocational training. Among the Portuguese guest workers in Germany, however, there are no persons with a bachelor or university degree. These results indicate a negative selection with regard to schooling, but a positive selection among workers with lower education.

Based on the results of simple Mincer-type earnings functions we compared the predicted wages for both groups of Portuguese workers (Portuguese workers in Portugal and Portuguese guest workers in Germany) in the other country. This analysis revealed that Portuguese workers in Portugal would

have received higher wages if they had migrated to Germany, whereas those who migrated to Germany would have earned less in Portugal than their Portuguese counterparts. This result indicates that Portuguese guest workers are negatively self-selected with regard to observed characteristics if compared to those who stayed at home.

Comparing the wages of native Germans to those of Portuguese guest workers using a standard Oaxaca decomposition shows, that most of the income advantage of Germans can be attributed to their better endowment of skills. Compared to natives, however, Portuguese guest workers have an advantage with regard to the remuneration of skills holding the skill level constant. Interpreting the remuneration of skills as an indicator for unobserved abilities, the latter result suggests that Portuguese guest workers are positively self-selected with respect to unobserved characteristics if compared to the average German worker. Restricting the analysis to low-skilled blue-collar workers. This effect is especially high for low-skilled blue-collar workers, which represent the majority among the Portuguese migrants.

To summarize, the results of this study confirm that the selective immigration policy in Germany in the late 1950s and the 1960s was effective since Germany was able to attract migrants with the appropriate skill level and unobserved characteristics like motivation.

## 1) Introduction

Many models studying the impact of immigration on the economy of the receiving country demonstrate that it is important to attract migrants with a particular endowment of skills in order to avoid negative effects on natives and to maximize the benefits of immigration. Following these arguments some immigration countries like Canada, the United States and Australia have established an immigration system that selects migrants according to characteristics that are beneficial to the labor market. The German recruitment policy in the 1950s and 1960s is an extreme example for a selection strategy that mainly follows the demands of the labor market.

However, the demand on the world market for migrants meets a self-selected supply. Hence, any immigration policy can choose only out of the pool of people who are willing to migrate. There is still not sufficient knowledge about the self-selection process, especially in Europe where most of the literature concentrates on the issue of the assimilation of migrants and their impact on the natives. How do migrants compare to the population at home and in the receiving country? What does this imply for the immigration policy of the host country?

The paper utilizes a new dataset ('Beschäftigtenstichprobe') which is provided by the German Labor Office since 1996. This dataset is a 1% sample of all workers that had to pay contributions for social security and covers the period 1975-1990. Because of this large sample it is possible to analyze the labor market performance of such a relatively small group like Portuguese workers in Germany. Beside this standard analysis concerning the labor market performance we analyze the selection of guest-workers in Germany in terms of observed and unobserved characteristics by combining the German dataset with Portuguese cross-section data for 1982 and 1986.

Hence, the novel feature of this paper are (i) the use of matched micro data from the sending and receiving regions, and (ii) the study of a largely underresearched European flow of workers, Portuguese-German migration. The paper is divided into six parts. In Section 2, we describe the institutional background and the development of migration between Portugal and Germany. Section 3 contains a review of the theoretical background. The dataset is explained in Section 4. This section also provides some first results concerning the selection of Portuguese migrants by comparing the characteristics of Portuguese migrants and the German and Portuguese workers. In Section 5, the results of earnings regressions are used to compare the wages of Portuguese migrants to those Portuguese who stayed at home and to equivalent German workers. Section 6 concludes.

## **2) Institutional Background and Stylized Facts**

Since the rise of Portuguese migration to Germany in the early 1960s the institutional setting has changed several times, and together with economic incentives this has caused different patterns of migration. This section provides an overview of the institutional background and the dimension and structure of migration between Portugal and Germany from both the net receiving and sending countries.

### *The German Perspective*

Migration from Portugal to Germany was initiated by the German guestworker system. In the 1950s and the early 1960s Germany faced excess demand for unskilled blue collar workers which induced the establishment of an active recruitment policy. Recruitment treaties were signed with Italy (1955), Greece and Spain (1960), Turkey (1961), Morocco (1963), Portugal

(1964), Tunisia (1965) and Yugoslavia (1968). (See Zimmermann (1995) for a detailed description of the German immigration policy since World War II.) Under the responsibility of the German Labor Office, German firms filed offers for contracts with the labor authorities, who forwarded the offers to recruitment officers in the individual countries. These officers then selected workers on the basis of qualifications, health, and employment records. (A detailed description of the organization and enforcement of the recruitment of guest-workers is given by e.g. Bauer and Zimmermann (1996).) By law, wage offers to the guestworkers had to be identical to those for equally qualified Germans. Despite this active recruitment of the German labor office there was also the possibility of the so called "second way" of immigration to Germany: foreign employment seekers were allowed to apply directly for jobs in the German embassy in their home country.

Facing increasing social tensions and fears during an upcoming recession following the first oil price shock, Germany terminated the active recruitment of guestworkers in November 1973. But this recruitment stop did not imply a general immigration halt. Due to family reunification relatives of foreign workers in Germany were still allowed to migrate to Germany. Furthermore, citizens of European Union member states were not affected by the recruitment halt because of regulations that guarantee the free movement of workers between the member states. However, although Portugal (and Spain) joined the European Union (EU) in 1986, there were mobility restrictions for Portuguese (as well as for Spanish) workers for a period of 7 years. During this period, they were not treated as EU workers, but like third-country nationals - a regulation that was introduced due to the great economic differences with and the fear of mass out-migration to the core of the EU (including Germany).

Figure 1 summarizes the migration flows from Portugal to Germany from 1960 to 1995.



In response to the German demand for labor and the beginning of active recruitment in Portugal (1964) the flow of Portuguese migrants grew steadily from 1960 to 1973 when the recruitment was stopped. In this period 1967 was the only year with a negative immigration balance which was caused by a severe recession in Germany. Figure 2 shows that the stock of Portuguese in Germany increased from close to zero in 1960 to about 120,000 in 1974. Furthermore, until the early 1970s these Portuguese consisted mainly of workers.

After the recruitment stop the migration balance became negative until 1986. Return migration reached a peak in 1983 (see Figure 1) when the German government established a return program, which could be claimed by workers that became unemployed or were working short-time for a longer period. Figure 2 shows that the stock of Portuguese employees decreased from its peak in 1974 by 54% until 1987, whereas the overall Portuguese population decreased only by 43% from 122,000 to 69,000 indicating the increased importance of migration through family reunification after the recruitment stop.

