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Self-Selection, Earnings, and Out-Migration: A Longitudinal Study of Immigrants to Germany

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ABSTRACT

Self-Selection, Earnings, and Out-Migration:
A Longitudinal Study of Immigrants to Germany[*]

In this paper we seek to deepen understanding of out-migration as a social and economic process and to investigate whether cross-sectional earnings assimilation results suffer from selection bias. To model the process of out-migration we conduct a detailed event history analysis of men and women immigrants in Germany. Our 14-year longitudinal study reveals that emigrants are negatively selected with respect to occupational prestige and to stable full time employment. Our results show no selectivity with respect to human capital, earnings, or gender. The likelihood of return migration is strongly determined by the range and nature of social attachments to Germany and origin countries, and grows higher toward retirement. This selective emigration, however, does not appear to distort cross-sectional estimates of earnings assimilation.

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By the end of the second millennium the immigrant population in Germany had risen to more than 10% while the majority of immigrants in Germany, the *guestworkers*,[1] had been living in Germany for more than a quarter of a century. Still, guestworkers remain a large and distinct group of legal immigrants, the majority of whom are Turks. As the immigrant population in Germany has grown, researchers have found that immigrant earnings remain far below those of the native Germans with few prospects of achieving parity anytime soon.

Beginning in the late 1950's, Germany experienced a massive migration similar in magnitude to the "Great Migration" to the US in the early 1900s. After the erection of the Berlin wall in 1961, especially, German employers recruited millions of foreigners to work in German factories and the service sector. According to bilateral treaties these migrants were to relieve Germany of short term labor shortages and were expected to return to their homelands afterwards.[2] At the same time, the guestworkers themselves were guided by short term migratory intentions. Initially, at least, they intended to migrate to Germany to earn enough money to improve their economic situation at home and then return to their 'native soil' within five years. Up until the halt of guestworker recruitment in 1973, migrants were primarily young single men, and those who were married were not accompanied by their families. After 1973, however, virtually all migration to Germany occurred through family reunification.

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[1]Guestworkers and immigrants are synonymous terms in this paper; they include both the foreign-born and their offsprings who are born in Germany. They all are legal residents, and some are even German citizens.

[2]Bilateral treaties for recruitment were signed with Italy in 1955, Spain and Greece in 1960, Turkey in 1961, Portugal in 1964, and Yugoslavia in 1968.

The enlargement of the European Union in the 1980's and 1990's allowed certain national origin groups to live and work legally in Germany. Among former guestworkers, Italians, Spaniards, and Greeks acquired full labor and residence rights. The fall of the Iron Curtain in the late 1980's also prompted a new wave of immigration by roughly 4 million *Aussiedler* from Eastern Europe, ethnic German immigrants[3] who according to the German constitution had the right to "return" to Germany as citizens. They came mainly from Poland, Romania, and the former USSR.

Except for the *Aussiedler*, most immigrant groups were guided by a powerful ideology of return migration. Overall, Bohning (1981) estimates that more than two thirds of foreign workers admitted to the Federal Republic of German between 1961 and 1976 eventually returned home. The rates of return migration were particularly high for migrants from EU countries, with 9 of 10 Italians, 8 of 10 Spaniards, and 7 of 10 Greeks ultimately going back. Those migrants who did not have the right to freely come and go returned in much smaller numbers. Over the same period, only 5 of 10 Yugoslavs and 3 of 10 Turks returned home. As a result, 30 years after recruitment ended, official statistics reveal that "guests" still constitute more than 8% of the German workforce, although many still maintain that eventually they will return "home" when asked.

Research on the out-migration[4] of immigrants is important for at least four reasons. First, understanding emigration is pivotal in assessing the relative success of immigrants in the host country labor market. Regardless of whether immigrants are positively or

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[3]A small part of this group are the East Germans or *Übersiedler*.

[4]Emigration, return migration, remigration, and repatriation, are synonymous terms in the literature and in this paper.

negatively selected, the selective character of emigration amplifies their initial selection and can, therefore, undermine the validity of cross-sectional studies to yield erroneous estimates of assimilation processes (Borjas 1985). Second, it is also important to take selective emigration into account when measuring the economic effect of immigration on natives. Third, selective patterns of emigration may have significant fiscal implications (Reagan and Olsen 2000; Duleep 1994), as the characteristics of immigrants are tied to use of the social welfare system. Finally, more accurate research on emigration can improve the ability to forecast trends in immigration.

Decisions with respect to return migration are inherent in the migratory career. From the moment a person first migrates internationally, he or she is confronted with the decision of whether to stay in the destination country, move to another host country, or return home. Here we define out-migration as movement from the host country back to the native country and conceptualize return as the last phase in the larger social process of migration (Massey 1987).

In this paper we seek to identify the underlying economic and social determinants of out-migration and to gauge its effect on the earnings of immigrants observed at any point in time. We organize our analysis around two basic research questions. First, who are the immigrants who choose to go back to their home country, to what degree are they self-selected and, if selected, do they tend to come from the upper or lower end of the socioeconomic distribution? Second, does selective out-migration bias the estimates of cross-sectional earnings regressions---that is do immigrants who stay in Germany earn higher or lower wages than those who returned?

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Our paper extends previous research by studying life cycle events and earnings among both male and female immigrants, and by modeling actual return migration rather than intentions. To achieve these goals we undertake a detailed discrete time event history analysis using a multinomial logit specification that models the probability of return at each point in time as a function of human capital, labor market characteristics, demographic traits, and social and psychological ties to places of origin and destination, We allow for the heterogeneity of motives by controlling for remittances and also hold constant period and geographical effects.

Our data come from the German Socio-Economic Panel (GSOEP). Our analysis of data from the panel's first 14 years suggest an emigration rate of 18% among foreign origin workers. Our analysis of 33,493 person years of information confirms that return migration is highly selective, although the probability is relatively low in any given year. The odds of returning are highest for immigrants who are not attached to paid employment in Germany and who have maintained strong ties to the country of origin. We also find that sending remittances is a very important and positive determinant of return migration. At the same time, we find that migrants who have created and cultivated strong ties in Germany are less likely to return to their native countries.

Cross-sectional analyses of immigrant earnings suggest an ongoing process of economic assimilation consistent with human capital theory. More importantly, we find that estimates do not differ significantly once self-selected out-migrants are added back into the panel. In general, immigrant earnings increase with education, age, hours of work, occupational prestige, and years of residence in Germany (though only after 15 years) and are significantly higher for males than females.

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PRIOR STUDIES OF RETURN MIGRATION

A wealth of research has documented relatively high emigration rates that vary considerably by nationality. Most empirical studies have been gender blind, considering only male immigrants. Historically, according to U.S. Social Security actuarial assumptions, 30% of all legal immigrants to the United States ultimately returned home, 83% during their first ten years and 17% thereafter (Duleep 1994).[5] In the 1960s, returning immigrants constituted about one third of arriving legal U.S. immigrants and emigration rates were higher for more recent immigrants (Warren and Peck 1980). In the 1970's, annual emigration rates dropped to around 27%, and most emigrants were found to leave the country within ten years of their arrival (Warren and Kraly 1985).

Jasso and Rosenzweig (1982) found that emigration rates varied substantially by nationality (ranging from 20% to 50%) and concluded that both proximity to the United States and the relative attractiveness of the home country were good predictors of emigration. Another study of legal US. Immigrants found that between 1960 and 1980 European immigrants were the most likely to emigrate, Asian immigrants were least likely, and immigrants from the Western Hemisphere were in-between (Jasso and Rosenzweig 1990). In the 1980's, emigration rates were lower than before but still varied substantially by nationality, ranging from 3.5% for Asians to 34.5% for North Americans (Borjas and Bratsberg 1994).

With regard to the quality of those who return, research has documented that emigrants are quite self-selected, albeit with conflicting results on the nature of that

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[5]The Census Bureau's projections for the years 1992-2050, based on the assumption that high levels of immigration are associated with low emigration rates, imply a much lower emigration rate of 15.38 percent (Duleep (1994)).

selection. Jasso and Rosenzweig (1988) found that highly skilled immigrants were most likely *not* to naturalize and thus had a higher probability of return migration. In sharp contrast, Borjas' (1989) longitudinal study of immigrant scientists and engineers and Massey's (1987) study of Mexican laborers found that out-migrants tended to be the least successful economically. Likewise, Lindstrom and Massey (1994) found that Mexican emigrants were negatively selected with respect to both wages and human capital, but Chiswick (1986b) found little evidence that emigration was selective, at least with respect to schooling. Reagan and Olsen (2000) likewise found no evidence for a skill bias in return migration.

These conflicting findings are explained by the theoretical analysis of Borjas and Bratsberg (1994), who argue that the direction of selection in out-migration depends on whether the immigrants themselves were positively or negatively selected originally. If immigrants were positively selected initially, then return immigrants tend to be the worst of the best; but if they were negatively selected, they tend to be the best of the worst. These theoretical predictions were verified by Ramos (1992) in his study of Puerto Ricans in the U.S. He found that migrants from the island were generally negatively selected, but that returnees were drawn from the most skilled among them.

Reagan and Olsen's (2000) study of both male and female out-migrants did not find any gender differentials, but they did find a lower likelihood of emigration among those who arrived at younger ages, those with higher potential wages, those with more years of U.S. residence, and those who had participated in U.S. social welfare programs. They also found that Mexicans and immigrants with a college degree were more likely to emigrate. Duleep (1994) found a bimodal pattern of migration over time characterized by an early

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peak of "mistaken migrants" returning soon after entry and a later peak of retirement migrants leaving after withdrawal from the labor force in old age. Like other researchers, she found that additional years of U.S. residence lowered the probability of emigration and that rates were highest for Western European countries, lower for Third World countries, and lowest for refugees.

Research on the rate and selectivity of emigration from countries other than the U.S. has also produced conflicting results. For example, Irish return migrants, compared with those who stay abroad and non-migrants, are positively selected for education (Barrett and Trace 1998), while Egyptian return migrants are negatively selected with respect to skills (Bauer and Gang 1998). Contrary to studies in the U.S., Bauer and Gang (1998) also found that additional time spent abroad and access to social and informational networks shortened the duration of foreign trips, while remittances increased it. For Sweden, Edin et al. (2000) also document the non randomness of return migration, while they distinguish economic from political migrants. Their longitudinal study finds that economic migrants are more likely to return compared to political migrants, and within these two groups of immigrants, those who return are the least successful economically; that is, emigrants earn less and participate less in the labor market. For Sweden, therefore, economic assimilation is overestimated and can be as high as 90 percent for certain immigrant groups.

In Germany, the few studies on return migration are based on selected subsamples of the immigrant population and focus on the self-reported expected durations of stay rather than actual return migration. Overall, these studies suggest that more integrated guestworkers are less likely to return. Dustmann (1993), in his theoretical life-cycle model with endogenous return intentions, compared circumstances at home and abroad and

found that return may occur even without changes in the wage differential. He estimated a cross-sectional regression of male return intentions using as predictors various indicators of integration, such as years since migration, speaking German, being married to a German, and having young children. These factors generally prolonged the intended duration of stay, although as usual it varied substantially by nationality.

Based on the first six waves of the GSOEP, Schmidt's (1994) study of blue collar immigrants found an emigration rate of 21% based on the assumption that panel attrition was independent of return migration. He also found that return probabilities decreased with education, that age was convex with respect to the odds of return, and that additional years since migration did reduce return propensities. Like others, he found significant cross national differences and much higher odds of return when the spouse remained abroad.

Steiner and Velling's (1994) study of male and female household heads emphasized permanent and temporary intentions of staying. They found that the duration of intended stay increased with years-since-migration, higher education, speaking German, property ownership, feeling good in Germany, and the presence of young children. Having children in the home country decreased the intended duration of stay as did remitting and being unemployed. They also found that the probability of return increased at retirement but could not find any gender effects. In a related study on return migration for purposes of family reunification, Velling (1994) found no effects of gender, education, nationality, or years since migration. Instead, he found that less economically successful immigrants returned home first and that emigration was less likely for older household heads and more likely for remitters.

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If there a synopsis can be gleaned from the literature on return migration, it is that return migration is a rather complicated socioeconomic process whose degree and direction of selectivity varies by national origin and depends on the selectivity of the original immigration, conditions in sending and receiving countries, socioeconomic characteristics, and other unknown and perhaps unobservable factors.

THEORY AND MODEL SPECIFICATION

Our conceptualization of migration decision-making draws upon both economics and sociology. Economic theory posits that rational self-interested agents migrate wherever the expected present value of total benefits is greater than the total costs of migration, subject to information constraints. Total benefits include those that are pecuniary (higher earnings) and non pecuniary (family and cultural ties, better climate, sentimental bonds with a region, and political regimes). Similarly, costs include the direct costs of moving (out-of-pocket expenses), opportunity costs (income foregone while moving), and psychic costs (the psychological burden leaving familiar surroundings and adapting to a new culture and language).

Sociology has emphasized the importance of social capital in promoting migration, where social capital refers to migration-promoting resources extracted from interpersonal networks that are maintained and reinforced by a constant circulation of people, goods, information, and capital between sending and receiving communities (Massey (1987)). Social capital helps to explain why migration may occur even in the absence of significant changes in international wage differentials.

The theory of return migration is very much like the theory of first migration to another country, with three important differences. First, return migrants are inherently more

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prone to move because they have already moved once. Second, with regard to both the origin and destination countries, return migrants have more accurate information. They know the wage distribution, the language, the culture, and the climate of their native country, but also understand the realities of the host country. Third, higher wages and employment opportunities at home are neither a necessary nor a sufficient condition for return migration. Instead, familial and cultural considerations are relatively more important in return decisions. Indeed, emigrants might decide to return despite a widening wage gap.

Prior theoretical work on emigration suggests that return migrants can come from either the upper or lower end of the socioeconomic distribution. The main theoretical debate hinges upon the quality of the emigrants and their progress in the host country. Specifically, the question is whether wage-experience earnings trajectories estimated by Chiswick and others using cross-sectional data actually reflect the underlying process of economic assimilation experienced by real cohorts, or whether they reflect the changing selectivity of migration across successive cohorts, or perhaps a selective process of return migration wherein economic failures steadily return home.

At each period during their migrant career immigrants are faced with the dilemma of choosing to stay in the host country as immigrants or to return to their homeland,[6] and they maximize utility gained from the attributes of the choice they make. We assume a utility maximization model where rational individuals are assumed to have preferences over a set of j different alternatives as:

$$U(\textit{alternative } J) = \beta_j x_j + \epsilon_j \tag{1}$$

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[6]The option of moving on to a third country is not considered here.

where ε is the random error associated with that choice. Then Y is observed for choice j if:

$$U(\text{alternative } j) > U(\text{alternative } k) \qquad \forall j \neq k \qquad (2)$$

The foregoing equation is the deciding factor for migration. The disturbances are assumed to be independently and identically distributed as a log Weibull distribution. Then, the choice probabilities, assuming a logistic distribution, are:[7]

$$P(Y = j | X) = \frac{e^{\beta_j X_i}}{1 + \sum_{k=0}^{K-1} e^{\beta_k X_i}} \qquad (3)$$

where j indexes the alternative choices, $j = 0, 1, ..., J$ (with $j+1$ nominal, unordered outcomes), i indexes the individuals, and the parameters β[8] reflect the impact of changes in X on the probability that $Y = j$. To identify the model, we impose the normalization $\beta_0 = 0$. The explanatory variables in X consist of a set of human capital, individual specific characteristics, and labor market characteristics. These variables are the same for all choices, but their effects on the probability are allowed to differ for each outcome. They are expected to affect the individual's probability of being in a given state. We can predict the probability that an individual will choose one of the J states considered.

The log-odds ratios that an individual i will choose alternative j over alternative k are given by:

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[7]This assumption about the independence of the disturbances leads to the Independence of Irrelevant Alternatives (IIA) property that characterizes the multinomial logit. It is a convenient but restrictive property. However, in cases where the outcome categories "can plausibly be assumed to be distinct and weighed independently in the eyes of each decision maker," a multinomial logit model can be safely used (McFadden (1973)).