Since 1986, when Portugal joined the European Union, Germany experienced again a positive net immigration from Portugal which increased sharply in 1993, when free mobility for Portuguese workers started. Despite this increased inflow the employment of Portuguese workers in Germany surprisingly remained nearly constant. From 1992 to 1995 the Portuguese population increased by about 27,000 persons, the number of employees only by 5,000. An explanation for this may be the sharply growing number of so called *Werkvertragsarbeiter* from Portugal working in Germany, especially on building sites. *Werkvertragsarbeiter* are persons working in Germany, but are formally employed by Portuguese companies; they do not pay social contributions there and are not counted in German official labor statistics. (See Bauer and Zimmermann (1996, 1997) for a more detailed description of the legal constraints to immigrate

as *Werkvertragsarbeiter*.)

Unfortunately, only few information about the number and origin of these workers in Germany is available. An estimation on the overall size results at about 150,000 to 200,000 - mainly from the UK, Ireland and Portugal. Because these workers are paid much less than their German counterparts, this has created large public tensions due to the perceived cause of rising native unemployment especially in the construction sector. Hence in early 1996, the German government passed a law ("Entsendegesetz") to force foreign companies to pay German wages for *Werkvertragsarbeiter*.

Finally, it is worth noting that Portuguese workers are only a minor group of foreign employees in Germany. After the stop of recruitment in 1974 their fraction on all foreign guestworkers were about 3.4% in 1974 and decreased to about 2.4% in 1996.

### *The Portuguese Perspective*

Portugal has a long history of emigration, with the overseas territories as main destination in the last centuries. Even after World War II, in the decade 1950-1959 the majority was heading to Brazil (237,000 out of 350,000). Europe was not attracting much of the emigration as it appears as the destination for less than 7% of the emigrants; of these less than 1% chose Germany as the destination (93% chose France). This picture has changed during the sixties (1960-69). First, the emigration increased to more than 797,000 with Europe as the destination for the majority of the emigrants (almost 70%). Germany attracted more than 10% of the migrants heading to Europe (France 86%) whereas Brazil experienced a large decrease in immigration (to 73,267) from Portugal. In the seventies (1970-79) there is a small increase in emigration (to more than 850,000). During this period Europe has increased its share to more than 77%; Germany

accounting for 23% of this, and France 57%. Brasil accounted for less than 2% of the emigrants.

The structure of the labor market in 1950 was one of very low unemployment (around 3%), but this hides a very high rate of underemployment. In 1950 still 47% of the population worked in the agricultural sector, where wages and productivity were very low. Between 1950 and 1960 employment in agriculture decreased by 9% and the manufacturing and construction sectors absorbed most of the displaced labor. In some regions of the country some shortages of labor started to be felt in the harvesting period, but as a whole employment in agriculture was too high.

The figure of excess supply in the labor market during the 1950s and the beginning of the 1960s was also documented by the low share of labor in total national income, 41.1% in 1960. The situation of low wages was one of the aspects of the model of industrialization Portugal was to pursue, based in cheap and abundant labor supply to the industry, maintained by the freeze of the agricultural prices. The freeze of the agricultural prices provoked an exodus of the landless workers and small and medium scale workers in agriculture. In the first half of the 1960s output grew 6.4% yearly in average, inflation was 2.2% and unemployment was 3.1% in average. In the second half output growth remained unchanged, while unemployment decreased and inflation increased to an average of 5%.

During this period Portugal experienced large emigration flows. At the same time the war in the overseas territories started (1961) and draft increased to more than 100,000 persons at its peak. The consequences of the emigration-draft for the labor market is difficult to disentangle. The political reasons to migrate as a way to avoid the draft or to oppose the dictatorial regime do not seem to be explain the vast majority of emigration. As Serra (1985) shows, most of the emigrants aimed to increase their standard of living and almost 60%

migrated to the countries they had chosen freely. Economic motives seem to be the explanation for most of the Portuguese migration. Low wages in Portugal had a push effect, and higher wages in the destination countries had a pull effect. Baganha (1994) adds as another explanation the fact that there was no high scarcity of labor: all the development process was constrained by the low number of high qualified workers (liberal professions, scientists and the like). As there is no evidence of emigration of this type of workers (as they were relatively better paid in Portugal), people who emigrated were a surplus in the internal labor market.

Emigration is the export of work, and as Portugal was selling a good for which it had no use, there was no loss independently of the value it received for it (Baganha, 1994). The importance of remittances should be stressed in this context as in 1970 remittances cover 30% of imports and 139% of the imports of equipment goods. In this year exports were 24.6% of GNP - not enough to cover the cost of imports (30.6% of GNP). The economic situation of the 1960s has maintained until 1973, although the scarcity of labor, especially high-qualified labor, has increased. According to Rocha (1982), remittances were a subsidy to the survival of the development model and of the political regime.

### **3) The Theoretical Background**

The migration literature can be separated into two broad categories. Within the first category the effects of migration on the receiving country have been analyzed. This line of research has focused mainly on the following questions: How do migrants perform in the economy of the receiving country; what are the consequences of immigration for native labor; and which kind of immigration policy maximizes the host countries' benefits from immigration? The second

research field takes the view of the sending country and analyzes the effects of the brain drain, the nature and effects of return migration and the effects of remittances. (See Borjas (1994) and Zimmermann (1995a) for recent surveys of the migration literature.)

Both areas are closely related. For example, if the receiving country is able to attract immigrants with high levels of productivity, who adapt rapidly to the host countries' labor market, migration can make a significant contribution to economic growth. On the other hand, the loss of highly productive workers may have an adverse effect on the economic growth of the sending countries. Using data from the sending and receiving country in Sections 4 and 5 we combine the two strands of the migration literature by comparing the characteristics and wages of Portuguese guestworkers in Germany to workers who decided to stay in Portugal and to native workers in Germany. This comparison allows us to obtain some insights into the effects of migration between Portugal and Germany on the respective economies.

#### *The importance of attracting the right immigrants*

Depending on the framework and crucial assumptions, economic theory obtains quite different results regarding the effects of immigration on the labor market. Assuming homogeneous labor, the standard competitive framework predicts that immigration has a negative effect on wage rates and a positive effect on the productivity of capital in the receiving country with the reverse happening in the sending country. In total, immigration results in an increase of total welfare at the expense of labor in the receiving country and the expense of capital in the sending region. This kind of model seems to be adequate for the German situation in the 1950s and early 1960s. (See Bauer and Zimmermann (1997, 1998) for a more detailed discussion.) It is widely accepted that the level of economic prosperity that West Germany obtained in these decades would have been difficult to reach without the contributions of foreign workers. By its very nature, this form

of immigration from Portugal and the other sending countries should have been the most profitable for the German economy, since the recruitment of guestworkers was orientated as much as possible on the needs of German firms.

However, there is no reason to believe that such an equilibrium situation for Germany would prevail after the first oil price shock in 1973. The general theoretical framework provided by Schmidt, Stilz and Zimmermann (1994) can be used as a point of departure to study the labor market effects of immigration under a disequilibrium situation. In a model with heterogeneous labor, the authors allow for the possibility that wages may not be downward flexible due to the behavior of unions causing unemployment of unskilled workers. These imperfections are crucial in analyzing migration after the recruitment stop in 1973. If union behavior remains unaffected by immigration, then the new immigrants may cause unemployment to rise. However, unions' wage-employment choice may be affected by the pressure of increased unemployment or by the possibility to give different weights to the interest of groups of workers.