[8]The parameters of the logit are not necessarily the marginal effects, but vary with the values of X. In essence, the estimated coefficient b represents the change in log odds for a unit increase in the independent variable.

$$\ln\left[\frac{P_j}{P_k}\right] = X_i(\beta_j - \beta_k) \tag{4}$$

Other "contrasts" of substantive interest can be computed by taking the difference between two of the known parameters as follows:

$$\beta_{k,p|q} = \beta_{k,p|r} - \beta_{k,q|r} \tag{5}$$

where outcome r is the reference category. That is, we compare outcomes p versus q for attribute k. The model is solved with maximum likelihood estimation. Since likelihood equations are non-linear in the parameters β an iterative algorithm is used for the maximization of the likelihood function. The resulting estimates, b, are asymptotically unbiased, consistent, normal, and asymptotically efficient. Moreover, the likelihood function is globally concave, ensuring the uniqueness of the Maximum Likelihood estimates (Amemiya 1985). The predicted probability values of being in a certain state are computed as follows:

$$P_0 = \frac{1}{1 + \sum_{k=0}^{K-1} e^{b_k X}} \tag{6}$$

$$P_k = P_0 e^{b_k X}$$

These probabilities can be calculated at the sample means or at given values of the X_s. The econometric method is discrete-time multinomial logistic regression for survival analysis, and nonrepeatable one-way transition events. That is, the event (emigration) occurs only at discrete time points and the transition from one discrete state to another occurs only once for each person. We model the risk of the event occurring at time t, given

that the event did not occur before time t. By definition this is the ratio of the probability of

the event occurring at time t for individual i divided by the probability of nonoccurence of

the event prior to time t. In other words we model the probability that a migrant will return

to hi or her country of origin over the probability that he or she will stay in the host country.

In the following section we describe the database and lay the theoretical foundations for

the underlying causes of the probability of emigration.

The standard human capital model of earnings is employed in this analysis. In

addition, we allow for selectivity into the labor market because workers might differ from

non-workers in unobservable ways. Because we have no information on characteristics

of country of origin or the pool of workers from which immigrants are selected, we cannot

model the decision to migrate to Germany jointly with earnings in Germany.

We differentiate between offered or market wages and observed wages. When the

offered wage is greater that the reservation wage then the wage is observed. The offered

wage equation has the following general specification:

$$\ln W_j = \alpha_1 + X'_{1j}\beta_1 + \epsilon_{1j} \tag{7}$$

where j represents men or women immigrants and X_{1j} is a vector of independent variables

reflecting productivity, personal characteristics and labor market structure; the vector of

$$L_j^* = \alpha_2 + X'_{2j}\beta_2 + \epsilon_{2j} \tag{8}$$

coefficients β_1 measures the effect of X_{1j} on earnings, controlling for everything else. The

stochastic error term ϵ_{1j} is assumed to be normally, identically, and independently

distributed with zero mean and variance σ_e^2, and $E[X'_{1j}\,\epsilon_{1j}] = 0$.

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The employment index function has the following general specification:

where

$$L_j = \begin{pmatrix} 1 & \text{if } L_j^* > 0 & \text{i.e. work} \\ 0 & & \text{otherwise} \end{pmatrix} \tag{9}$$

The dichotomous variable L_j stands for labor force participation status; this is equal to one if the individual works and zero if the individual does not work. The dependent variable L_j^* is a latent variable that is positive when the wage is observed and indicates the propensity to work.

Normalizing so that the stochastic error term ϵ_{2j} follows the standard normal distribution, the employment probability becomes:

$$P(L_j = 1) = \Phi(X_{2j}'\beta_2) \tag{10}$$

The independent variables in the vector X_{2j} measure the wage offer and reservation wage, as well as some other factors not directly related to the worker's productivity; β_2 is a vector of the parameters to be estimated.[9]

The computed inverse Mill's ratio, λ, derived from the work model above, is included as an additional regressor in the earnings equation to adjust the mean of earnings for possible non-random selection of workers (Heckmann (1979)). The selection-corrected earnings equation takes the following form:

$$\ln W_j = \alpha_1 + X_{1j}'\beta_1 + c_j\lambda_j + v_j \tag{11}$$

where $\ln W_j$ is the natural logarithm of gross weekly wages. The selectivity correction term is given by $\lambda_j = \dfrac{\phi(X_{2j}'\beta_2)}{\Phi(-X_{2j}'\beta_2)}$ and c_j is the covariance between the error terms ϵ_{1j} and ϵ_{2j} divided by the standard error of ϵ_{2j}. Finally, v_j is a stochastic error term that is

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[9] ϕ (.) and Φ (.) are the pdf and cdf of the standard normal.

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heteroscedastic and asymptotically uncorrelated with the variables in X_{1j}. The estimates from this procedure possess the usual desirable asymptotic properties, such as unbiasedness, consistency, and efficiency.

DATA AND MEASURES

The empirical analysis is based on a nationally representative data set, the German Socioeconomic Panel (GSOEP). The GSOEP is an ongoing longitudinal database that started in 1984 in the former Federal Republic of Germany with a sample of about 12,000 respondents, 3,000 of whom were legal immigrants. The latter were those living in a household whose head was from Italy, Greece, Spain, Yugoslavia, or Turkey—the so-called guestworkers. The first wave covered the non-institutionalized population, but as the GSOEP follows and annually interviews all persons aged 16 or older, those who are institutionalized are retained in the study. Respondents were originally selected by a random walk procedure.

The GSOEP contains rich socioeconomic information on both native Germans and legal immigrants. Since the 1990 reunification, the sample had broadened to incorporate all Germans - West and East, and in 1996 the immigrant data base was expanded to include immigrants from other countries, especially eastern Europeans. The most important features of the GSOEP are that it oversamples guestworkers, and that it provides excellent information on their pre-immigration experiences and their degree of socio-political integration into the German community (SOEP Group 2001).

The GSOEP is especially suited for analyzing emigration probabilities because it has a good record of following individuals who move within Germany, and a good record of tracking immigrants who returned back to Germany after they had gone to their

homeland (to serve in the military, for example). Temporary drop-outs or persons who could not be successfully interviewed in a given year are followed until there are two consecutive temporary drop-outs of all household members or a final refusal. The longitudinal development of the database is influenced by demographic and field- related factors. Specifically, attrition is related to mortality and migratory movements. It is also related to unsuccessful interviews and unsuccessful tracking of individuals throughout the survey. Overall, GSOEP has a relatively low attrition rate.

Our analysis is based on the first 14 waves of the GSOEP (1984-1997), although we use information on return migration from the subsequent three waves (1998-2000). For the purpose of this paper we focus on guestworkers only (as opposed to more recent migrants from the East), because they have been in the GSOEP since its inception. Even though since 1990 the GSOEP refers to the new united Germany, our guestworker sample is from the former Federal Republic.[10] Each year we exclude immigrants on active military duty because military personnel follow different moving trajectories and may skew our emigration estimates (there were only a dozen such exclusions over the entire panel). Our sample contains all individuals over 16 years of age who were successfully interviewed in a given year.

Table 1 presents the yearly sample observations and the final longitudinal sample by gender. The longitudinal sample contains 4,613 guestworkers, of whom 2,382 are men and 2,231 are women. Out of these people, only 888 were in the panel for all 14 years (the balanced panel). Among the remaining 3,654 respondents (the unbalanced panel), some

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[10]Guestworkers did not move to the new states after the reunification but have remained concentrated in the former West German territory, exclusively.

started in the panel and then dropped out temporarily or permanently; some entered the panel in later waves and left or stayed; and some were repeat entrants. As of the year 2000, the GSOEP documents 73 guestworkers who have died and 817 who moved abroad, the emigrants of our sample; they constitute 17.71 percent of guestworkers.

TABLE 1 ABOUT HERE

To implement the event history analysis we restructured the GSOEP data into "person-years," which became the effective units of analysis. A person-year is a one-year fraction of a person's life during which the event in question (emigration) may or may not occur. Each yearly fraction of a person's life is treated as a distinct observation. The person-year file contains information about the occurrence or nonoccurence of the emigration event, as well as the values of relevant independent variables (with or without temporal variation); it is the life history of each person.

By definition, all immigrants are at risk of returning to their home country from the moment they arrive in Germany. We assume that immigrants enter the population at risk at age 16 or the point of entry into the GSOEP and that they remain at risk until the time of emigration or censoring.[11] It is not necessary that every person experience the event. We also assume that right-censoring is random so that the time between the beginning and end of an observation is independent of the timing of events (Massey 1987). The final person-year file had 33,493 observations, representing detailed longitudinal histories of immigrants' experiences and behavior from the moment immigrants entered the sample until emigration, death, or the final survey date.

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[11]In the case of right-censored observations we include information about their survival up to the time of censoring without making any assumptions about the timing of the event's occurrence in the future (Yamaguchi (1991)).

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Variables may either be fixed or time-varying. Those variables that change from year to year include age, years since migration, education in the host country, and weekly wages. Those variables referring to fixed characteristics such as gender and education before migration remain constant over person-years.

We define the guestworker population in the GSOEP in any year after 1984 by the following identity:

$$G \equiv I - A + N \tag{12}$$

where G is the guestworker population, I is the initial guestworker population in 1984, A is the sample attrition, and N is the new guestworkers who entered the sample after 1984. We further define sample attrition as:

$$A = D + E + L \tag{13}$$

where D is the sample attrition due to mortality, E is attrition due to emigration, and L is attrition due to unsuccessful tracking or interviewing of individuals. All components of equation 13 are known in the GSOEP. In our analysis, therefore, we adjust for mortality and classify as emigrants those who are documented by the GSOEP as having moved abroad.

The main idea of employing a multinomial logit model is that we are able to distinguish between the immigrants who go back to their home country, those who choose to stay in Germany, and those who are lost to follow-up. Our dependent variable (E) is a categorical variable that takes the value of zero if the individual stays in Germany, the value of one if an individual has emigrated, and the value of two if we are uncertain about the individual's whereabouts. The resulting emigration rate is about eighteen percent.

We attempt to identify the underlying causes of return migration and its

consequences on earnings assimilation by grouping the potential determinants of emigration under several conceptual headings. Table 2 presents this classification along with the predicted effects. We first consider *human capital* and how it influences the individuals' probability to emigrate. According to the neoclassical economic theory, the young, the healthy, and the more educated are more likely to migrate.[12] Here we distinguish between experience, education, and skills acquired in sending versus receiving countries. Immigrants who invest more in the host country will be less likely to emigrate. By investment in the host country we mean investment in skills, such as education and training, and in learning the language.

To capture non linearities of formal schooling in Germany[13] we created five dummy variables following the GSOEP questionnaire. They indicate investment in human capital, which may contribute to better job opportunities and higher earnings in Germany. We expect that immigrants who went to school in Germany will be less likely to emigrate. Obtaining no degree in Germany is the reference category. Vocational training is a unique feature of Germany's educational system and an important part of formal education for non-university goers who want to access skilled jobs. It includes trade/agricultural apprenticeship, business school, technical college, and college or university education. Our measure of human capital includes the effect of training in addition to formal education. Because vocational training is more country specific, we expect that immigrants with vocational training in Germany will be less likely to emigrate.

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[12]A move is an investment in human capital that is justified according to a cost-benefit analysis (Sjastaad (1962)). The rationale is that younger immigrants will be able to reap the rewards of their investment.

[13]This is also important because it reflects the age at entry effect. The younger the immigrants arrive in the host country, the lower their emigration rates will be.

The literature on assimilation has established that speaking the host country's language fluently facilitates the transfer of skills and the acquisition of human capital, and may also reduce employer discrimination. German language proficiency is important in determining job prospects, occupational advancement, and earnings, and reflects the ease with which guestworkers are assimilated. The dummy variable speaking German fluently is constructed from a self-assessed skill question. We expect language fluency to decrease the probability to emigrate. Education acquired in the country of origin, is entered as a continuous variable in the estimation; it includes both formal schooling and vocational training. The average years of schooling and vocational training for all five groups of guestworkers were assigned to this variable (Constant (1998)). We expect that immigrants who went to school in their home country will be more likely to return to their home country. They will not face the problems of the nontransferability of credentials and will have less difficulty finding a job after remigration.

Years since migration (YSM) is a key variable that captures investment in human and social capital in the host country as well as other intangibles, such as a bond or attachment with the new country and making new roots. Besides measuring assimilation, additional years of residence in Germany also increase the probability of being employed in Germany. Finally, this variable captures the estrangement or distancing of immigrants from their home country. We expect to find that the propensity to emigrate is convex in YSM, and that additional years of residence in Germany constitute a strong deterrent to return migration. We construct this variable from the year of immigration and the current wave. For those guestworkers who are born in Germany we subtract the birth year from

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the current wave.

The second variable grouping refers to *work effort*. It is measured in terms of three categorical variables: i) part time employment (working less that 35 hours per week), ii) in training or apprenticeship, and iii) full time employment, which is the reference group. The third set of determinants of return migration is the *attachment to employment*. Here we consider three groups of workers: those who work irregularly; those who are officially registered as unemployed; and those who are out of the labor force. All these variables capture the degree to which an immigrant participates in paid labor force in Germany or is living off of welfare. Immigrants who are attached in the German labor market will be less likely to return.

The fourth category of determinants we label *socioeconomic achievement*. Wages and occupational prestige are the two indicators of socioeconomic achievement. According to the theory of emigration the effect of this variable on return migration is ambiguous. Economically successful immigrants, who feel that their mission has been accomplished abroad might decide to return home. In this case, higher earnings increase the probability to return. On the other hand, return migrants may be those who were unable to 'make' it in the new country and are disappointed about their migrant career. Lower earnings may, thus, increase the probability of emigration, as well. We measure occupational prestige using the Treiman International Occupational Prestige Scale (Treiman 1977). This variable captures social standing, power, respect, life-style, and life chances. In a traditional society like Germany job hierarchies are paramount. The higher the prestige score, the more immigrants are successfully integrated, and the less likely they are to emigrate.

Attachments to Germany is the next heading of variables. These attachments could

be social (having family, spouse, children, or relatives in Germany, and professional contacts), economic (owning property, house, or business), psychological (having a feeling of comfort in Germany, being at ease, and feeling at home), or political (become naturalized citizen). The probability of return is negatively related to all of these variables. Being born in Germany mainly reflects the age at entry effect. Given the idiosyncracies of the German naturalization law this variable does not necessarily indicate German citizenship but can be thought of as a dimension of social stratification.[14] Guestworkers who are German born will be more assimilated and feel that Germany is their home. The German born will, therefore, have a lower probability of emigration. Moreover, German citizenship may open the door to jobs and opportunities not available to legal immigrants.

In contrast, if immigrants have kept strong ties with the country of origin they are more likely to return home. We identify as *attachments to country of origin* the immigrant spouse and children living abroad, and whether the immigrant sent remittances abroad. We believe that remittances capture differences in migration intent. Remittances indicate two effects. First, that immigrants keep strong ties with family and friends in their home country. Therefore, they remit either to repay a debt, to pay for a sister's dowery, for the parents' health care, for financial support of close relatives, or to fulfill previous financial arrangements. Second, immigrants remit for their own financial benefit in the home country. That is, to help build their own house, to buy a taxi, start a new business when they return, to be able to afford more capital goods, or invest in new ventures. We expect that those who remit will have a higher probability of returning.

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[14]Because our analysis is based on the legal guestworker population this variable does not reflect legal status.

The following are additional control variables. To capture any non-linear effects of age on return migration, we constructed the following 4 dummy variables: i) individuals aged 19-24, ii) individuals aged 25-64, iii) individuals over 65 years old, and iv) individuals aged 16-18 who serve as the reference group. The young and the old (after retirement) will have the higher probability of return. We expect the younger immigrants aged 19-24 to be more likely to emigrate. This is the age range where immigrant children might go to their "native" countries to acquire university education and where men must join the army for their compulsory service. At prime working age (25-64) emigration rates drop to a minimum, and increase again as one becomes older and retires from the labor market. Moreover, we constructed 10 dummy variables for geographic location, following the GSOEP classification of the former western federal states and the city-states of Berlin and Hamburg.[15] These variables refer to contextual factors, and capture the job opportunities, the regional unemployment rate, the population density of place of residence, and the amenities and disamenities of a region. We chose Berlin, the capital, as the omitted location because Berlin is a major absorption center for immigrants.

The immigrants nationality captures the macroeconomic conditions and the political environment of the home countries. Nationality also captures characteristics, such as the political regime, and income inequality of the country of origin. To investigate the hypothesis that national origin is very important in determining the type of selection that characterizes the migrant flow, the speed of assimilation, as well as the emigration rates, we included three additional dummy variables. _Turk_ and _Yugo_ are two dummies indicating

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[15]This geographic classification is analogous to the SMSAs in the United States. SMSA structures do not exist in European countries.

immigrants from Turkey and the former Yugoslavia respectively. We expect guestworkers from these nationalities to want to stay in Germany, given the institutional constraints that they face (Turks) and the political upheaval they face (Yugoslavs) if they were to return to their countries of origin. The reference category is _EU_ and stands for the rest of guestworker nationalities that are members of the European Union (Italians, Greeks, and Spaniards) and anyone else.[16] Finally, we included 13 more dummy variables for the period effects. Each dummy variable represents a year in the panel; the reference year is 1984. The general treatment of the variables employed in this analysis is that if some control variables had missing values we replaced the missing value with the mean value and flagged them with dummy variables indicating missing values (Lillard and Willis (1994)).

CHARACTERISTICS OF THE SAMPLE POPULATION

Table 3 presents the selected human capital and labor market characteristics of our sample populations in both 1984 (the first year of the study) and 1995. We chose 1995 because many emigrants are still in the sample, and we can look at the immigrant progress within a decade. The first two Columns refer to all guestworker men (except Turks), and the next two Columns refer to all guestworker women (except Turks) in the respective cross-sections.

TABLE 3 ABOUT HERE

Overall, these summary statistics show that from 1984 to 1995, guestworkers as a group, have somewhat improved their standing in Germany with regards to both human

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[16]EU members have a 5 year residence permit, which is automatically renewable, and do not need a working permit. They face no political restrictions or visa requirements. In 1984 when the GSOEP study began only Italians had unrestricted entry and exit as members of the EU. By 1988 Greeks were also EU members and by 1990 Spaniards were EU members as well.

capital and socioeconomics. Nonetheless, after a quarter century in Germany they hardly identify themselves as Germans; only 5 percent of them feel as Germans, with women feeling more German than men. From Columns 1 and 2 we see that male guestworkers have, on average, higher prestige scores, and earn more Deutsche Marks per week than women guestworkers (Columns 3 and 4). Men also work more hours per week than women both in 1984 and 1995.[17] Clearly, immigrant men and women in Germany fit into the traditional German labor roles whereby women do not participate in the labor market and if they do they are only in part time employment. Further, the immigrant men's labor force participation (LFP) rates have decreased in 1995, and the percentage of the not employed has increased in 1995. In contrast, women in 1995 have increased their LFP rates and decreased their non employment rates. Although men as a group have higher prestige scores, earn more Deutsche Marks than women, have higher labor force participation (LFP) rates, and less of them are not employed, it is the women who have shown a remarkable improvement in trying to close the gap.

Men and women guestworkers are indistinguishable with regards to their time in Germany, but men are, on average, older than women and have more years of education before migration. Although the average years of schooling in the home country have declined for the guestworkers as a whole, this does not indicate any decline in the "quality" of guestworkers. Instead this decline is due to the permanency of guestworkers in Germany. That is, the second generation immigrants are schooled in Germany and, thus, have no education in their parents home country. Both men and women have comparable

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[17]Both men and women work fewer hours per week in the 1990s. We believe that this rather reflects the general trend in Europe.

German education levels and within this decade a larger percentage of them obtain a German degree. Yet, only 1 percent of men (2 percent for women) finishes the academic high school (Abitur) which gives access to higher education. With regards to vocational training in Germany, an integral part of the German educational system, we see that a larger percentage of both men than women have obtained vocational training in Germany in 1995. According to their self-assessment more men speak German fluently in 1984 but by 1995 more women speak German fluently. It is interesting to note that the percentage of guestworkers who speak German fluently has more than doubled in 10 years. We suspect that this is due mostly to the second generation immigrants who are born and schooled in Germany.

The majority of both men and women guestworkers are married and live with their spouses in Germany. It is only a very small percentage of them who have a spouse in the home country and this is true more for men in 1984. It is interesting to note that this percentage has dropped by more than half in the decade under consideration. Similarly, the percentage of the average male guestworker who has children in the home country fell from 11 to 2 percent in a decade (and from 9 to 1 percent for the average female). These statistics confirm the de facto permanency of the guestworker population in Germany. In particular, the percentage of guestworkers who are born in Germany increased from 5 percent in 1984 to 30 percent in 1995 for men and from 11 to 36 percent for women. Another striking change in the guestworker population is that by 1995 26 percent of men and 33 percent of women are German citizens (as opposed to 4 and 6 percent in 1984), and about 17 percent of guestworkers own their dwelling in Germany by 1995 (as opposed to 7 percent in 1984).

The national origin mix among immigrants in Germany is such that Turks are the majority (more than 30 percent) in both 1984 and 1995. The percentage of immigrants from the former Yugoslavia has slightly increased in 1995, and in sharp contrast, there is a pronounced compositional shift with respect to EU nationals. The percentage of EU nationals in 1995 has dropped by 51 percent for men and 65 percent for women. Lastly, these summary statistics show that a larger percentage of men than women remit, and although the percentage of guestworkers who remit in 1995 has dropped, a quarter of them still remits money funds to the home country. In sum, the summary statistics from Table 3 portray an immigrant population that has settled in Germany permanently. On average, therefore, we can argue that guestworkers choose to stay in Germany and their "sojourn" is permanent, an oxymoron of their guestworker title.

In Table 4 we present the characteristics of the largest immigrant population in Germany and in our sample, the Turks. Compared to the rest of guestworkers in Table 3, Turks, on average, earn below average wages in both 1984 and 1995, have below average prestige scores, and work below the overall average hours.[18] Turks are also younger and have less years in Germany than the rest of guestworkers, as expected from the bilateral treaties. Overall, their educational characteristics resemble the total foreign population except that their fluency in German remains at a very low level. From the rest of their characteristics it is evident that the Turkish population is living in Germany permanently. For example, in 1995, more than 80 percent of them live with their spouses in Germany, and more than 60 percent have their children with them in Germany, while 10

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[18]From the supportive Tables A3.1 and A3.2 it is also clear that Turks earn the lowest wages from all other nationalities.

percent of them own their dwelling in Germany. On the other hand, only 4 percent of Turks are born in Germany and an even lower percentage of them (2 percent) feel German. Lastly, their tendency to remit and maintain ties with the motherland has decreased by 1995 but it still remains at a higher level than the rest of the guestworker population.

TABLE 4 ABOUT HERE

In sum, three important trends are evident from this table. First, immigrants in Germany exhibit the characteristics of permanent migrants and as such they have ameliorated their economic and educational standing. Nonetheless, in the decade under consideration, their Treiman prestige scores remain low indicating unskilled or semiskilled workers. Second, women have performed remarkably better than men in the labor market, trying to close the gap with men, and third, immigrants in Germany still remain permanent foreigners both in their own eyes and in the eyes of the German law.

DETERMINANTS OF EMIGRATION

Table 5 presents the results of the survival analysis of emigration probabilities. For this estimation we follow the updated GSOEP 2000 documentation on the immigrants who left Germany to move abroad. There are 817 guestworkers documented to have left Germany permanently over the 14 year period of our study. The first two columns of Table 5 refer to the choice outcome "emigrate versus stay in Germany" and the last two columns refer to the choice outcome "left the sample versus stay in Germany." The coefficient estimates of the log odds (B) of emigrating versus staying in Germany are in columns (1) and (3), and the standard errors (SE) are in columns (2) and (4). Overall, this Table shows that the return immigrants are a self-selected group of immigrants with regards to some socioeconomic facets. Surprisingly, return migrants from Germany do not appear to be

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selected with respect to human capital acquired in Germany, except fluency in the German language. That is, the guestworkers who speak German fluently have a lower probability of returning to their home country. On the other hand, as expected, the odds of returning are higher for those guestworkers who have had some years of schooling before migration.

TABLE 5 ABOUT HERE

Further, we find that the odds of returning decrease, though at an increasing rate, with additional years of residence in Germany but the coefficients are only at the verge of significance. This result is similar to Borjas (1989) who finds a convex pattern of the years-since-migration variable, and to Dustmann (1993). Based on equation 6 and the results of Table 5 we calculated the predicted value of the probabilities of emigration, of staying in Germany, and of being lost to follow-up for the average guestworker. In Figure 1 we plot the probability of emigration[19] and juxtapose it with the probability to stay in Germany as a function of time since first arrival in Germany, holding everything else constant. Accordingly, the probability of returning to the home country (red curve) as one accumulates years of residence in Germany is very mildly convex and hovers around zero. This probability is higher for the most recent immigrants (those with less than ten years of residence in Germany), and it increases after 50 years of residence in Germany. Figure 1 shows that the curve tracing the probability of staying in Germany (blue curve) is also convex. Clearly, in the beginning of the first move, each additional year of living in Germany has a slightly negative influence on the probability of staying in Germany. After 20 years in Germany, the probability of staying in Germany increases at an increasing rate and approaches one.

[19]All Figures have been calculated at the mean value of the rest of the regressors.

FIGURE 1 ABOUT HERE

The rest of the coefficients in Table 5 show that return migration is highly selective with respect to attachment to employment in Germany. Those immigrants who have week ties to the labor force, that is, immigrants who are registered as unemployed, or those who are not employed, have a significantly higher probability of returning to their home country versus staying in Germany compared to those who work full time. Return migrants from Germany do not appear to be selected with respect to wages, while they are negatively selected with respect to occupational achievement or prestige of the job. Guestworkers with higher prestige scores, who rank higher in the occupational hierarchy have a lower their probability of return.

As predicted in the theoretical section, we find that the guestworkers who have their spouses in Germany, who have become German citizens, and who "feel German" are less likely to return. On the other hand, those guestworkers who kept strong ties with the country of origin - either by leaving their family behind, or by remitting - are more likely to return.

Among the rest of the control variables, we find a strong effect of old age on the probability of return. Namely, immigrants over 65 years of age have a higher probability of return, indicating a link between return migration and retirement. With regards to gender, we are not able to confirm a significant association between gender and return migration. In fact, when we disaggregated by gender the general portrait of the self-selective character of return migration among immigrants in Table 5 is replicated by Tables A5.1 and A5.2 of the Appendix for men and women respectively. With the exception of prestige - which matters for women only - and the exception of age - which matters for men

only - the results are astonishingly the same. Figures 6 and 7 trace the probabilities of staying in Germany, of being lost to follow-up, and to emigrating for men and women respectively. For both men and women, the probabilities of emigration are rather flat and hovering around zero. Overall, the calculated probabilities are the same, although the curves for women show a more pronounced curvature.

The next group of control variables pertains to the heterogeneity of immigrants with respect to their nationality. Emigration rates vary by nationality with the European Union members having the highest probability of return. Viewed differently, these coefficients show that Turks, and guestworkers from the ex-Yugoslavia have the lowest chances of going back to their countries of origin. Controlling for everything else, and compared to those residing in Berlin, guestworkers residing in every other state are more likely to return to their home country. Lastly, from the coefficients of the period effects we see that the probability of emigration decreases significantly every subsequent year after 1984.

In sum, the model has good predictive power as indicated by the Log Likelihood and the χ^2 test. In Tables A6.1 and A6.2 we present the results of the event history probability of return from a plain logit for all guestworkers and for men and women separately. The results of this exercise are identical to the multinomial results. The basic conclusions from this analysis are that the migrants who return home are selected mainly in terms of their social and economic attachments to Germany and their sending nations. Those with weak employment attachment in Germany are more likely to return; those with strong social attachments to Germany are more likely to stay; and those with strong social and economic links to countries of origin are more likely to leave. Human capital, and earnings are not significant determinants of the probability to return home, once we control for

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employment and social, and psychological attachments.

In the next section we address the question of selection bias results in cross sectional studies on immigrant earnings assimilation.

ADJUSTING FOR SELECTIVE EMIGRATION

To test the hypothesis that cross-sectional earnings estimates on immigrant assimilation suffer from selective emigration bias we estimated human capital earnings regressions for several cross-sections in our panel. First, we estimated plain earnings regressions and second, we reestimated the models adjusting for labor force participation bias following the Heckman two-stage technique.[20] In the first approach, we estimated Mincerian earnings regressions for the entire guestworker population in the GSOEP in a particular year. Then, we estimated Mincerian earnings regressions on a restricted population that same year by omitting from the entire guestworker population the emigrants (traced from the subsequent years). In this analysis the dependent variable is the natural logarithm of weekly wages. The explanatory variables include human capital variables, assimilation variables, family status variables, and labor market characteristics.

The estimated results based on positive wages of the first wave (1984) are presented in Table 6. The total number of guestworkers who left Germany in 1984 is 677 (or 420 accounting only for the workers with positive wages). Based on the workers with positive wages, this restricted sample is reduced to 1619 observations. The first three columns of Table 5 present the estimated earnings results on the entire guestworker population while the last three columns present the estimated earnings results on the guestworker population who did not emigrate. T-ratios are underneath the coefficients in

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[20]We also experimented with a bivariate probit with selection, adjusting the wages for both remigration and labor force participation. We obtained the same results.

parentheses, and the asterisk indicates a significance level of five per cent in a two-tailed test. In Columns 1 and 4 we present the results of the simple human capital model, in Columns 2 and 5 we present the results of the model augmented with family characteristics, and in Columns 3 and 6 we add labor market characteristics and nationality variables in the model.[21]

All specifications of Table 6 show similar results. Overall, the wages of guestworkers are concave in age. Wages increase with age at a decreasing rate, they reach a maximum around the age of 42 for the entire immigrant population in 1984 and around the age of 41 for the restricted population in 1984, and start decreasing thereafter. In Figure 2 we plotted the estimated age-earnings profile of guestworkers, calculated at the average value of all the other determinants, from age 16 to 60. The blue curve represents the entire sample in 1984 in Germany based on the estimated results of Column 3. The red curve represents the estimated age-earnings profile produced from the restricted sample (Column 6). Amazingly, we find that these two profiles are identical and they overlap one another for a good part of the working lives of the guestworkers. Only at the two tails is there a small gap between the two samples. This indicates that at both at younger ages (less than twenty) and at older ages (more than fifty) the emigrants have higher wages than the rest of the immigrant population.

FIGURE 2 ABOUT HERE

We are surprised to find that the coefficients on the years since migration variable have perverse signs, although other researchers have found the same result (Borjas 1987). At first sight, our wage estimation for 1984 shows that the wages of guestworkers

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[21]Just for comparison we present the results of the parallel analysis for the 12th wave (1995) in the Appendix, Tables A7, A8, and A9. Results on other cross sections are available upon request.

decrease with time in Germany.[22] This does not mean that there is no wage assimilation. In Figure 3 we plot the YSM-Earnings profiles of guestworkers in Germany in 1984 based on the results of Column 3 in Table 6. The resultant YSM-earnings profiles are plotted at the average level of all other characteristics for the entire population (blue curve) and the restricted set (red curve). This Figure clearly shows the earnings disadvantage of the guestworkers in the beginning of their immigrant careers and their improvement after the first fifteen years of residing in Germany. Specifically, the earnings of immigrants are rather flat during the first 15 to 19 years in Germany but they increase at an increasing rate thereafter. Similar to Figure 2, we find that there is no discernable difference between the wages of the entire guestworker population and the restricted guestworker population.

FIGURE 3 ABOUT HERE

From the rest of the coefficients in Table 6, we see that there are significant gender differences in wages with men earning about 38 percent more than women both in the entire population and the restricted set. From the human capital acquired in Germany those with a high school diploma earn about 25% more than those who have no degree in Germany. Vocational training is also a significant determinant of wages but has a perverse sign. The guestworkers who have vocational training in Germany earn about 8 percent less that those who do not have any vocational training while each additional year of education before migration significantly increases the wages of guestworkers by about 2 percent. As expected, speaking the German language fluently is rewarded in the labor

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[22]The corresponding analysis for 1995 shows that the YSM coefficients are only mildly quadratic and not significantly different from zero. Figure 9 portrays these profiles. Clearly, the two curves are almost flat and lie on top of each other. These profiles are consistent with previous research on assimilation that has found that the wages of guestworkers in Germany do not increase significantly with additional years of residence in Germany (Constant 1998).

market but when we control for hours of work and occupational prestige, the benefits from German fluency are wiped out. From the coefficients on the family variables we see that there is a wage premium of about 15 percent for married individuals but, on the other hand, there is a penalty for those guestworkers who have kids.

In Columns 3 and 6 we control for labor market characteristics. We see that the wages of guestworkers are significantly tied to their hours of work, reflecting the fact that guestworkers are in the lower tier of the labor market. Wages increase with each additional hour of work by 1 percent. Wages also increase with the type of job immigrants hold. Specifically, the higher the Treiman prestige score (or the more they climb up the socioeconomic ladder) the higher their earnings are. Lastly, we find that both Turks and German citizens have lower wages than the immigrants from the EU. The astonishing conclusion from this Table is that the wage profiles of the entire and the restricted population are the same. Although there is selection in return migration (documented in Table 5 above) this selection does not affect the wages. The 420 guestworkers who left Germany in 1984 have not affected the wage distribution of the guestworkers who stayed in Germany. This could be due to the narrower income distribution in Germany and to the small dispersion of the guestworker wages.