If labor is indeed heterogeneous, the key issue for the evaluation of the effects of immigration is whether foreigners are substitutes or complements to natives. Assume there are only two types of labor, skilled and unskilled workers where skilled and unskilled workers are complements, and immigrants tend to be substitutes to unskilled natives and complements to skilled natives. Hence, increased immigration may depress wages and (possibly) increase unemployment of unskilled native workers, and may induce the reverse effect for the skilled. Within such a framework, which allows for the possibility of high unemployment in the host country, immigration of skilled and unskilled workers can be shown to be beneficial, if wages of unskilled workers will be (by weakening of the position of the unions) somewhat downward flexible, and the economy comes closer to a competitive framework. Native unemployment may

also fall. However, the losses for the economy can also be quite substantial, if new labor moves into those market segments that exhibit unemployment and are inflexible. (See Zimmermann (1995b) for a particular example and Bauer and Zimmermann (1996, 1997, 1998) for a calibration of the model using German and European data.)

The arguments above suggest that it is important for the host country to attract migrants with an particular endowment of skills in order to avoid negative effects of immigration on the economy and to maximize the benefits of immigration. In the period of active recruitment of foreigners Germany demanded mostly unskilled blue collar workers for which there was an excess demand in the labor market. Recent studies show that today Germany has to attract mainly skilled workers in order to reap the benefits from immigration (Bauer and Zimmermann, 1996, 1997).

However, the demand of a receiving country for a particular type of foreign workers faces a self-selected supply. A popular model in the migration literature to analyze the self-selection of migrants is the Roy model. A formal representation of this model for the explanation of international migration flows can be found in Borjas (1987, 1994).

### *Self-selection of migrants*

According to the Roy model immigrants can be either positively or negatively self-selected with regard to observed and unobserved characteristics depending on the relative value of their characteristics in the sending and in the host country. For example, positive selection in the schooling level, in the sense that the mean schooling degree of migrants is greater than the mean schooling degree of the population of the country of origin, occurs when the labor market in the host country attaches a higher value to schooling than the sending country. Conversely, high-

skilled individuals have little incentive to migrate if the rate of return to schooling in the host country is lower compared to the country of origin. Negative self-selection in terms of unobserved characteristics like motivation occurs if the wage distribution in the host country is less dispersed than in the sending country so that high ability workers are in a sense taxed whereas low-ability workers are insured against poor labor market outcomes. In either way, the decision problem of a person to migrate leads to a self-selected pool of migrants and every migration policy is only able to select individuals out of this self-selected pool.

In the following sections we will combine German data with Portuguese data to identify the pattern of the self-selection of Portuguese migrants in terms of education and unobserved characteristics. In a first step, we compare the characteristics of Portuguese workers in Germany with those of Germans and of Portuguese who stayed in their home country. In a second step, we use earnings regressions to identify the direction of the self-selection of Portuguese guestworkers by comparing the potential earnings of Portuguese migrants in their home country with those they actually receive in Germany and the actual earnings of Portuguese workers who stayed at home with those they would have obtained in Germany.

In order to compare how Portuguese guestworkers are doing vis-a-vis their German counterparts, we perform a standard decomposition analysis (Oaxaca, 1974) into two components: (i) the wage differential due to differences in skill endowments, and (ii) an unexplained part which is due to differences in remunerations of those characteristics. We will use the latter to draw some conclusions about the self-selection of migrants with regard to unobserved characteristics relative to the native population. The predicted wage differential between Portuguese workers in Germany (PGE) and Germans (D) can be calculated as



$$\bar{w}_D - \bar{w}_{PGE} = \alpha_D + \beta_D \bar{X}_D - \alpha_{PGE} - \beta_{PGE} \bar{X}_{PGE} :$$

where  $\beta$  are the estimated coefficients and  $\bar{X}$  is the mean of the characteristics. Subtracting and adding  $\beta_D \bar{X}_{PGE}$  from this difference, dividing by  $\beta_D \bar{X}_D$  and changing the order, results in:

$$(\bar{w}_D - \bar{w}_{PGE}) / (\beta_D \bar{X}_D) = \frac{(\alpha_D - \alpha_{PGE}) + (\beta_D - \beta_{PGE}) \bar{X}_{PGE}}{\beta_D \bar{X}_D} + \frac{\beta_D (\bar{X}_D - \bar{X}_{PGE})}{\beta_D \bar{X}_D}$$

The first term on the right-hand-side is the unexplained part of the percentage wage differential between German and Portuguese workers, and the second term is the component of the percentage wage differential which is due to differences in the mean characteristics of the two type of workers. The unexplained part is equivalent to the difference in the actual wage and the predicted wage, the latter calculated by using German coefficients for the Portuguese sample, and is usually interpreted as an measure of discrimination of a group of workers. Since in Germany workers with the same characteristics have, in principle, to be paid the same wage, we interpret this unexplained part of the percentage wage differential as a measure of the differences in unobserved skills between natives and Portuguese migrants.

#### 4) Dataset and Descriptive Statistics

Although the performance of guestworkers in the German labor market has been the subject of several empirical studies, there exists hardly any evidence on the subgroup of Portuguese workers. This lack of research can be mainly attributed to the lack of appropriate data.

Portuguese workers are only a small fraction of the German labor market (and even among the foreign workers) and hence were not sufficiently sampled in previous surveys with smaller sample sizes. The situation changed in 1996, when the German Labor Office provided access to the 1975 to 1990 files of the Employment Statistic Register Sample ("Beschäftigtenstichprobe"). We were further able to merge a similar Portuguese dataset for two years (1982, 1986) with this survey.

The "Beschäftigtenstichprobe" of the German Labor Office is a 1% sample of all workers in Germany which pay social security contributions, excluding self-employed people, public servants and persons with 'negligible' employment. It covers the period January 1, 1975, to December 31, 1990. In principle, it is possible to completely follow the employment status of one person from its first entrance in the German labor market until retirement. (For some restrictions of the survey see Bender et al. (1996).) One major drawback in our context is that there is no possibility to identify the number of years since migration for foreign workers. A further issue is that wages (measured as gross income per day) are censored from above. This is due to the fact that there is an upper bound to which social contributions have to be paid proportionally to the wage. However, this bound is at such a high level that actually no Portuguese workers were affected in the period under investigation. For the purpose of this paper, we constructed 16 cross-sections at March 1 of each year (1975-1990).