In a second approach, we reestimated earnings regressions for the entire guestworker population in the GSOEP in a particular year and for the restricted population that same year by omitting from the entire guestworker population the emigrants while we corrected for selectivity into the labor market. The estimated results from equation 10 are presented in Table 7 while the results of the earnings assimilation analysis adjusting for the non randomness of workers (equation 11) are presented in Table 8. Column 1 of Table

7 presents the results of the labor force participation probability for the entire population and Column 2 presents the results of the restricted population in 1984. Overall, the results are the same for both populations and conform with the human capital model. The probability of employment increases with age and additional years of residence in Germany, and is higher for men. The guestworkers who have some basic education, vocational training in Germany, and some schooling before migration are more likely to participate in the labor market. On the other hand, those immigrants who are married and have young kids in the house are less likely to work. The coefficients on the remittances variable show that the guestworkers who remit have a very high probability to work. Controlling for everything else, Turks have the lowest probability of employment in Germany, compared to EU nationals. In sum, the probit estimation results are the same for both the entire guestworker population in 1984 and for the restricted population.

In Table 8 we present the wage estimation results adjusted for employment bias and heteroscedasticity. Following the same format, the first column estimates are based on the entire guestworker population in 1984 with positive wages, and the second column estimates are based on the restricted set of guestworkers who stayed in Germany. The estimated results across all specifications are stunningly similar to Table 6. On average, for both populations we find that wages are concave in age, and convex in YSM, and they do not significantly depend on schooling in Germany, nor fluency in German. Instead, wages increase with years of schooling before migration and decrease with vocational training. Table 8 also confirms the gender disparity in wages. Although there is a decrease in the gender gap compared to Table 6, guestworker men still earn about 24 percent more that women. From this wage analysis in 1984 we find that the wages of guestworkers

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increase with additional hours of work, and with higher Treiman prestige scores. As before, all non-EU nationals are penalized in the market, even those who have legally become German citizens. The selection term λ is negative and significant only for the entire population. This indicates that the guestworkers are not randomly selected into the labor market; instead, unobserved variables, correlated with employment and earnings, strongly select guestworkers into lower paying jobs. Further, this indicates that immigrant workers have lower wage offers than non-workers with similar measured characteristics.

In Figure 4 we plotted the age-earnings profile of the entire guestworker population (blue curve) and juxtaposed it to the age-earnings profile of the guestworker population who stayed in Germany in 1984 (red curve). This picture is identical to figure 2. With the exception of the small gap between the curves for younger and older immigrants, the age-earnings profiles of guestworkers are the same for both the entire and the restricted population. Anytime the blue curve, representing all guestworkers in Germany, lies above the red curve, representing the guestworkers who stayed in Germany, this indicates that the emigrants are positively selected with respect to wages or that they have higher wages than the non-emigrants.

FIGURE 4 ABOUT HERE

In Figure 5 we traced the YSM-earnings profiles for the entire and the restricted immigrant population in 1984. Figure 5 shows only a hairline gap between the two populations. This hairline difference does not justify any significant wage difference nor a selection bias. Figure 5 shows a very similar pattern to Figure 3.

FIGURE 5 ABOUT HERE

The most important result from the cross sectional earnings regression analysis is

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that the coefficients of both the restricted and the entire guestworker population are the same. This is as expected from the event history analysis, whereby emigrants in Germany are not selected with respect to wages. In sum, similar to Lindstrom and Massey's (1994) study, we were not able to confirm that selective emigration significantly biases cross-sectional earnings assimilation results.[23]

CONCLUSION

In this paper we addressed the question of selective emigration and how it affects cross-sectional earnings results. Using the German panel data during the period 1984-1997 we estimated multinomial logit models to predict the probability of emigration as a function of human capital, time in Germany, demographic, and labor market characteristics. We began by estimating a multinomial logit model that followed migrants from their point of entry into the GSOEP up to their emigration or the final survey date, using the updated code for permanent emigration included on the GSOEP file to indicate a departure. This analysis showed that return migrants were not very selected with respect to human capital characteristics or economic achievements, but were highly associated to various social and economic attachments to Germany and countries of origin. While schooling in the home country significantly increased the odds of returning, neither education in Germany, German vocational training, or earnings in Germany, significantly predicted the likelihood of return migration.

In contrast, fluency in German and higher occupational prestige significantly decreased the odds of returning. Further, the decision to emigrate was strongly determined by the existence of social ties in Germany (presence of spouse and children), political ties

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[23]When we replicated the analysis for other cross-sections we also obtained the same results.

(being a German citizen), and psychological ties (feeling German). Likewise, return migration was strongly influenced by tight bonds to the home country either social (spouse or children abroad) or economic (remitting money abroad). Emigration was not selective of sex, but was selective with respect to nationality. Migrants from Turkey and the former Yugoslavia were least likely to return back to their home countries while those from the EU were most likely to do so.

Our event history analysis showed that an essential consideration for the decision to return is being employed in Germany. In fact, having a job in Germany is far more important than the remuneration of the job. Guestworkers are more likely to return home when they lose access to German jobs. Our results show that immigrants in Germany migrated for employment and continue to stay so long as they have employment in Germany. For the average immigrant, the probability of return is very low - close to zero - and this is irrespective of gender.

Finally, from a standard human capital earnings regression cross-sectional exercises we could not confirm any serious selection bias with respect to emigration. This conclusion is echoed in all cross-sectional analyses, even after we adjusted for employment selection. In congruence with previous studies, we found that cross sectional earnings results do not suffer form selection biases with respect to emigration. In sum, the wage regressions showed that there are significant wage disparities between men and women with men earning close to 38 percent more than women. Vocational training acquired in Germany as well as education acquired in the home country were the only facets of human capital that determine wages. Overall, the wages of immigrants increase with age at a decreasing rate; they also increase with YSM but only after the first fifteen

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years of residence in Germany. As is indicative of laborers in the second tier of the labor

market, hours of work significantly determine the wages of immigrants. Finally, nationality

matters for the wages of immigrants in Germany, with EU nationals earning more than any

other group.

TABLE 1. YEARLY OBSERVATIONS BY GENDER

WAVE	YEAR	MALES	FEMALES	TOTAL
		(1)	(2)	(3)
1	1984	1592	1418	3010
2	1985	1375	1226	2601
3	1986	1349	1180	2529
4	1987	1345	1197	2542
5	1988	1275	1160	2435
6	1989	1237	1167	2404
7	1990	1242	1145	2387
8	1991	1241	1148	2389
9	1992	1224	1148	2372
10	1993	1220	1139	2359
11	1994	1158	1110	2268
12	1995	1089	1053	2142
13	1996	1043	1018	2061
14	1997	1015	979	1994
All 14 Waves (individuals)		2382	2231	4613
Person Year Observations		17405	16088	33493
Emigrants			817 (18%)	

Source: Own calculations from GSOEP 1984-1997

TABLE 2.   THEORETICAL VARIABLES AND THEIR DEFINITIONS IN MODELS PREDICTING
THE RETURN MIGRATION OF IMMIGRANTS FROM GERMANY

Variable	Definition	Direction of Effect	Predicted
Human Capital			
Home Country Schooling	Years of schooling or vocational training at home		+
Time Since Migration	Years since migration		-
German Education			
No Degree	Reference		
Primary-Secondary	Attended primary or secondary school in Germany		-
Technical	Finished technical school in Germany		-
Abitur	Finished academic high school in Germany		-
Other	Completed other degree in Germany		-
German Vocational Training	Obtained vocational training in Germany		-
Fluent in German	Speaks German fluently		-
Work Effort			
Full Time	Reference (works 35+ hours per week)		
Part Time	Respondent works part time		+
In Training	Respondent in training		+
Attachment to Employment			
Marginally Employed	Respondent works irregularly or is minimally employed		+
Unemployed	Respondent is registered as unemployed		+
Not Employed	Respondent not working or looking for work		+
Socioeconomic Achievement			
Earnings	Weekly gross earnings in 100 DM		0
Prestige	Value on Treiman International Occupational Scale		-
Attachment to Germany			
Spouse in Germany	Married with spouse in Germany		-
Children in Germany	Children <16 in household		-
German Born	Respondent born in Germany or entered before 1949		-
Own Home	Respondent owns home in Germany		-
Feel German	Respondent feels "totally German"		-
German Citizen	Respondent has German citizenship		-
Attachment to Origin			
Spouse in Home Country	Married with spouse outside Germany		+
Children in Home Country	Children <18 in home country		+
Remitted	Respondent sent money to friends or relatives at home		+

TABLE 3. SELECTED HUMAN CAPITAL AND LABOR MARKET CHARACTERISTICS OF MEN AND WOMEN GUESTWORKERS IN 1984 AND 1995

	MEN		WOMEN	
	1984	1995	1984	1995
	(1)	(2)	(3)	(4)
Weekly Wages (in DM) [1]	678.62	945.56	454.24	699.63
Treiman Occupational Prestige Score [1]	34.62	35.37	32.38	34.22
Hours Worked Per Week [1]	42.15	41.04	37.26	35.38
Labor Force Participation (in %)	86	72	55	59
Not employed (in %)	8	18	40	31
Age in Years	38.71	39.91	36.90	37.86
Years-Since-Migration	15.95	24.53	15.78	24.30
Education in Country of Origin (in years)	6.15	4.15	5.15	3.57
No degree in Germany (in %)	84	60	79	57
Primary-Secondary Degree in Germany	11	19	14	19
Technical School Degree in Germany	3	15	5	19
Academic High School Degree (Abitur)	1	2	1	2
Other Degree in Germany (in %)	0	5	0	3
Vocational Training in Germany (in %)	17	22	16	24
Speak German Fluently (in %)	17	38	13	44
Married-Spouse in Germany (in %)	72	63	79	65
Married-Spouse not in Germany (in %)	5	2	1	0
Children in Household < 16 yrs old	55	42	61	46
Children in Home country < 18 yrs old	11	2	9	1
German Born (in %)	5	30	11	36
Feel totally German (in %)	4	5	4	8
German Citizen (in %)	4	26	6	33
Turk (in %)	-	-	-	-
Yugoslav (in %)	26	27	28	27
European Union Member Country (in%)	71	47	66	40
Remit (in %)	43	24	18	14
Own Dwelling in Germany (in %)	7	17	7	16
Number of Observations	1048	728	939	730
[1] No of Obs on workers with > 0 wages	906	531	517	429

TABLE 4. SELECTED HUMAN CAPITAL AND LABOR MARKET CHARACTERISTICS OF TURKISH MEN AND WOMEN IN 1984 AND 1995

	MEN		WOMEN	
	1984	1995	1984	1995
	(5)	(6)	(7)	(8)
Weekly Wages (in DM) [1]	589.09	919.62	398.44	621.50
Treiman Occupational Prestige Score [1]	33.59	33.11	29.53	29.67
Hours Worked Per Week [1]	41.22	40.31	36.69	32.22
Labor Force Participation (in %)	93	68	38	40
Not employed (in %)	12	15	57	52
Age in Years	34.45	38.70	32.92	37.21
Years-Since-Migration	12.63	20.29	11.15	17.25
Education in Country of Origin (in years)	6.14	5.55	4.61	4.73
No degree in Germany (in %)	74	66	82	83
Primary-Secondary Degree in Germany	18	20	14	11
Technical School Degree in Germany	4	4	3	3
Academic High School Degree (Abitur)	0	0	0	1
Other Degree in Germany (in %)	1	7	0	2
Vocational Training in Germany (in %)	22	21	9	8
Speak German Fluently (in %)	12	20	10	15
Married-Spouse in Germany (in %)	65	82	73	86
Married-Spouse not in Germany (in %)	7	2	2	2
Children in Household < 16 yrs old	71	61	79	70
Children in Home country < 18 yrs old	12	2	8	2
German Born (in %)	4	4	5	3
Feel totally German (in %)	3	2	3	1
German Citizen (in %)	-	-	-	-
Turk (in %)	100	100	100	100
Yugoslav (in %)	-	-	-	-
European Union Member Country (in%)	-	-	-	-
Remit (in %)	42	29	15	13
Own Dwelling in Germany (in %)	3	10	4	9
Number of Observations	544	361	479	323
[1] No of Obs on workers with > 0 wages	435	247	181	129

TABLE 5. MULTINOMIAL DISCRETE TIME EVENT HISTORY ANALYSIS OF THE LIKELIHOOD OF RETURN MIGRATION AMONG IMMIGRANTS TO GERMANY 1984-1997. COMPARISON OUTCOME IS THE PROBABILITY TO STAY

Predictor Variables	Probability of Return Migration		Probability of Leaving the Panel	
	B	SE	B	SE
THEORETICAL VARIABLES				
Human Capital				
Home Country Schooling	0.0295*	0.0140	-0.0164*	0.0050
Time Since Migration	-0.0218	0.0126	0.0134*	0.0052
Time Since Migration Squared	0.0003	0.0003	-0.0004*	0.0001
German Degree				
No Degree	-	-	-	-
Primary-secondary	0.0217	0.1379	-0.0366	0.0444
Technical	-0.0890	0.2334	0.0430	0.0638
Abitur	-0.3683	0.4742	-0.4200*	0.1490
Other	-0.0337	0.2607	0.0703	0.1308
German Vocational Training	-0.0433	0.1309	0.0218	0.0419
Fluent in German	-0.3734*	0.1295	0.0472	0.0390
Work Effort				
Full Time	-	-	-	-
Part Time	0.0548	0.2394	0.0474	0.0697
In Training	-0.0839	0.3297	0.0770	0.0788
Attachment to Employment				
Marginally Employed	0.5886	0.3441	0.2185	0.1185
Unemployed	0.7776*	0.2093	-0.0029	0.0682
Not Employed	0.7686*	0.1943	-0.0884	0.0561
Socioeconomic Achievement				
Earnings	-0.0004	0.0002	0.0000	0.0001
Prestige	-0.0085*	0.0039	0.0016	0.0014
Attachment to Germany				
Spouse in Germany	-0.3317*	0.1098	-0.2739*	0.0404
Children in Germany	-0.2648*	0.0808	0.3122*	0.0291
German Born	-0.1741	0.1929	0.0403	0.0619
Own Home	-0.3791*	0.1575	-0.1555*	0.0470
Feel German	-0.6386*	0.2922	-0.0830	0.0638
German Citizen	-0.7040*	0.2206	0.1788*	0.0632
Attachment to Origin				
Spouse in Home Country	0.9019*	0.1756	-0.3219*	0.0984
Children in Home Country	0.3766*	0.1359	-0.0171	0.0576
Remitted	0.2668*	0.0964	-0.1016*	0.0353
CONTROL VARIABLES				
Demographic				
Age				
16-18	-	-	-	-
19-24	0.2610	0.2073	0.0565	0.0645
25-64	0.1646	0.2205	-0.1408	0.0735
65+	0.7064*	0.2718	-1.1922*	0.1983
Male	0.0465	0.0857	0.0532	0.0309

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Continued

TABLE 5. Continued

Predictor Variables				
CONTROL VARIABLES				
National Origin				
European Union	-	-	-	-
Ex-Yugoslavia	-1.0907*	0.1250	-0.0660	0.0404
Turkey	-0.8541*	0.0940	-0.0412	0.0346
Place of Residence				
Berlin	-	-	-	-
Schleswig-Holstein	-0.2094	0.4001	0.2433*	0.1182
Hamburg	-0.3585	0.3168	-0.4507*	0.1055
Lower Saxony	-0.5707*	0.2460	-1.1516*	0.0848
Bremen	0.6786	0.4105	-0.2203	0.1616
North Rhein-Westfalia	-0.4530*	0.2105	-0.8114*	0.0674
Hessen	-0.4374	0.2250	-0.4348*	0.0709
Rheinland-Pfalz-Saarland	-0.4626	0.2562	-0.8921*	0.0891
Baden-Wurttemberg	-0.6163*	0.2132	-1.1058*	0.0684
Bavaria	-0.4635*	0.2248	-0.9631*	0.0728
Period				
1984	-	-	-	-
1985	-0.9485*	0.1509	-0.2279*	0.0567
1986	-1.1072*	0.1612	-0.3174*	0.0575
1987	-0.6122*	0.1388	-0.4025*	0.0581
1988	-1.0660*	0.1614	-0.5015*	0.0594
1989	-1.2998*	0.1797	-0.5952*	0.0603
1990	-1.6160*	0.2028	-0.6706*	0.0612
1991	-1.6966*	0.2122	-0.8035*	0.0625
1992	-1.6412*	0.2057	-0.9473*	0.0644
1993	-1.1858*	0.1764	-1.1246*	0.0667
1994	-1.5236*	0.1989	-1.3669*	0.0712
1995	-1.3235*	0.1882	-1.7684*	0.0798
1996+	-1.0315*	0.1446	-2.9518*	0.0924
Intercept	-1.0359*	0.3694	0.6926*	0.1247
Log Likelihood		-20732.98		
χ^2		4790.80		
Person Years		33493		