The Portuguese dataset 'Quadros de Pessoal' (Employees Table) of the Portuguese Ministry for Employment and Social Security contains the information about all workers who contribute to social security or have their work-relation under some kind of collective bargaining agreement. It does not include public servants, but it contains information of more

than 2 million workers on profession, qualification, education, tenure, age, sex, base-wage, regular allowances, irregular allowances and hours of work. It covers more than 150 thousand firms with information on their location, type of firm and ownership. The data is provided by the firms since 1982 on an annual basis. The survey is cross-sectional, but it is possible to create panel data on firms and workers. From the main dataset random samples were created and the microdata became available for the purpose of our research.

Due to some differences in the definition and construction of the variables in both datasets, some adjustments were in order. Table 1 provides a description of the final dataset and the respective definitions of the used variables. In the German case, we have drawn random subsamples out of all available male Germans after excluding individuals with incomplete observations resulting in about 60,000 men for each year. Furthermore, we included all male Portuguese in Germany that were present in the labor survey at the relevant March 1. However, because of the relatively small size of Portuguese workers and due to the exclusion of individuals with incomplete observations, the resulting samples sizes are comparatively small. The largest sample (1975) contains 380 Portuguese in the German labor market, and the 1986 sample 183 observations. Nevertheless, we think that the samples are sufficiently large to justify our analysis.

Table 2 contains the descriptive statistics of the 1975 and 1990 German samples, as well as for the years 1982 and 1986 for which we were able to match the Portuguese data. As expected, Portuguese workers in Germany (PGE) have a lower education than natives. In 1975 76.8% of PGE had a low school education with no additional vocational training (Germans: 21.6 %). In the following years this percentage continuously decreased to 69.2% in 1990

(Germans 15.2%). In the whole period 1975-1990, there were no PGEs with a bachelor or university degree. Compared to the Portuguese workers in Portugal there are two remarkable points to make: On the one hand, significantly more PGEs had vocational training (1982: 24.1% compared to 7.4%), on the other hand among Portuguese workers that stayed in Portugal are (of course) persons with a bachelor or university degree. These results indicate a negative selection regarding to school education, but a positive selection concerning workers with low school education but vocational training. Furthermore, it can be seen that in 1975 most PGEs (76.1%; Germans 21.5%) were working in unskilled blue-collar jobs and very few in white-collar jobs (0.5%; Germans 33.0%). However, until 1990 the differences in the occupational distributions between PGEs and Germans became smaller.

Investigating the sectoral distribution, Table 1 exhibits that in 1975 PGEs were mainly employed in Mechanical Engineering (18.2%; Germans 16.6%), Textile (15.3%; Germans 2.3%) and Iron (12.4%; Germans 6.6%). While the shares of Mechanical Engineering and Iron stayed relatively constant, Textile (15.3% to 7.1%), Chemistry (9.5% to 6.6%) and Mineral and Metalics (7.4% to 4.3%) lost some of its importance. The number of PGEs working in the different service sectors increased from 11.1% in 1975 to 21.8% in 1990. A question which arises at this point of the analysis is whether the sectoral distribution of PGEs is similar to the sectoral distribution in Portugal, and whether the sectoral distribution of PGEs adjusts over time to that of German workers. Table 3 contains simple correlation coefficients which provide some interesting insights. It can be seen that on the one hand the distribution of PGEs over sectors was always more similar to the Germans than to the Portuguese. Furthermore, between 1975-1990 the PGEs steadily assimilated to the German distribution. The changes within the PGE group between 1975 and 1990 were clearly greater than among the Germans.

Compared to the natives, PGEs are more concentrated in bigger companies. While in 1977 - for which the first information on firm size is available - 17.3% were employed in firms with less than 100 employees. This share increased to 26.6% in 1990 (Germans 42.5%). Furthermore, in 1975 PGEs were on average 3 years younger than Germans. Even in this respect they became more similar to the natives until 1990. Over the whole period under consideration the PGEs became only 4 years older, which leads to the point that we are not able to control for people that immigrated after 1975, returned home or for second-generation effects. However, in the 1990 sample, there are only 7 workers that were born after 1970. Because family reunification became only important in the early 1970s, it can be assumed that nearly all workers in the sample were born in Portugal. But the number of workers that received at least a share of their education in Germany can be significantly larger. However, because they were born before 1954, at least 126 of the 210 workers in the 1990 sample should have received their full education in Portugal.

## **5) Wage Equations and an Analysis of Self-selection**

Basis of our analyzes are Mincer-type earnings functions (Mincer, 1974). For the estimations based on the German dataset we used a Tobit regression model (see e.g. Greene, 1993) to take into account the censoring of wages. As can be seen from Table 4, the coefficients for education of the PGEs are hardly significant and unstable in signs. The reference group were people with low school education and no vocational training. Therefore, vocational training as well as a higher school education had no effect on the wage in Germany. This can be explained by

incomparability of education and training, country-specific human capital or by imperfect possibilities to transfer human capital. As has been noted in the last section, relatively many Portuguese with vocational training came to Germany, but nobody with a bachelor or university degree. One possible explanation can be traced by the wage equations: although the returns to educational degrees are higher for each educational group in Portugal if compared to Germany, the differences are largest for bachelor and university degrees. Therefore, highly educated persons in Portugal should have had a smaller incentive to migrate to Germany.

Similar to the education variables, the returns to occupational status are more dispersed in Portugal than in Germany. Furthermore, it can be seen that the coefficients for occupational status are very similar for PGEs and Germans. Looking at the three sectors in which PGEs are traditionally concentrated, we see that Textile is a very low-paid sector in Portugal as well as in Germany. Mechanical Engineering and Iron are poorly paid in Portugal but well-paid in Germany.

Using the estimation results in Table 4 we calculated predicted wages for both Portuguese groups in the other country for 1982 and 1986. Table 5 demonstrates that Portuguese workers who stayed in Portugal would have received higher wages if they would have migrated to Germany than those who actually did. This result is surprising on the first sight: those individuals with the highest earnings potential in Germany should have migrated. But as shown above, the remuneration of education in Portugal is much higher than in Germany. So this effect simply outweighs the higher earnings potential in Germany. Because of the supposed negative self-selection of migrants, the Portuguese who stayed in Portugal would earn more in Germany simply because of their better characteristics. On the other hand, Portuguese workers who

migrated to Germany would have earned less in Portugal than their Portuguese counterparts. With the exception of low-skilled blue-collar workers these results also hold when the comparison is carried out for individuals with different characteristics. However, as the discussion in the last section has shown, low-skilled blue-collar workers represent the majority of Portuguese workers in Germany. In combination, these results indicate that total Portuguese migration is negatively self-selected with respect to observed characteristics if compared to those who stayed at home. But low-skilled blue collar workers, which have been overwhelmingly recruited in the 1950s and 1960s, seem to be positively self-selected.

The first row of Table 6 contains the wage differentials and the (Oaxaca-) decomposition of this differential into the unexplained and explained parts. It appears that the average German has an income advantage over the whole period compared to the average Portuguese worker, which is not particularly surprising. The decomposition reveals that most of this income advantage of Germans can be attributed to their endowment with skills. In 1975, 10.42% of the wage differential is due to different observable skills. However, as can be seen in Figure 3, Portuguese guestworkers in most years did better than the average German worker on the basis of the remuneration of the skills holding the level of skills constant. Only in 1975, 1983 and 1984 their performance was worse than it should be with regard to their characteristics, which might be explained with business cycle effects. One may even speculate about an increasing trend in the wage differential as well as an decreasing trend in the unexplained part.

Interpreting the unexplained part of the wage differential as an indicator for unobserved abilities, these results suggest that Portuguese guestworkers are positively self-selected with respect to unobserved characteristics if compared to the average German worker. Some

qualifications about this interpretation are in order since the unexplained wage differential could be partly caused by differences in hours worked which we are unable to control for. However, hours of work itself is no characteristic of a person and could be interpreted as proxy for unobservable characteristics like motivation.

Table 6 further reveals remarkable differences in the wage differential and the decomposition across different groups. First, Portuguese with a low school level and low skilled blue-collar workers, which account for the majority of Portuguese migrants, exhibit an earnings advantage if compared to the average German in the same group. For both groups, the Portuguese have an advantage in their skill-level and in their unobserved characteristics. Since it can be assumed that most of these individuals migrated to Germany during the recruitment period, these results highlight the success of the German recruitment system: Germany was not only be able to select the migrants according to the necessities of the German labor market, the recruitment officers in Portugal were also able to select the most highly motivated workers. Second, Table 6 suggests that for those Portuguese groups with an advantage (disadvantage) in the remuneration of their skills this advantage (disadvantage) tends to increase (decrease) over time. This result implies that mainly those migrants with a lower level of unobserved skills left Germany.



## 6) Conclusions

Using a large new dataset for 1975-1990 provided by the German Labor Office since 1996, we were able to analyze the labor market performance of such a small group as the Portuguese workers in Germany. We further have investigated the selection of guestworkers in terms of observed and unobserved characteristics. The innovation here is the combination of the German data with Portuguese cross-section data for 1982 and 1986. The comparisons have revealed that Portuguese guestworkers have a lower level of education than Germans and those workers who stayed in Portugal. However, compared to the Portuguese who stayed at home a higher fraction of the migrants have vocational training. The sectoral distribution of Portuguese migrants is more similar to that of Germans than to those of workers in Portugal, and assimilates further over time to the German one.

Estimation of earnings equations using both datasets have shown that Portuguese workers who stayed in Portugal would have received higher wages if they would have migrated to Germany than those who actually did, whereas those who migrated to Germany would have earned less in Portugal than their Portuguese counterparts. These results suggest that Portuguese migrants are negatively self-selected with regard to observed characteristics if compared to those who stayed at home. However, for the type of Portuguese workers in Germany, namely low-skilled blue collar workers, a positive self-selection has been revealed. A comparison of the wages of German natives and Portuguese guestworkers using an Oaxaca decomposition holding the level of skills constant suggests that the remuneration is higher for the latter. This implies that Portuguese guestworkers in Germany are positively self-selected in terms of unobserved skills if compared to the German population. These results confirm the effectiveness of the

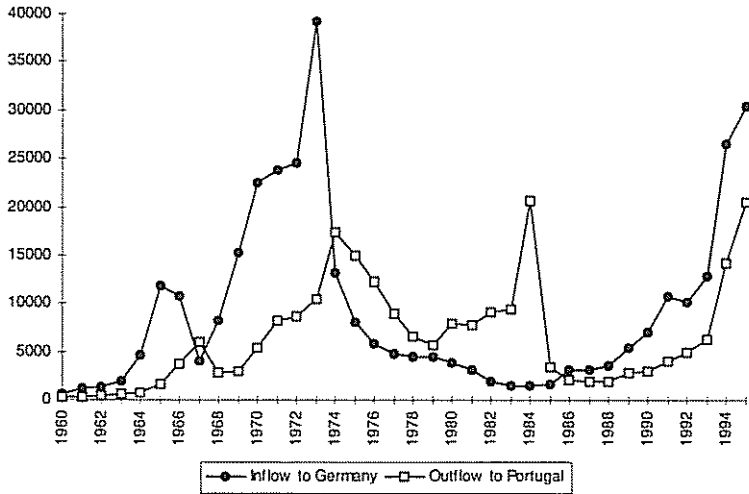
selective German migration policy in the late 1950s and the 1960s in attracting migrants with appropriate level of skills and unobserved characteristics like motivation.

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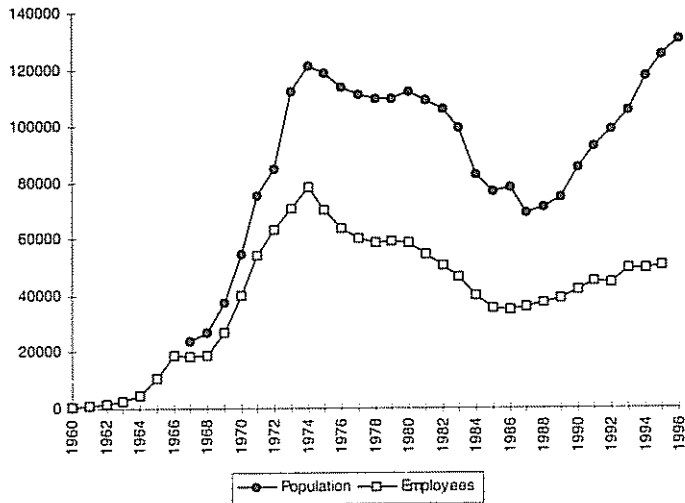
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Figure 1. Migration of Portuguese to Germany



Source: Statistisches Bundesamt (various years)

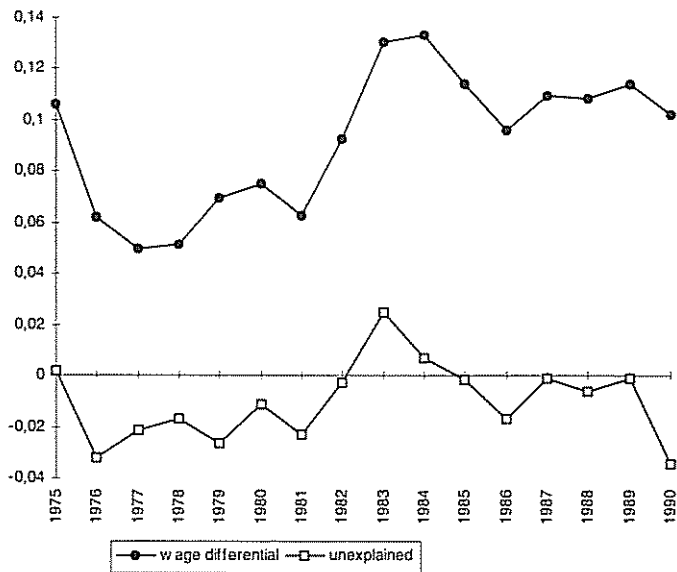
**Figure 2. Size of Portuguese Population and Workers in Germany**