* $p < 0.05$
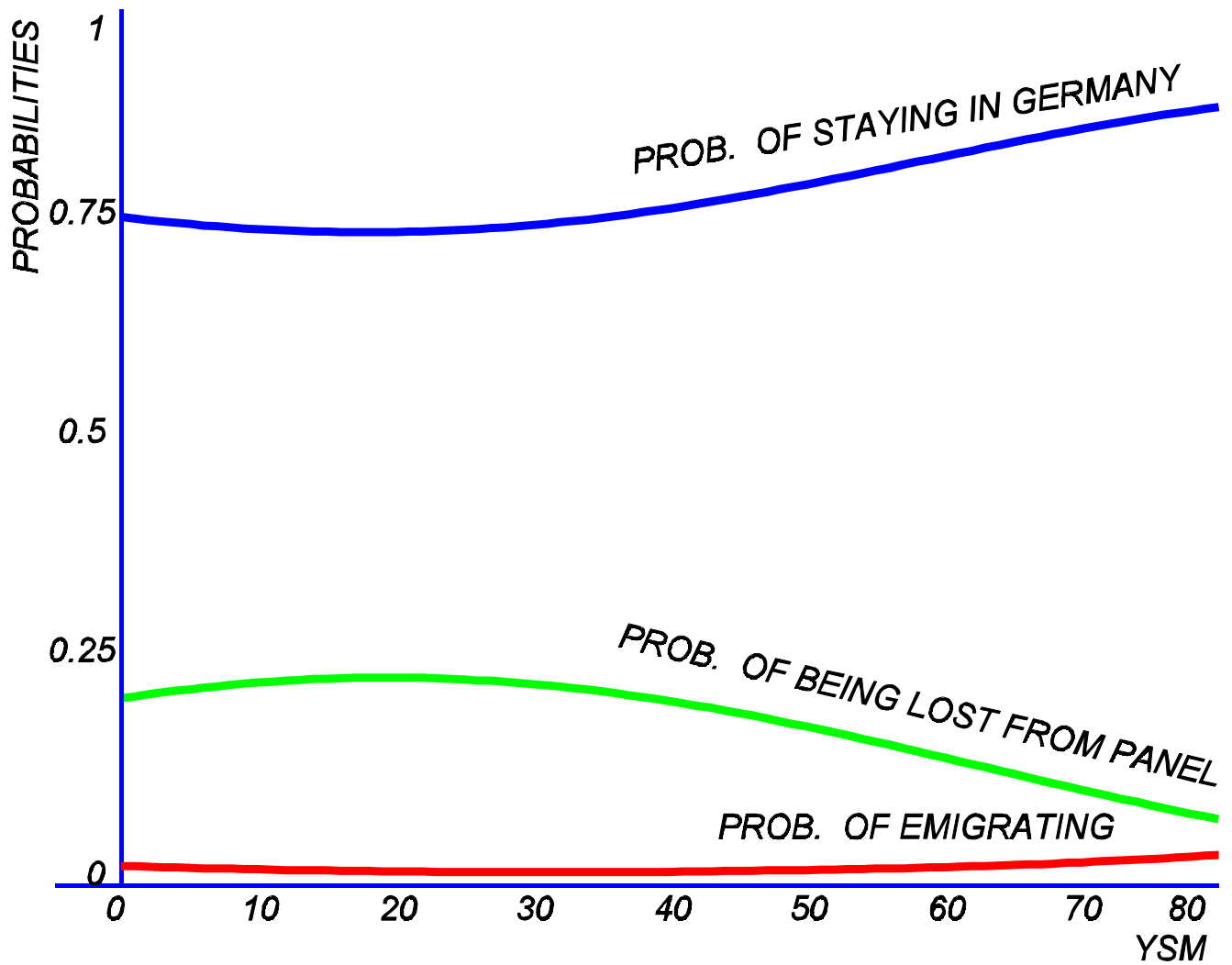
Figure 1: Probabilities of staying in Germany, of being lost to follow-up, and of emigrating with Years-since-Migration, 1984-1997

TABLE 6. ESTIMATED EARNINGS EQUATIONS RESULTS IN 1984

PARAMETERS	ENTIRE GUESTWORKER POPULATION IN 1984			GUESTWORKERS WHO DID NOT EMIGRATE IN 1984		
	COEFFICIENTS			COEFFICIENTS		
	(t-ratio)			(t-ratio)		
	(1)	(2)	(3)	(4)	(5)	(6)
INTERCEPT	4.0654*	4.1817*	3.6808*	3.7930*	3.9416*	3.4877*
	(34.80)	(34.65)	(29.80)	(27.79)	(27.88)	(23.77)
AGE	0.0977*	0.0907*	0.0848*	0.11498	0.1050*	0.0980*
	(15.56)	(13.26)	(12.83)	(15.33)	(12.84)	(12.23)
AGE^2	-0.0011*	-0.0011*	-0.0010*	-0.00136*	-0.0013*	-0.0012*
	(-14.97)	(-13.10)	(-12.66)	(-14.58)	(-12.51)	(-11.90)
YSM	-0.0080*	-0.0078	-0.0067	-0.0127*	-0.0122*	-0.0109*
	(-1.93)	(-1.88)	(-1.68)	(-2.65)	(-2.55)	(-2.29)
YSM^2	0.0003*	0.0003*	0.0002*	0.0003*	0.0003*	0.0003*
	(3.07)	(2.97)	(2.65)	(3.34)	(3.16)	(2.91)
SEX	0.3768*	0.3779*	0.3046*	0.3801*	0.3806*	0.3076*
	(18.99)	(19.02)	(15.63)	(16.61)	(16.69)	(13.58)
PRIMARY-SECONDARY	-0.0585	-0.0370	-0.0078	-0.0422	-0.0233	0.00016
	(-1.42)	(-0.89)	(-0.20)	(-0.91)	(-0.50)	(0.00)
TECHNICAL DEGREE	-0.0871	-0.0872	-0.0420	-0.053	-0.0527	-0.0170
	(-1.43)	(-1.43)	(-0.71)	(-0.78)	(-0.78)	(-0.26)
ABITUR	0.1871	0.2272*	0.2447*	0.2027	0.2456*	0.2723*
	(1.66)	(2.02)	(2.28)	(1.67)	(2.03)	(2.35)
OTHER DEGREE IN G	-0.1124	-0.0942	-0.0765	-0.1481	-0.1172	-0.1020
	(-0.84)	(-0.71)	(-0.61)	(-1.02)	(-0.81)	(-0.74)
VOC'L TRAINING IN G	-0.0856*	-0.0891*	-0.1108*	-0.0721*	-0.0751*	-0.093*
	(-2.75)	(-2.87)	(-3.74)	(-2.07)	(-2.17)	(-2.78)
EDU HOME COUNTRY	0.0159*	0.0145*	0.0085*	0.0164*	0.0147*	0.0103*
	(4.47)	(4.07)	(2.46)	(4.00)	(3.58)	(2.56)
SPEAK G FLUENTLY	0.0690*	0.0720*	0.0237	0.0737*	0.07796*	0.0361
	(2.33)	(2.44)	(0.83)	(2.27)	(2.41)	(1.15)
MAR_SPOUSE IN G		0.1406*	0.1454*		0.1553*	0.1589*
		(4.560)	(4.99)		(4.48)	(4.80)
MAR NO SPOUSE IN G		0.1529*	0.1769*		0.1989*	0.2093*
		(2.86)	(3.49)		(2.95)	(3.24)
KIDS IN HH		-0.0749*	-0.0558*		-0.0616*	-0.0512*
		(-3.46)	(-2.68)		(-2.45)	(-2.11)
KIDS IN NATIVE		-0.0375	-0.0302		-0.0440	-0.0351
		(-1.19)	(-1.01)		(-1.19)	(-0.99)
HOURS PER WEEK			0.0128*			0.0125*
			(13.71)			(11.58)
PRESTIGE SCORE			0.0057*			0.0048*
			(5.31)			(3.80)
GERMAN CITIZEN			-0.2811*			-0.2485*
			(-4.48)			(-3.72)
EX-YUGOSLAV			-0.0216			-0.0283
			(-0.89)			(-1.01)
TURK			-0.0593*			-0.041

TABLE 6. ESTIMATED EARNINGS EQUATIONS RESULTS IN 1984

	ENTIRE GUESTWORKER POPULATION IN 1984			GUESTWORKERS WHO DID NOT EMIGRATE IN 1984		
			(-2.77)			(-1.64)
R^2	0.337	0.385	0.452	0.394	0.403	0.459
F statistic	102.16	79.14	79.25	87.15	67.61	64.63
Mean of Ln Weekly Wages		6.248			6.243	
Number of Obs		2039			1619	

Note:* indicates significance at the 5 per cent level in two-tailed test ($p<0.05$)

TABLE 7. EMPLOYMENT PROBABILITY RESULTS FOR MEN AND WOMEN IN 1984

PREDICTOR VARIABLES	ENTIRE GUESTWORKER POPULATION IN 1984 COEFFICIENTS (St. Error)	GUESTWORKERS WHO DID NOT EMIGRATE IN 1984 COEFFICIENTS (St. Error)
INTERCEPT	-2.8707*	-2.7885*
	(0.2982)	(0.3596)
AGE	**0.1404***	**0.1311***
	(0.0176)	(0.0216)
AGE^2	**-0.0018***	**-0.0016***
	(0.0002)	(0.0003)
YSM	**0.0282***	**0.0374***
	(0.0106)	(0.0123)
YSM^2	**-0.0005***	**-0.0007***
	(0.0002)	(0.0002)
SEX	**0.8711***	**0.9653***
	(0.0568)	(0.0660)
PRIMARY-SECONDARY IN G	**0.2646***	0.2056
	(0.1073)	(0.1221)
TECHNICAL DEGREE IN G	0.1039	0.0385
	(0.1549)	(0.1722)
ABITUR IN GERMANY	-0.3129	-0.3568
	(0.2786)	(0.3025)
OTHER DEGREE IN G	-0.3837	-0.4960
	(0.3524)	(0.3571)
VOC'L TRAINING IN G	**0.4090***	**0.4527***
	(0.0901)	(0.1019)
EDU IN HOME COUNTRY	**0.0375***	**0.0382***
	(0.0099)	(0.0116)
SPEAK GERMAN FLUENTLY	-0.0572	0.0313
	(0.0868)	(0.0983)
MARRIED-SPOUSE IN G	**-0.2016***	-0.1976
	(0.0884)	(0.1015)
MARRIED-NO SPOUSE IN G	-0.0439	0.1087
	(0.2085)	(0.3010)
KIDS IN HOUSEHOLD	**-0.1555***	**-0.1686***
	(0.0644)	(0.0760)
KIDS IN NATIVE COUNTRY	0.0528	0.1247
	(0.1061)	(0.1310)
OWN DWELLING	0.2130	0.1700
	(0.1191)	(0.1302)
REMIT	**0.7939***	**0.8266***
	(0.0719)	(0.0859)
GERMAN CITIZEN	-0.2392	-0.2435
	(0.1550)	(0.1678)
EX-YUGOSLAV	0.0251	-0.0355
	(0.0802)	(0.0925)
TURK	**-0.2296***	**-0.2694***
	(0.0643)	(0.0760)
LOG LIKELIHOOD	-1466.797	-1082.588
χ^2	851.825	708.606
NUMBER OF OBSERVATIONS	3010	2333

* $p < 0.05$

TABLE 8. EARNINGS SELECTION RESULTS FOR MEN AND WOMEN IN 1984

PREDICTOR VARIABLES	ENTIRE GUESTWORKER POPULATION IN 1984 COEFFICIENTS (St. Error)	GUESTWORKERS WHO DID NOT EMIGRATE IN 1984 COEFFICIENTS (St. Error)
INTERCEPT	3.8922*	3.5785*
	(0.1708)	(0.1945)
AGE	**0.0839***	**0.1021***
	(0.0071)	(0.0083)
AGE^2	**-0.0010***	**-0.0012***
	(0.0001)	(0.0001)
YSM	**-0.0093***	**-0.0131***
	(0.0042)	(0.0049)
YSM^2	**0.0003***	**0.0003***
	(0.0001)	(0.0001)
SEX	**0.2382***	**0.2533***
	(0.0312)	(0.0365)
PRIMARY-SECONDARY DEGREE IN G	-0.0497	-0.0323
	(0.0407)	(0.0453)
TECHNICAL DEGREE IN G	-0.0456	-0.0178
	(0.0605)	(0.0669)
ABITUR IN GERMANY	0.2143	0.2386
	(0.1100)	(0.1176)
OTHER DEGREE IN GERMANY	-0.0862	-0.1206
	(0.1296)	(0.1398)
VOC'L TRAINING IN G	**-0.1320***	**-0.1108***
	(0.0318)	(0.0356)
EDU IN HOME COUNTRY	**0.0074***	**0.0101***
	(0.0037)	(0.0042)
SPEAK GERMAN FLUENTLY	0.0252	0.0317
	(0.0292)	(0.0319)
HOURS WORKING PER WEEK	**0.0127***	**0.0125***
	(0.0009)	(0.0011)
TREIMAN PRESTIGE SCORE	**0.0055***	**0.0047***
	(0.0011)	(0.0013)
GERMAN CITIZEN	**-0.2706***	**-0.2429***
	(0.0646)	(0.0678)
EX-YUGOSLAV	-0.0297	-0.0321
	(0.0248)	(0.0280)
TURK	**-0.0496***	-0.0278
	(0.0221)	(0.0258)
λ	**-0.1535***	-0.1191
	(0.0546)	(0.0623)
MEAN LN WAGE	6.2483	6.2429
(STD. DEVIATION OF WAGE)	0.5235	0.5431
LOG LIKELIHOOD	-960.4743	-812.2432
R^2	0.4465	0.4519
F STATISTIC	F[18, 2020] = 90.54	F[18, 1600] = 73.28
NUMBER OF OBSERVATIONS	2039	1619