Note: The number of employees includes only workers that have to pay contributions to social security

Source: Statistisches Bundesamt (various years), Bundesanstalt für Arbeit (various years)

Figure 3. Wage Differential and Unexplained Part



**TABLE 1**  
**THE DATA SET**

*Groups: Years (Observations)*

Germans in Germany: 1975-1990 (ca. 40,000-45,000 each year)  
 Portuguese in Germany: 1975-1990 (maximum 380 (1975); minimum 183 (1986))  
 Portuguese in Portugal: 1982 (42,000), 1986 (40,000)

<i>Variables:</i>	<i>Sectors:</i>
Gross monthly wage	Mining
Low school education	Food, tobacco
Vocational training	Textile
High school education (Germany: 13 years; Portugal 11-12 years)	Wood
Bachelor degree (Germany: Fachhochschule)	Paper
University degree	Chemistry
Age	Mineral, no metallics
Age <sup>2</sup>	Iron, steel
Blue collar 1	Mechanical engineering
Blue collar 2	Other machines
Blue collar 3	Energy
White collar	Construction
Firm size 1 (1-10 employees)	Trade
Firm size 2 (10-100 employees)	Hotel
Firm size 3 (100-500 employees)	Transport, communication
Firm size 4 (500-1000 employees)	Banks, insurances
Firm size 5 (>1000 employees)	Cleaning
	Other services



**TABLE 2**  
**DESCRIPTIVE STATISTICS**

	1975		1982			1986			1990	
	D	PGE	D	PGE	P	D	PGE	P	D	PGE
Observations	45225	380	41665	278	41763	39723	183	39437	40848	211
Ln (monthly wage)	7.560	7.486	8.036	7.938	9.993	8.188	8.086	10.703	8.320	8.211
Low school educ.	0.216	0.768	0.188	0.755	0.871	0.166	0.721	0.867	0.152	0.692
Vocational training	0.721	0.229	0.729	0.241	0.074	0.734	0.257	0.067	0.734	0.284
High school educ.	0.015	0.003	0.018	0.004	0.032	0.023	0.022	0.040	0.029	0.024
Bachelor degree	0.025	.	0.033	.	0.008	0.037	.	0.009	0.038	.
University degree	0.023	.	0.033	.	0.014	0.040	.	0.016	0.046	.
Age	38.58	35.39	39.70	38.71	37.47	39.89	38.51	37.75	39.71	39.33
Age2	1620.8	1306.2	1704.7	1566.5	1539.0	1720.2	1583.5	1556.1	1705.8	1686.9
Blue collar 1	0.218	0.761	0.207	0.712	0.238	0.204	0.694	0.234	0.209	0.635
Blue collar 2	0.409	0.232	0.388	0.263	0.377	0.379	0.262	0.366	0.378	0.322
Blue collar 3	0.043	0.003	0.042	0.007	0.439	0.040	0.011	0.043	0.038	0.009
White collar	0.330	0.005	0.363	0.018	0.341	0.377	0.033	0.357	0.375	0.033
Mining	0.001	.	0.027	.	0.010	0.023	.	0.010	0.017	.
Food	0.040	0.045	0.035	0.022	0.043	0.034	0.022	0.046	0.031	0.057
Textile	0.023	0.153	0.019	0.094	0.077	0.018	0.071	0.089	0.015	0.071
Wood	0.030	0.050	0.030	0.043	0.043	0.027	0.038	0.042	0.027	0.033
Paper	0.027	0.026	0.024	0.032	0.029	0.024	0.060	0.029	0.027	0.038
Chemistry	0.062	0.095	0.061	0.119	0.035	0.064	0.071	0.040	0.064	0.066
Minerals	0.028	0.074	0.024	0.058	0.053	0.020	0.049	0.041	0.020	0.043
Iron, steel	0.066	0.124	0.061	0.155	0.017	0.060	0.153	0.024	0.057	0.133
Mech. engineering	0.166	0.182	0.162	0.183	0.147	0.167	0.213	0.132	0.170	0.180
Other machines	0.101	0.082	0.099	0.072	0.005	0.107	0.071	0.004	0.109	0.081
Energy	0.022	.	0.022	0.004	0.019	0.022	0.005	0.025	0.021	0.005
Construction	0.115	0.061	0.101	0.043	0.135	0.089	0.066	0.106	0.096	0.076
Trade	0.121	0.016	0.124	0.025	0.156	0.120	0.027	0.144	0.118	0.047
Hotel	0.009	0.013	0.010	0.014	0.028	0.011	0.022	0.026	0.011	0.033
Transport.	0.080	0.045	0.062	0.065	0.103	0.062	0.077	0.134	0.062	0.090
commu.										
Banks, insurances	0.037	0.005	0.038	0.004	0.057	0.041	0.005	0.060	0.040	0.005
Cleaning	0.002	0.011	0.003	0.011	0.001	0.003	0.011	0.001	0.004	0.005
Other services	0.078	0.021	0.099	0.058	0.042	0.107	0.038	0.044	0.114	0.038
Firm size 1	.	.	0.112	0.050	0.068	0.116	0.027	0.066	0.113	0.062
Firm size 2	.	.	0.311	0.183	0.288	0.306	0.208	0.281	0.312	0.204
Firm size 3	.	.	0.234	0.302	0.238	0.237	0.317	0.231	0.239	0.327
Firm size 4	.	.	0.097	0.133	0.090	0.092	0.104	0.093	0.095	0.109
Firm size5	.	.	0.245	0.331	0.315	0.250	0.344	0.330	0.241	0.299

Notes: See table 1 for a description of variables; D: Germans, PGE: Portuguese in Germany, P: Portuguese in Portugal; Wages for Germany in Deutsche Marks, for Portugal in Escudos.