* $p < 0.05$
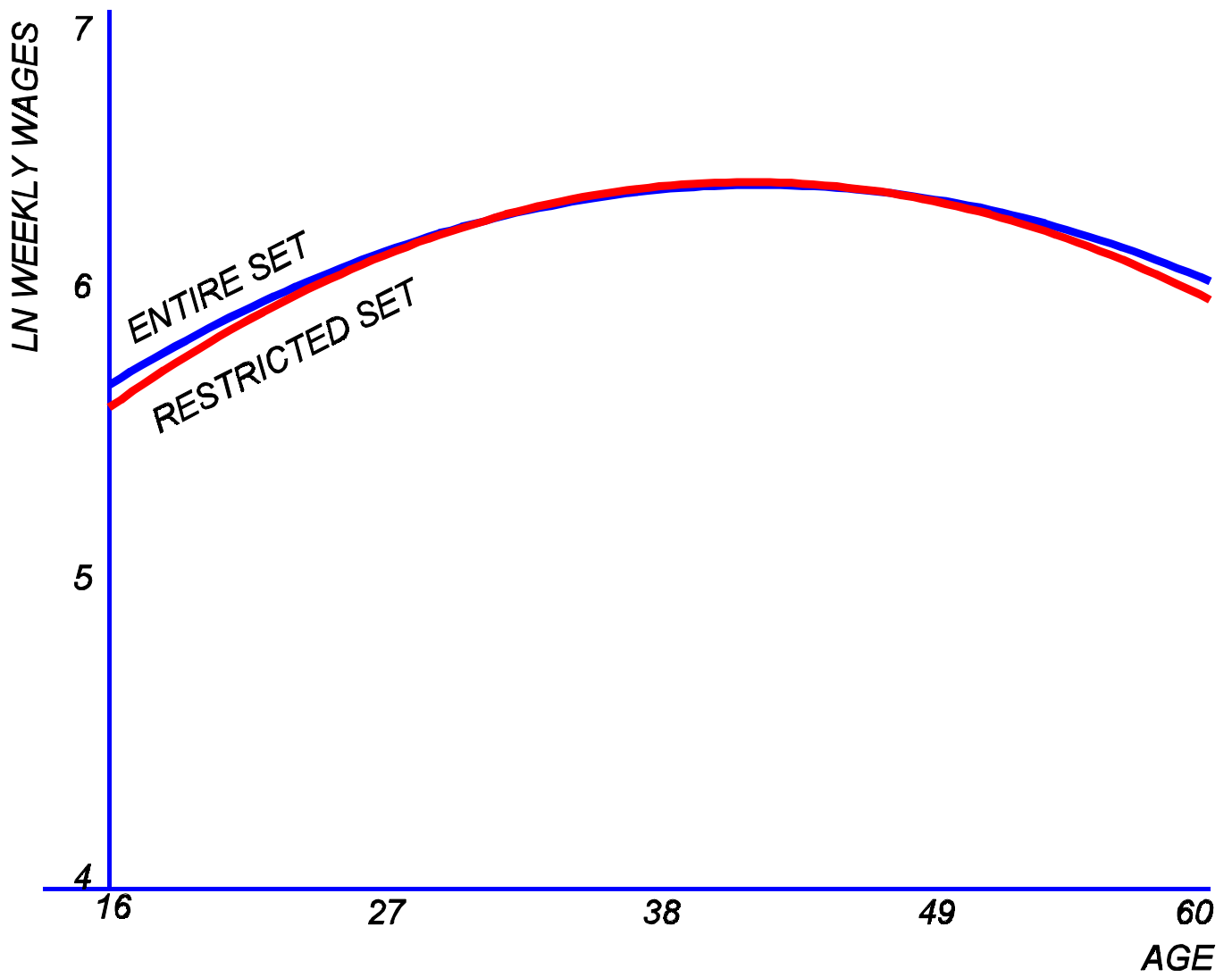
Figure 2: Age/Earnings Profiles of Guestworkers in 1984
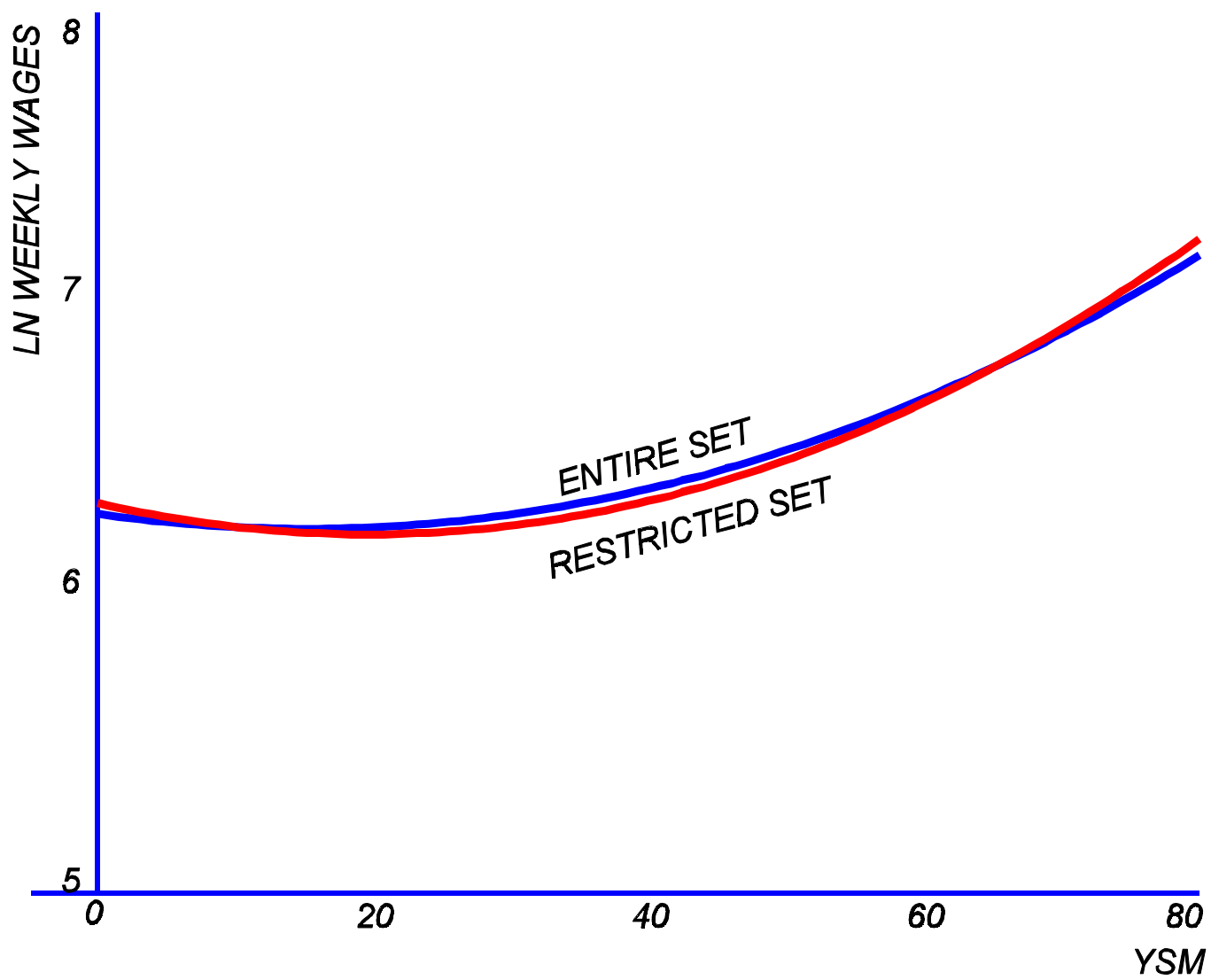
Figure 3: YSM/Earnings Profiles of Guestworkers in Germany in 1984
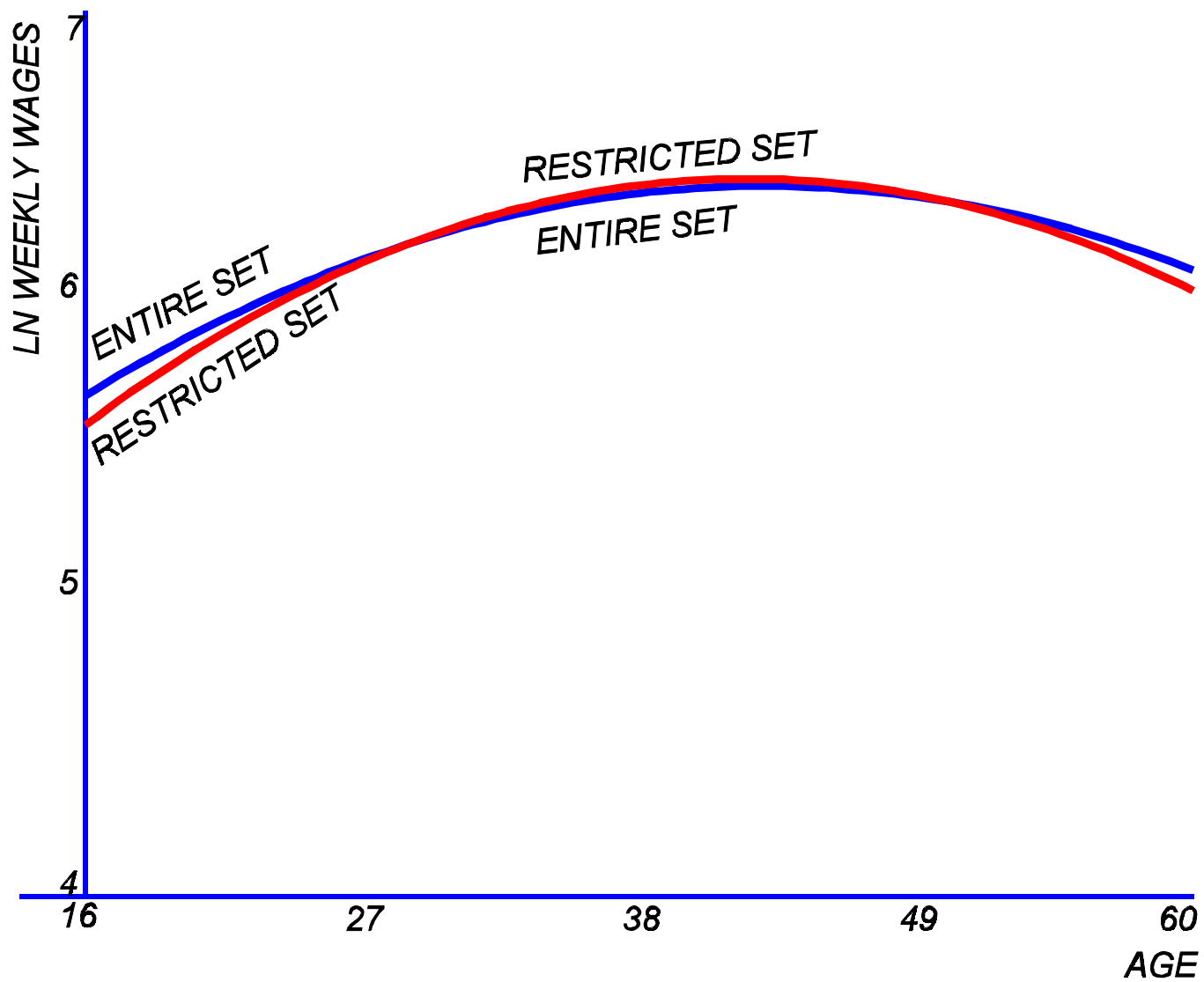
Figure 4: Age/Earnings Profiles of Guestworkers in 1984, Adjusted for Selection
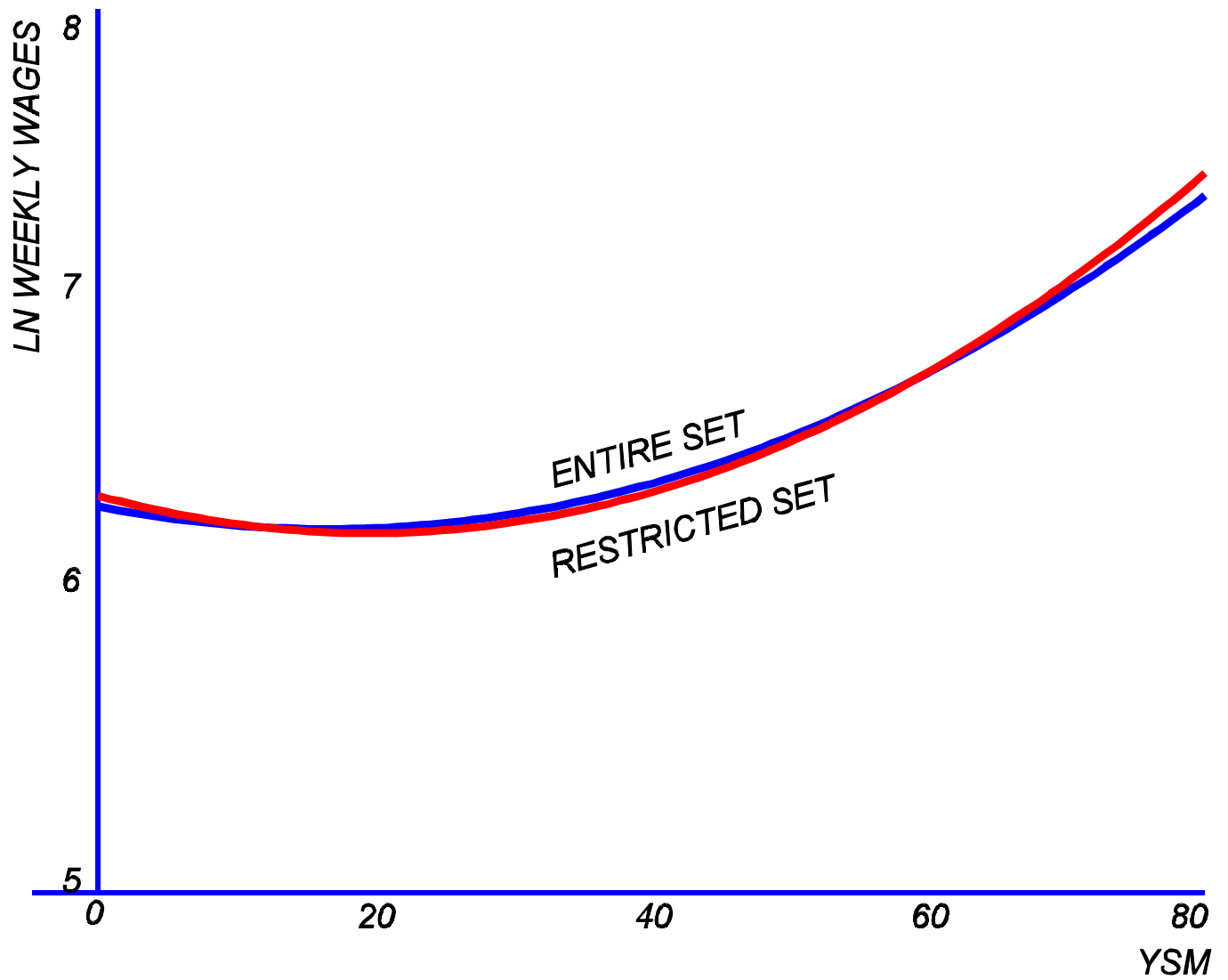
Figure 5: YSM/Earnings Profiles of Guestworkers in Germany in 1984, Adjusted for Selection

APPENDIX

TABLE A3.1 SUMMARY STATISTICS OF HUMAN CAPITAL, EARNINGS, AND OCCUPATION BY NATIONALITY. ENTIRE DATA SET IN 1984

	GERMAN	TURK	YUGO	EU
WEEKLY WAGES IN DM[1]	360.23	533.07	615.90	601.75
TREIMAN PRESTIGE SCORE[1]	38.63	32.40	33.66	33.61
NO DEGREE IN GERMANY(%)	0.12	0.78	0.90	0.84
ABITUR (%)	0.04	0.00	0.01	0.01
VOC'L TRAINING IN G (%)	0.64	0.16	0.11	0.15
SPK GERMAN FLUENTLY (%)	0.41	0.11	0.18	0.12
EDUHOME (IN YRS)	0.75	5.42	6.68	5.63
Observations	94	1023	537	1356
Percent of total obs (3010)	3	34	18	45
[1]Observations (with >0 wages only)	51	616	403	969

TABLE A3.2 SUMMARY STATISTICS OF HUMAN CAPITAL, EARNINGS, AND OCCUPATION BY NATIONALITY, 1995. ENTIRE DATA SET

	GERMAN	TURK	YUGO	EU
WEEKLY WAGES IN DM[1]	760.70	817.34	835.56	888.69
TREIMAN PRESTIGE SCORE[1]	37.36	31.93	33.43	34.06
NO DEGREE IN GERMANY(%)	0.19	0.74	0.75	0.74
ABITUR (%)	0.03	0.01	0.01	0.02
VOC'L TRAINING IN G (%)	0.37	0.15	0.15	0.18
SPK GERMAN FLUENTLY (%)	0.79	0.18	0.28	0.23
EDUHOME (IN YRS)	0.57	5.16	5.76	4.91
Observations	430	684	394	634
Percent of total obs (2142)	20	32	18	30
[1]Observations (with >0 wages only)	284	376	274	402

TABLE A5.1 MULTINOMIAL DISCRETE TIME EVENT HISTORY ANALYSIS OF THE LIKELIHOOD OF RETURN
MIGRATION AMONG MALE IMMIGRANTS TO GERMANY 1984-1997. COMPARISON OUTCOME IS
THE PROBABILITY TO STAY

Predictor Variables	Probability of Return Migration		Probability of Lost to Follow-Up	
	B	SE	B	SE
THEORETICAL VARIABLES				
Human Capital				
Home Country Schooling	0.0282	0.0203	0.0058	0.0071
Time Since Migration	-0.0462*	0.0221	0.0008	0.0081
Time Since Migration Squared	0.0003	0.0005	0.0000	0.0002
German Degree				
No Degree	-	-	-	-
Primary-secondary	-0.3495	0.2191	-0.0650	0.0619
Technical	-0.3922	0.3505	-0.2932*	0.0923
Abitur - Other	-0.2219	0.3037	-0.3173*	0.1384
German Vocational Training	0.0981	0.1742	0.1107*	0.0551
Fluent in German	-0.5242*	0.1929	-0.0689	0.0532
Work Effort				
Full Time	-	-	-	-
Part Time, In Training	-0.0947	0.4140	-0.0023	0.0960
Attachment to Employment				
Unemployed	0.8901*	0.2821	0.0404	0.0920
Not Employed	1.3260*	0.2782	-0.2430*	0.0919
Socioeconomic Achievement				
Earnings	-0.0004	0.0003	0.0002*	0.0001
Prestige	0.0067	0.0063	-0.0011	0.0023
Attachment to Germany				
Spouse in Germany	-0.4184*	0.1675	-0.3782*	0.0594
Children in Germany	-0.1793	0.1208	0.2959*	0.0405
German Born	-0.2476	0.3231	0.3583*	0.0884
Own Home	-0.4751*	0.2276	-0.2650*	0.0659
Feel German	-0.9118	0.5169	0.0309	0.0922
German Citizen	-0.8172*	0.3835	0.1678	0.0916
Attachment to Origin				
Spouse in Home Country	0.8701*	0.2333	-0.5832*	0.1226
Children in Home Country	0.3348	0.1882	0.0107	0.0771
Remitted	0.2067	0.1269	-0.1153*	0.0443
CONTROL VARIABLES				
Demographic				
Age				
16-18	-	-	-	-
19-24	0.7673*	0.3597	0.0622	0.0914
25-64	0.9578*	0.3777	-0.1375	0.1074
65+	1.3366*	0.4432	-1.2436*	0.3212

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Continued

TABLE A5.1 Continued

Predictor Variables	Probability of Return Migration		Probability of Lost to Follow-Up	
	B	SE	B	SE
CONTROL VARIABLES				
National Origin				
European Union	-	-	-	-
Ex-Yugoslavia	-1.1942*	0.1812	-0.1402*	0.0563
Turkey	-0.9356*	0.1327	-0.1432*	0.0476
Place of Residence				
Berlin	-	-	-	-
Schleswig-Holstein	0.2712	0.5593	0.3770*	0.1728
Hamburg	-0.3311	0.4622	-0.4804*	0.1479
Lower Saxony	-0.3930	0.3576	-1.2273	0.1189
Bremen	1.1065	0.5763	-0.1194*	0.2220
North Rhein-Westfalia	-0.3157	0.3116	-0.8533*	0.0956
Hessen	-0.2895	0.3343	-0.6274*	0.1013
Rheinland-Pfalz-Saarland	-0.2562	0.3785	-1.0358*	0.1266
Baden-Wurttemberg	-0.4359	0.3145	-1.1588*	0.0968
Bavaria	-0.3790	0.3363	-1.0697*	0.1035
Period				
1984	-	-	-	-
1985	-0.9344*	0.2209	-0.2218*	0.0777
1986	-1.0544*	0.2335	-0.3044*	0.0786
1987	-0.4648*	0.1990	-0.3796*	0.0798
1988	-0.7901*	0.2247	-0.4821*	0.0820
1989	-1.0499*	0.2539	-0.5825*	0.0838
1990	-1.3247*	0.2811	-0.6405*	0.0848
1991	-1.6572*	0.3236	-0.7757*	0.0867
1992	-1.4848*	0.3013	-0.9415*	0.0899
1993	-0.8307*	0.2449	-1.1032*	0.0930
1994	-1.3242*	0.2915	-1.3544*	0.1002
1995	-1.1003*	0.2746	-1.7936*	0.1135
1996+	-0.7157*	0.2134	-3.0512*	0.1341
Intercept	-2.0549*	0.5713	0.9780*	0.1796
Log Likelihood		-10674.06		
χ^2		2745.56		
Person Years		17405		

* $p < 0.05$

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Figure 6: Probabilities of staying in Germany, of being lost to follow-up, and of emigrating with Years-since-Migration; male guestworkers 1984-1997

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TABLE A5.2 MULTINOMIAL DISCRETE TIME EVENT HISTORY ANALYSIS OF THE LIKELIHOOD OF RETURN MIGRATION AMONG FEMALE IMMIGRANTS TO GERMANY 1984-1997. COMPARISON OUTCOME IS THE PROBABILITY TO STAY

Predictor Variables	Probability of Return Migration		Probability of Lost to Follow-Up	
	B	SE	B	SE
THEORETICAL VARIABLES				
Human Capital				
Home Country Schooling	0.0174	0.0195	-0.0320*	0.0071
Time Since Migration	-0.0107	0.0167	0.0225*	0.0071
Time Since Migration Squared	0.00023	0.0003	-0.0005*	0.0001
German Degree				
No Degree	-	-	-	-
Primary-secondary	0.2567	0.1788	0.0364	0.0653
Technical	0.1293	0.3155	0.3956*	0.0909
Abitur - Other	-0.0582	0.3631	0.1341	0.1495
German Vocational Training	-0.2666	0.2023	-0.0897	0.0668
Fluent in German	-0.319	0.1760	0.1876*	0.0584
Work Effort				
Full Time	-	-	-	-
Part Time, In Training	0.1489	0.2374	0.0510	0.0762
Attachment to Employment				
Unemployed	0.7759*	0.3099	-0.1838	0.1151
Not Employed	0.6551*	0.2819	-0.2089*	0.0954
Socioeconomic Achievement				
Earnings	-0.00013	0.0004	-0.0004*	0.0001
Prestige	-0.0126*	0.0051	0.0003	0.0019
Attachment to Germany				
Spouse in Germany	-0.2935*	0.1491	-0.1935*	0.0569
Children in Germany	-0.272*	0.1112	0.3278*	0.0427
German Born	-0.199	0.2455	-0.2263*	0.0882
Own Home	-0.3067	0.2200	-0.0573	0.0678
Feel German	-0.516	0.3626	-0.2170*	0.0913
German Citizen	-0.6446*	0.2763	0.2146*	0.0898
Attachment to Origin				
Spouse in Home Country	1.162*	0.3328	0.1631	0.1843
Children in Home Country	0.4876*	0.2006	-0.0168	0.0884
Remitted	0.3206*	0.1479	-0.0547	0.0604
CONTROL VARIABLES				
Demographic				
Age				
16-18	-	-	-	-
19-24	0.0623	0.2566	-0.0340	0.0927
25-64	-0.2105	0.2765	-0.2226*	0.1018
65+	0.2885	0.3650	-1.1569*	0.2557

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Continued

TABLE A5.2 Continued

| Predictor Variables	Probability of Return Migration		Probability of Lost to Follow-Up	
	B	SE	B	SE
CONTROL VARIABLES				
National Origin				
European Union	-	-	-	-
Ex-Yugoslavia	-1.00784*	0.1748	0.0504	0.0589
Turkey	-0.756247*	0.1348	0.0901	0.0517
Place of Residence				
Berlin	-	-	-	-
Schleswig-Holstein	-0.562553	0.5841	0.1449	0.1654
Hamburg	-0.281508	0.4415	-0.4729*	0.1525
Lower Saxony	-0.6276	0.3452	-1.1137	0.1225
Bremen	0.4374	0.5956	-0.2907*	0.2418
North Rhein-Westfalia	-0.4686	0.2885	-0.7878*	0.0964
Hessen	-0.4789	0.3078	-0.2815*	0.1006
Rheinland-Pfalz-Saarland	-0.5060	0.3507	-0.7792*	0.1268
Baden-Wurttemberg	-0.7222*	0.2936	-1.0956*	0.0977
Bavaria	-0.4488	0.3058	-0.8800*	0.1035
Period				
1984	-	-	-	-
1985	-0.9581*	0.2076	-0.2371*	0.0834
1986	-1.1628*	0.2246	-0.3381*	0.0848
1987	-0.7335*	0.1954	-0.4349*	0.0855
1988	-1.3054*	0.2353	-0.5333*	0.0870
1989	-1.5234*	0.2566	-0.6206*	0.0877
1990	-1.8898*	0.2964	-0.7137*	0.0893
1991	-1.7195*	0.2823	-0.8452*	0.0913
1992	-1.7587*	0.2836	-0.9650*	0.0935
1993	-1.5248*	0.2618	-1.1604*	0.0969
1994	-1.6705*	0.2740	-1.3810*	0.1021
1995	-1.4872*	0.2613	-1.7470*	0.1134
1996+	-1.2402*	0.1988	-2.8627*	0.1281
Intercept	-0.6044	0.5018	0.7494*	0.1828
Log Likelihood		-9937.09		
χ^2		2284.18		
Person Years		16088		

* $p < 0.05$
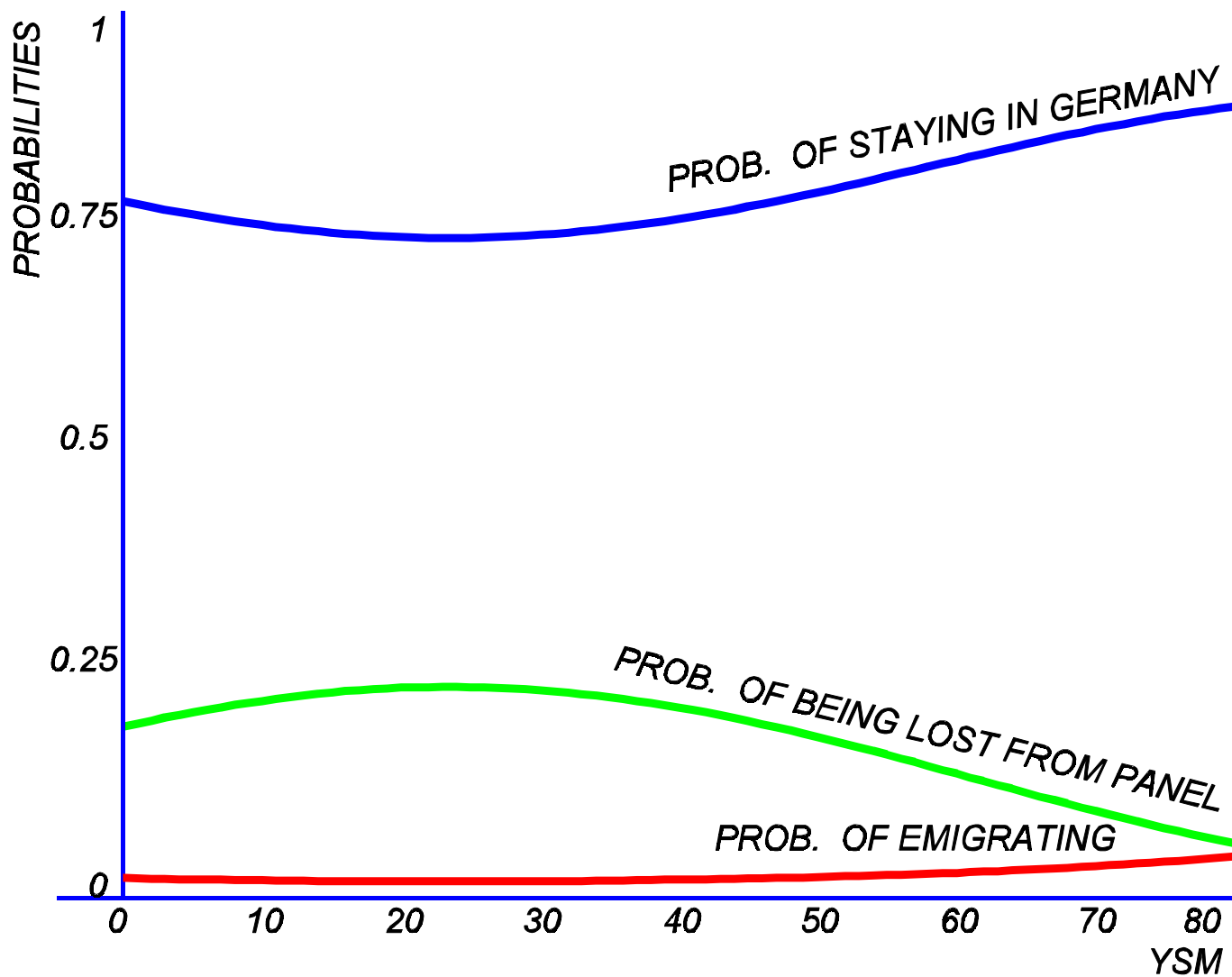
Figure 7: Probabilities of staying in Germany, of being lost to follow-up, and of emigrating with Years-since-Migration; female guestworkers 1984-1997

Predictor Variables	Coefficient	St. Error	Odds Ratios
THEORETICAL VARIABLES			
Human Capital			
Home Country Schooling	0.0276*	0.0140	1.028
Time Since Migration	-0.0254*	0.0126	0.975
Time Since Migration Squared	0.0004*	0.0003	1
German Degree			
No Degree	-	-	-
Primary-Secondary	0.0261	0.1374	1.026
Technical	-0.0820	0.2327	0.921
Abitur	-0.2597	0.4733	0.771
Other	-0.0611	0.2618	0.941
German Vocational Training	-0.0513	0.1305	0.95
Fluent in German	-0.4094*	0.1305	0.664
Work Effort			
Full Time	-	-	-
Part Time	0.0511	0.2384	1.052
In Training	-0.1310	0.3282	0.877
Attachment to Employment	0.5258	0.3416	1.692
Registered as Unemployed	0.7743*	0.2072	2.169
Not Employed	0.8039*	0.1924	2.234
Socioeconomic Achievement			
Weekly Wages	-0.0004	0.0002	1
Prestige	-0.0088*	0.0039	0.991
Attachment to Germany			
Spouse in Germany	-0.2541*	0.1094	0.776
Children in Germany	-0.3559*	0.0806	0.701
German Born	-0.1177	0.1933	0.889
Own Home	-0.3582*	0.1576	0.699
Feel German	-0.6081*	0.2913	0.544
German Citizen	-0.7919*	0.2216	0.453
Attachment to Origin			
Spouse in Home Country	0.9686*	0.1741	2.634
Children in Home Country	0.3797*	0.1348	1.462
Remitted	0.3198*	0.0961	1.377
CONTROL VARIABLES			
Demographic			
Age			
16-18	-	-	-
19-24	0.2618	0.2064	1.299
25-64	0.2501	0.2198	1.284
65+	0.8916*	0.2729	2.439
Male	0.0270	0.0854	1.027
National Origin			
European Union	-	-	-
Ex-Yugoslavia	-1.0886*	0.1249	0.337
Turk	-0.8529*	0.0937	0.426
Place of Residence			
Berlin	-	-	-
Schleswig-Holstein	-0.3342	0.3966	0.716
Hamburg	-0.1725	0.3154	0.842
Lower Saxony	-0.1928	0.2444	0.825
Bremen	0.7743	0.4061	2.169
North Rhein-Westfalia	-0.1584	0.2089	0.854
Hessen	-0.2587	0.2233	0.772
Rheinland-Pfalz-Saarland	-0.1650	0.2546	0.848
Baden-Wurttemberg	-0.2563	0.2118	0.774
Bavaria	-0.1263	0.2234	0.881

Predictor Variables	Coefficient	St. Error	Odds Ratios
Period			
1984	-	-	-
1985	-0.8558*	0.1491	0.425
1986	-0.9796*	0.1595	0.375
1987	-0.4541*	0.1369	0.635
1988	-0.8744*	0.1598	0.417
1989	-1.0793*	0.1783	0.34
1990	-1.3732*	0.2016	0.253
1991	-1.4138*	0.2111	0.243
1992	-1.3226*	0.2046	0.266
1993	-0.8278*	0.1752	0.437
1994	-1.1202*	0.1979	0.326
1995	-0.8661*	0.1873	0.421
1996	-1.3952*	0.2289	0.248
1997	0.0104	0.1552	1.01
Intercept	-1.9433*	0.3668	
Log Likelihood		-3436.60	
χ^2		808.48	
Person Years		33493	

* $p < 0.05$

Predictor Variables	MEN GUESTWORKERS			WOMEN GUESTWORKERS		
	Coefficient	St. Error	OddsRatios	Coefficient	St. Error	OddsRatios
THEORETICAL VARIABLES						
Human Capital						
Home Country Schooling	0.0213	0.0204	1.022	0.0189	0.0196	1.019
Time Since Migration	-0.0429	0.0228	0.958	-0.0187	0.0166	0.982
Time Since Migration Squared	0.0002	0.00056	1	0.0003	0.00032	1
German Degree						
No Degree	-	-	-	-	-	-
Primary-Secondary	-0.3443	0.2187	0.709	0.2451	0.1778	1.278
Technical	-0.2937	0.3493	0.745	0.0422	0.3146	1.043
Other	-0.1572	0.3043	0.855	-0.1296	0.3645	0.878
German Vocational Training	0.0692	0.1734	1.072	-0.2561	0.2018	0.774
Fluent in German	-0.5033*	0.1938	0.605	-0.4146*	0.1773	0.661
Work Effort						
Full Time	-	-	-	-	-	-
Part Time	-0.0852	0.4123	0.918	0.1240	0.2345	1.132
Attachment to Employment						
Registered as Unemployed	0.8786*	0.2783	2.408	0.8092*	0.3026	2.246
Not Employed	1.4028*	0.2747	4.066	0.7064*	0.2742	2.027
Socioeconomic Achievement						
Weekly Wages	-0.0004	0.000299	1	-0.0000	0.00039	1
Prestige	0.0070	0.00627	1.007	-0.0125*	0.00505	0.988
Attachment to Germany						
Spouse in Germany	-0.2971	0.1668	0.743	-0.2377	0.1482	0.788
Children in Germany	-0.2693*	0.1207	0.764	-0.3651*	0.1108	0.694
German Born	-0.2691	0.3256	0.764	-0.0634	0.2451	0.939
Own Home	-0.4275	0.2282	0.652	-0.3099	0.2198	0.734
Feel German	-0.9295	0.5178	0.395	-0.4462	0.3605	0.64
German Citizen	-0.9161*	0.3881	0.4	-0.7448*	0.2759	0.475
Attachment to Origin						
Spouse in Home Country	1.0256*	0.2319	2.789	1.0397*	0.3292	2.828
Children in Home Country	0.3296	0.1869	1.39	0.4872	0.1986	1.628
Remitted	0.2590*	0.1268	1.296	0.3585*	0.1472	1.431
CONTROL VARIABLES						
Demographic						
Age						
16-18	-	-	-	-	-	-
19-24	0.7403*	0.3594	2.097	0.1076	0.2548	1.114
25-64	1.0144*	0.3779	2.758	-0.0827	0.2747	0.921
65+	1.4607*	0.4453	4.309	0.5258	0.3653	1.692
National Origin						
European Union	-	-	-	-	-	-
Ex-Yugoslavia	-1.1708*	0.1812	0.31	-1.0392*	0.1743	0.354
Turk	-0.8956*	0.1324	0.408	-0.8071*	0.1343	0.446
Place of Residence						
Berlin	-	-	-	-	-	-
Schleswig-Holstein	0.0952	0.5514	1.100	-0.6289	0.5798	
Hamburg	-0.1259	0.4601	0.882	-0.0906	0.439	0.913
Lower Saxony	0.0110	0.3549	1.011	-0.2605	0.3428	0.771
Bremen	1.1560*	0.567	3.177	0.5485	0.5915	1.731
North Rhein-Westfalia	-0.0088	0.309	0.991	-0.1785	0.2863	0.837
Hessen	-0.0511	0.3317	0.95	-0.3533	0.3052	0.702
Rheinland-Pfalz-Saarland	0.0771	0.3762	1.08	-0.2456	0.3484	0.782
Baden-Wurttemberg	-0.0637	0.3122	0.938	-0.3621	0.2916	0.696
Bavaria	-0.0108	0.334	0.989	-0.1356	0.3037	0.873

TABLE A6.2.