**TABLE 3**  
**CORRELATION COEFFICIENTS OF THE**  
**SECTORAL DISTRIBUTION OF WORKERS**

	1975	1982	1986	1990	1975-1990
D-PGE	0.48	0.54	0.61	0.66	
D-P		0.67	0.57		
PGE-P		0.27	0.38		
D-D					0.97
PGE-PGE					0.92

Note: D: Germans; PGE: Portuguese in Germany; P:  
Portuguese in Portugal

**TABLE 4**  
**WAGE EQUATIONS**

Obs.	1975		1982			1986			1990	
	D	PGE	D	PGE	P	D	PGE	P	D	PGE
Voc. train.	0.058 (18.54)	-0.008 (-0.30)	0.060 (17.11)	0.018 (0.54)	0.186 (30.36)	0.061 (15.79)	-0.061 (-1.53)	0.202 (30.43)	0.061 (15.57)	0.038 (0.86)
High school	0.125 (13.50)	-0.191 (-1.13)	0.114 (12.6)	-0.404 (-1.94)	0.158 (17.34)	0.084 (9.47)	-0.106 (-1.08)	0.180 (21.26)	0.088 (10.92)	0.128 (1.22)
Bachelor	0.183 (24.25)	.	0.207 (28.24)	.	0.515 (28.97)	0.203 (26.46)	.	0.553 (32.62)	0.196 (26.18)	.
University	0.197 (25.01)	.	0.247 (33.20)	.	0.654 (48.24)	0.245 (32.42)	.	0.639 (49.76)	0.225 (31.48)	.
Age	0.062 (106.41)	0.073 (9.31)	0.061 (85.80)	0.028 (3.30)	0.033 (35.79)	0.060 (76.56)	0.021 (2.03)	0.035 (36.84)	0.053 (67.09)	0.058 (6.11)
Age2	-0.001 (-97.31)	-0.001 (-8.94)	-0.001 (-77.24)	-0.000 (-2.87)	-0.000 (-30.85)	-0.001 (-67.01)	-0.000 (-1.84)	-0.000 (-30.9)	-0.001 (-58.27)	-0.001 (-5.19)
Blue collar 2	0.081 (24.67)	0.084 (3.04)	0.078 (21.97)	0.034 (1.07)	0.134 (32.26)	0.070 (18.42)	0.153 (3.84)	0.114 (26.08)	0.082 (22.12)	0.096 (2.26)
Blue collar 3	0.235 (39.98)	0.231 (1.33)	0.261 (41.01)	0.260 (2.00)	0.370 (45.35)	0.278 (40.20)	0.213 (1.64)	0.345 (40.57)	0.293 (42.43)	0.358 (2.40)
White collar	0.219 (59.71)	0.432 (2.93)	0.252 (64.87)	0.220 (1.81)	0.236 (49.46)	0.270 (64.86)	0.150 (1.27)	0.222 (44.95)	0.283 (69.83)	0.263 (2.52)
Mining	0.001 (0.03)	.	0.003 (0.36)	.	-0.016 (-0.95)	0.005 (0.60)	.	0.011 (0.65)	-0.008 (-0.86)	.
Food	-0.065 (-11.17)	-0.097 (-2.11)	-0.054 (-8.09)	0.027 (0.34)	-0.017 (-2.02)	-0.081 (-11.34)	0.103 (1.07)	-0.017 (-1.98)	-0.087 (-11.83)	-0.122 (-1.64)
Textile	-0.144 (-19.60)	-0.177 (-5.82)	-0.130 (-14.87)	-0.192 (-4.08)	-0.233 (-33.52)	-0.159 (-16.91)	-0.077 (-1.34)	-0.171 (-24.45)	-0.142 (-14.11)	-0.230 (-3.52)
Wood	-0.111 (-16.92)	-0.538 (-1.23)	-0.045 (-6.34)	-0.035 (-0.60)	-0.199 (-23.10)	-0.067 (-8.39)	-0.045 (-0.59)	-0.196 (-21.71)	-0.054 (-6.98)	-0.256 (-2.96)
Paper	-0.013 (-1.88)	-0.081 (-1.43)	-0.001 (-0.11)	-0.072 (-1.05)	0.059 (5.94)	0.009 (1.11)	-0.014 (-0.21)	0.113 (11.00)	0.008 (0.92)	-0.135 (-1.57)
Chemistry	0.010 (1.97)	-0.038 (-1.09)	-0.009 (-1.63)	-0.028 (-0.71)	0.081 (8.74)	0.001 (0.26)	0.076 (1.41)	0.276 (29.85)	0.004 (0.68)	-0.047 (-0.73)
Minerals	-0.033 (-4.88)	-0.057 (-1.46)	-0.022 (-2.77)	-0.005 (-0.10)	-0.015 (-1.95)	-0.030 (-3.31)	-0.036 (-0.56)	0.036 (4.01)	-0.023 (-2.60)	-0.065 (-0.83)
Iron	-0.003 (-0.73)	-0.043 (-1.30)	-0.016 (-3.00)	-0.090 (-2.25)	-0.022 (-1.80)	-0.023 (-4.10)	0.039 (0.90)	0.006 (0.50)	-0.018 (-3.23)	-0.050 (-0.96)
Other machi.	0.023 (-5.45)	-0.073 (-1.99)	-0.023 (-5.16)	-0.060 (-1.27)	-0.004 (-0.17)	-0.033 (-7.07)	-0.054 (-0.97)	0.010 (0.36)	-0.037 (-8.12)	-0.153 (-2.51)
Energy	0.033 (4.32)	.	0.033 (4.13)	-0.243 (-1.35)	0.446 (36.71)	0.475 (5.56)	-0.057 (-0.33)	0.484 (41.98)	0.040 (4.59)	-0.190 (0.92)
Construction	-0.117 (-28.83)	-0.155 (-3.80)	-0.016 (-3.29)	-0.102 (-1.68)	0.028 (4.78)	-0.041 (-7.78)	-0.035 (-0.56)	-0.052 (-7.78)	-0.027 (-5.30)	-0.214 (-3.21)
Trade	-0.138 (-34.10)	-0.084 (-1.17)	-0.096 (-21.00)	-0.070 (-0.93)	0.017 (2.84)	-0.115 (-23.41)	-0.105 (-1.31)	0.041 (6.24)	-0.114 (-23.86)	-0.060 (-0.79)
Hotel	-0.275 (-24.01)	-0.299 (-3.83)	-0.249 (21.07)	-0.483 (-5.19)	-0.031 (-3.07)	-0.333 (-27.84)	-0.395 (-3.94)	-0.020 (-1.87)	-0.323 (-28.12)	-0.534 (-6.06)

**TABLE 4 continued**

Trade, com.	-0.013 (-2.69)	0.063 (1.38)	-0.023 (-4.39)	0.003 (0.05)	0.169 (25.83)	-0.051 (-8.98)	0.056 (1.03)	0.221 (33.13)	-0.063 (-11.36)	-0.159 (-2.72)
Banks	-0.047 (-7.52)	-0.152 (-1.08)	-0.043 (-6.48)	0.090 (0.42)	0.257 (30.36)	-0.010 (-1.50)	0.357 (1.77)	0.377 (42.71)	-0.012 (-1.82)	-0.240 (-1.19)
Cleaning	-0.120 (-5.96)	-0.172 (-2.00)	-0.090 (-4.42)	0.066 (0.62)	-0.091 (-1.80)	-0.131 (-6.38)	0.130 (1.05)	-0.011 (-0.20)	-0.094 (-4.73)	-0.360 (-1.77)
Other servic.	-0.058 (-12.47)	-0.068 (-1.05)	-0.077 (-16.06)	-0.139 (-2.34)	0.034 (3.94)	-0.096 (-19.22)	-0.035 (-0.35)	0.024 (2.65)	-0.108 (-22.70)	-0.245 (-2.61)
Firmsize 2			0.104 (26.58)	0.235 (4.16)	0.165 (24.80)	0.133 (31.96)	0.290 (3.10)	0.181 (25.85)	0.135 (33.09)	0.137 (1.91)
Firmsize 3			0.141 (33.66)	0.300 (5.31)	0.315 (45.32)	0.183 (41.40)	0.354 (3.88)	0.351 (47.82)	0.195 (44.86)	0.269 (3.86)
Firmsize 4			0.154 (30.39)	0.322 (5.38)	0.394 (48.09)	0.206 (37.50)	0.438 (4.57)	0.430 (50.18)	0.213 (39.90)	0.251 (3.23)
Firmsize 5			0.186 (41.40)	0.300 (5.21)	0.440 (60.95)	0.245 (51.85)	0.406 (4.32)	0.484 (62.61)	0.257 (55.13)	0.205 (2.93)
Constant	6.228 (539.0)	6.204 (43.0)	6.495 (456.6)	7.133 (42.3)	8.806 (480.0)	6.578 (415.5)	7.307 (37.1)	9.390 (494.4)	6.847 (432.8)	6.910 (39.4)
Pseudo-R <sup>2a</sup>	0.40	0.33	0.44	0.34		0.49	0.40		0.48	0.49
R <sup>2</sup>					0.50			0.57		

Notes: t-values in parantheses; D: Germans, PGE: Portuguese in Germany, P: Portuguese in Portugal;

<sup>a</sup>Pseudo-R<sup>2</sup> according to Veall and Zimmermann (1994).

**TABLE 5**  
**PREDICTED WAGES**

	1982				1986			
	PGE (DM)	P* (DM)	P (PTE)	PGE* (PTE)	PGE (DM)	P* (DM)	P (PTE)	PGE* (PTE)
All	2801.75	2881.31 (+2.8%)	21872.82	20475.82 (-6.4%)	3248.67	3432.35 (+5.7%)	44489.12	41982.16 (-5.7%)
<i>Subgroups:</i>								
Low school. no voc. training	2796.15	2869.81 (+2.6%)	20640.28	19360.69 (-6.2%)	3255.17	3401.60 (+4.5%)	41564.43	39458.31 (-5.1%)
Vocational training	2829.91	3347.60 (+18.3%)	29971.43	24149.04 (-19.4%)	3229.23	3640.95 (+12.7%)	64279.75	49168.08 (-23.5%)
Age<35	2620.18	2699.98 (+3.0%)	19672.95	18453.33 (-6.2%)	3050.31	3216.34 (+5.4%)	38215.63	36827.50 (-3.6%)
Age 35-49	2872.68	3133.79 (+9.1%)	24440.58	21247.62 (-13.1%)	3384.63	3703.38 (+9.4%)	50868.54	44846.46 (-11.8%)
Age >50	2773.87	2936.58 (+5.9%)	22925.38	20373.70 (-11.1%)	3136.93	3422.07 (+9.1%)	74810.47	42744.68 (-10.6%)
Blue collar i	2810.17	2509.90 (-10.7%)	17292.01	19771.56 (+14.3%)	3216.34	2933.64 (-8.8%)	34372.08	40215.19 (+17.0%)
Textile	2482.45	2504.89 (+0.9%)	16058.60	16630.61 (+3.6%)	3121.28	3190.71 (+2.2%)	33356.24	33860.35 (+1.5%)
Iron	2740.79	2858.35 (+4.3%)	22048.50	19360.69 (-12.2%)	3374.49	3744.34 (+11.0%)	45026.21	38561.13 (-14.4%)
Mechanical engineering	2980.96	3108.82 (+4.3%)	21982.46	21763.73 (-1.0%)	3350.95	3540.42 (+5.7%)	42108.29	43477.55 (+3.3%)
Chemistry	2970.44	3216.34 (+20.4%)	27200.75	22606.66 (-16.9%)	3622.79	3983.83 (+10.0%)	66105.02	56500.23 (-14.5%)

Notes: PGE: Portuguese in Germany, P: Portuguese in Portugal; Predicted wages are marked with a "\*"; DM: German Marks, PTE: Portuguese Escudos.

**TABLE 6**  
**WAGE DIFFERENTIALS BETWEEN PORTUGUESE MIGRANTS AND GERMANS**

	1975			1982		
	$W_D - W_{PGE}$	$W_{PGE} - W_{PGE*}$	$W_D - W_{PGE*}$	$W_D - W_{PGE}$	$W_{PGE} - W_{PGE*}$	$W_D - W_{PGE*}$
Total	10.60	0.18	10.42	9.24	-0.27	9.52
Low school, no voc.	-0.1	-1.1	1.0	4.2	-2.3	-1.9
Vocational training	8.7	3.8	4.9	8.6	4.7	3.9
Age < 35	3.3	-3.6	6.9	2.8	-8.9	11.7
Age 35-49	14.8	2.3	12.5	16.2	2.5	13.7
Age > 50	26.5	15.5	11.0	13.2	1.0	12.2
Blue collar 1	-1.9	-0.4	-1.5	-7.6	-2.8	-4.8
Textile	10.6	0.8	9.8	11.7	0.4	11.3
Iron	11.3	0.6	10.7	11.6	2.7	8.9
Mechanical engineering	6.9	-1.0	7.9	7.4	-2.3	9.7
Chemistry	15.4	1.1	14.3	19.6	7.3	12.3
	1986			1990		
	$W_D - W_{PGE}$	$W_{PGE} - W_{PGE*}$	$W_D - W_{PGE*}$	$W_D - W_{PGE}$	$W_{PGE} - W_{PGE*}$	$W_D - W_{PGE*}$
Total	9.6	-1.7	11.3	10.2	-3.4	13.7
Low school, no voc.	-5.4	-4.0	-1.4	-5.0	-4.6	-0.4
Vocational training	9.7	2.5	7.2	7.1	-2.5	9.6
Age < 35	0.6	-13.3	13.9	8.1	-6.3	14.4
Age 35-49	15.6	2.1	13.5	9.4	-3.9	13.3
Age > 50	18.1	8.0	10.1	13.5	1.7	11.8
Blue collar 1	-6.8	-3.5	-3.3	-5.5	-4.0	-1.5
Textile	0.3	-12.1	12.4	1.6	-6.1	7.7
Iron	5.2	-7.7	12.9	6.6	-7.9	14.5
Mechanical engineering	11.4	-0.4	11.8	3.8	-7.7	11.5
Chemistry	8.2	-1.5	9.7	6.7	-4.3	11.0

Notes: D: Germans, PGE: Portuguese in Germany, P: Portuguese in Portugal; All numbers are expressed as percentage of the German wage ( $w_D$ ).