Predictor Variables	MEN GUESTWORKERS			WOMEN GUESTWORKERS		
	Coefficient	St. Error	OddsRatios	Coefficient	St. Error	OddsRatios
Period						
1984	-	-	-	-	-	-
1985	-0.8452*	0.2184	0.429	-0.8611*	0.2048	0.423
1986	-0.9315*	0.2312	0.394	-1.0264*	0.222	0.358
1987	-0.3179	0.1965	0.728	-0.5614*	0.1925	0.57
1988	-0.6067*	0.2225	0.545	-1.1007*	0.233	0.333
1989	-0.8354*	0.252	0.434	-1.2897*	0.2545	0.275
1990	-1.0921*	0.2794	0.336	-1.6285*	0.2945	0.196
1991	-1.3843*	0.3222	0.25	-1.4180*	0.2804	0.242
1992	-1.1723*	0.3	0.31	-1.4244*	0.2818	0.241
1993	-0.4831*	0.2435	0.617	-1.1474*	0.2599	0.317
1994	-0.9324*	0.2906	0.394	-1.2502*	0.2722	0.286
1995	-0.6575*	0.2741	0.518	-1.0154*	0.2595	0.362
1996	-1.0212*	0.3181	0.36	-1.7018*	0.3352	0.182
1997	0.2860	0.2306	1.331	-0.1400	0.2126	0.869
Intercept	-3.0669*	0.5697		-1.5087*	0.4942	
Log Likelihood		-1674.358			-1728.964	
χ^2		535.20			338.78	
Person Years		17405			16088	

* $p < 0.05$

TABLE A7. ESTIMATED EARNINGS EQUATIONS RESULTS IN 1995

PARAMETERS	ENTIRE GUESTWORKER POPULATION IN 1995 COEFFICIENTS (t-ratio)			GUESTWORKERS WHO DID NOT EMIGRATE IN 1995 COEFFICIENTS (t-ratio)		
	(1)	(2)	(3)	(4)	(5)	(6)
INTERCEPT	4.094*	4.1636*	3.1571*	4.0146*	4.0912*	3.1027*
	(25.24)	(24.98)	(19.71)	(23.99)	(23.72)	(18.82)
AGE	0.1069*	0.1032*	0.0976*	0.1120*	0.1084*	0.1019*
	(11.80)	(10.59)	(11.34)	(11.89)	(10.65)	(11.35)
AGE^2	-0.0013*	-0.0013*	-0.0011*	-0.0013*	-0.0013*	-0.0012*
	(-11.62)	(-10.75)	(-11.27)	(-11.74)	(-10.82)	(-11.23)
YSM	0.0062	0.0072	0.0053	0.0061	0.0070	0.0053
	(1.14)	(1.33)	(1.11)	(1.12)	(1.27)	(1.11)
YSM^2	-0.00002	-0.00002	-0.0000	-0.0000	0.0000	-0.0000
	(-0.16)	(-0.19)	(-0.32)	(-0.05)	(-0.05)	(-0.30)
SEX	0.3949*	0.3973*	0.2195*	0.3848*	0.3870*	0.2110*
	(13.97)	(14.10)	(8.54)	(13.37)	(13.49)	(8.07)
PRIMARY-SECONDARY	0.0391	0.0431	0.0175	0.0470	0.0495	0.0232
	(0.89)	(0.99)	(0.46)	(1.05)	(1.11)	(0.60)
TECHNICAL DEGREE	0.0290	0.0265	0.0031	0.0278	0.0247	-0.0005
	(0.55)	(0.50)	(0.07)	(0.52)	(0.46)	(-0.01)
ABITUR	0.0357	0.0412	-0.0227	0.0020	-0.0010	-0.0423
	(0.31)	(0.36)	(-0.23)	(0.02)	(-0.01)	(-0.41)
OTHER DEGREE IN G	-0.0674	-0.0617	-0.0911	-0.0532	-0.0563	-0.0689
	(-1.01)	(-0.92)	(-1.57)	(-0.78)	(-0.81)	(-1.15)
VOC'L TRAINING IN G	0.1260*	0.1196*	0.0961*	0.1216*	0.1181*	0.0903*
	(3.51)	(3.34)	(3.11)	(3.33)	(3.23)	(2.87)
EDUHOME	0.0126*	0.0132*	0.0042	0.0152*	0.0157*	0.0053
	(2.20)	(2.30)	(0.84)	(2.59)	(2.68)	(1.04)
SPKGFLU	-0.0144	-0.0192	-0.0529	-0.01367	-0.0199	-0.0484
	(-0.41)	(-0.54)	(-1.69)	(-0.38)	(-0.55)	(-1.51)
MAR_SPOUSE IN G		0.0996*	0.1181*		0.0863*	0.1026*
		(2.65)	(3.60)		(2.25)	(3.06)
MAR NO SPOUSE IN G		0.1884	0.1464		0.1339	0.1011
		(1.55)	(1.39)		(0.96)	(0.84)
KIDS IN HH		-0.0959*	-0.0724*		-0.0963*	-0.0675*
		(-3.25)	(-2.81)		(-3.21)	(-2.57)
KIDS NATIVE		-0.1083	0.0075		-0.0156	0.0561
		(-1.06)	(0.09)		(-0.14)	(0.59)
HOURS WORKING			0.0243*			0.0244*
			(19.33)			(19.14)
TREIMAN PRESTIGE			0.0094*			0.0088*
			(7.05)			(6.48)
GERMAN CITIZEN			-0.0282			-0.0135
			(-0.66)			(-0.31)
EX-YUGOSLAV			0.0462			0.0595
			(1.41)			(1.77)
TURK			-0.0110			-0.0064
			(-0.32)			(-0.18)

TABLE A7. ESTIMATED EARNINGS EQUATIONS RESULTS IN 1995

	ENTIRE GUESTWORKER POPULATION IN 1995			GUESTWORKERS WHO DID NOT EMIGRATE IN 1995		
R^2	0.2826	0.2915	0.4765	0.2833	0.2908	0.4760
F statistic	43.42	33.92	56.96	41.63	32.29	54.29
Mean of Ln Weekly Wages		6.58343			6.58383	
Number of Obs		1336			1277	

Note:* indicates significance at the 5 per cent level in two-tailed test (p<0.05)

TABLE A8. EMPLOYMENT PROBABILITY RESULTS FOR MEN AND WOMEN IN 1995

PREDICTOR VARIABLES	ENTIRE GUESTWORKER POPULATION IN 1995 COEFFICIENTS (St. Error)	GUESTWORKERS WHO DID NOT EMIGRATE IN 1995 COEFFICIENTS (St. Error)
INTERCEPT	-3.1687*	-3.1421*
	(0.3260)	(0.3395)
AGE	0.1797*	0.1827*
	(0.0186)	(0.0196)
AGE^2	-0.0025*	-0.0026*
	(0.0002)	(0.0002)
YSM	0.0180	0.0151
	(0.0110)	(0.0113)
YSM^2	-0.0000	0.0000
	(0.0002)	(0.0002)
SEX	0.5612*	0.5690*
	(0.0631)	(0.0654)
PRIMARY-SECONDARY IN GERMANY	0.2868*	0.3063*
	(0.0990)	(0.1015)
TECHNICAL DEGREE IN G	0.2664*	0.3400*
	(0.1222)	(0.1259)
ABITUR IN GERMANY	0.0481	0.0319
	(0.2656)	(0.2775)
OTHER DEGREE IN G	0.0179	0.0193
	(0.1579)	(0.1674)
VOC'L TRAINING IN G	0.0206	0.0332
	(0.0879)	(0.0907)
EDU IN HOME COUNTRY	0.0327*	0.0335*
	(0.0117)	(0.0123)
SPEAK GERMAN FLUENTLY	0.1887*	0.1403
	(0.0841)	(0.0866)
MARRIED-SPOUSE IN G	-0.0713	-0.0920
	(0.0896)	(0.0929)
MARRIED-NO SPOUSE IN G	0.1478	0.3231
	(0.2795)	(0.3570)
KIDS IN HOUSEHOLD	-0.1148	-0.1288
	(0.0658)	(0.0681)
KIDS IN NATIVE COUNTRY	0.4221	0.2493
	(0.3084)	(0.3214)
OWN DWELLING	0.2335*	0.2044*
	(0.0907)	(0.0930)
REMIT	0.5381*	0.5661*
	(0.0861)	(0.0912)
GERMAN CITIZEN	-0.2431*	-0.2834*
	(0.1119)	(0.1152)
EX-YUGOSLAV	0.0154	-0.0113
	(0.0957)	(0.1012)
TURK	-0.3258*	-0.3404*
	(0.0822)	(0.0860)
LOG LIKELIHOOD	-1153.233	-1068.282
χ^2	536.4579	479.2023
NUMBER OF OBSERVATIONS	2142	1996

* $p < 0.05$

| PREDICTOR VARIABLES	ENTIRE GUESTWORKER POPULATION IN 1995 COEFFICIENTS (St. Error)	GUESTWORKERS WHO DID NOT EMIGRATE IN 1995 COEFFICIENTS (St. Error)
INTERCEPT	3.8710*	3.7917*
	(0.3060)	(0.3041)
AGE	0.0750*	0.0797*
	(0.0128)	(0.0129)
AGE^2	-0.0008*	-0.0009*
	(0.0002)	(0.0002)
YSM	0.0017	0.0024
	(0.0053)	(0.0053)
YSM^2	-0.0000	-0.0000
	(0.0001)	(0.0001)
SEX	0.1391*	0.1323*
	(0.0402)	(0.0405)
PRIMARY-SECONDARY DEGREE IN G	-0.0176	-0.0115
	(0.0427)	(0.0435)
TECHNICAL DEGREE IN G	-0.0199	-0.0325
	(0.0526)	(0.0538)
ABITUR IN GERMANY	-0.0272	-0.0434
	(0.1090)	(0.1107)
OTHER DEGREE IN GERMANY	-0.1055	-0.0782
	(0.0626)	(0.0640)
VOC'L TRAINING IN G	0.0966*	0.0882*
	(0.0336)	(0.0340)
EDU IN HOME COUNTRY	-0.0018	-0.0004
	(0.0058)	(0.0059)
SPEAK GERMAN FLUENTLY	-0.0769*	-0.0645
	(0.0355)	(0.0354)
HOURS WORKING PER WEEK	0.0234*	0.0235*
	(0.0013)	(0.0013)
TREIMAN PRESTIGE SCORE	0.0089*	0.0082*
	(0.0013)	(0.0014)
GERMAN CITIZEN	-0.0092	0.0109
	(0.0474)	(0.0480)
EX-YUGOSLAV	-0.0308	-0.0260
	(0.0384)	(0.0392)
TURK	0.0972*	0.1090*
	(0.0384)	(0.0391)
λ	-0.2995*	-0.2942*
	(0.1028)	(0.1030)
MEAN LN WAGE	6.5903	6.59099
(STD. DEVIATION OF WAGE)	0.57695	0.5736
LOG LIKELIHOOD	-734.3018	-693.8621
R^2	0.4608	0.4608
F STATISTIC	$F[18, 1310] = 62.19$	$F[18, 1251] = 59.40$
NUMBER OF OBSERVATIONS	1336	1277

* $p < 0.05$
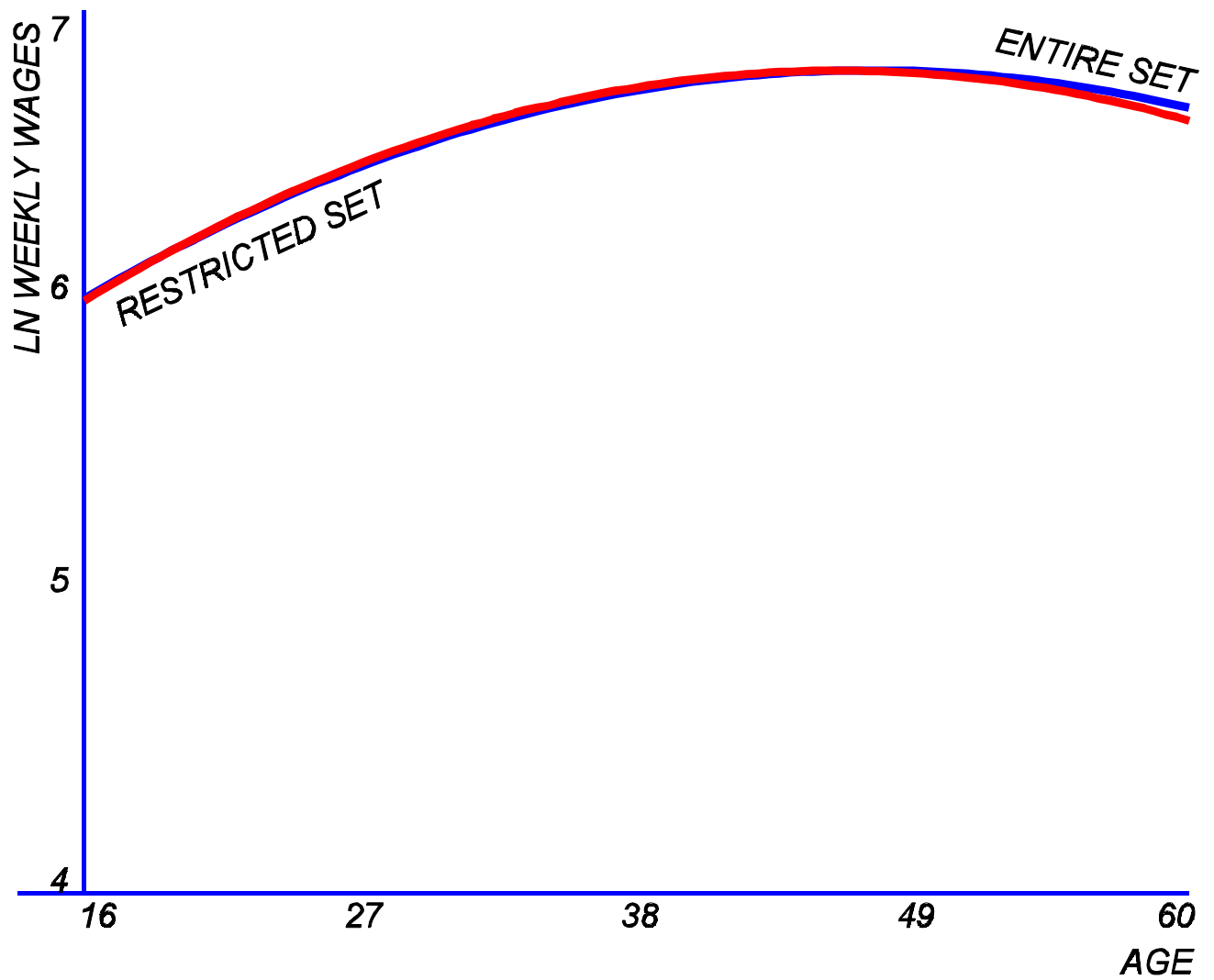
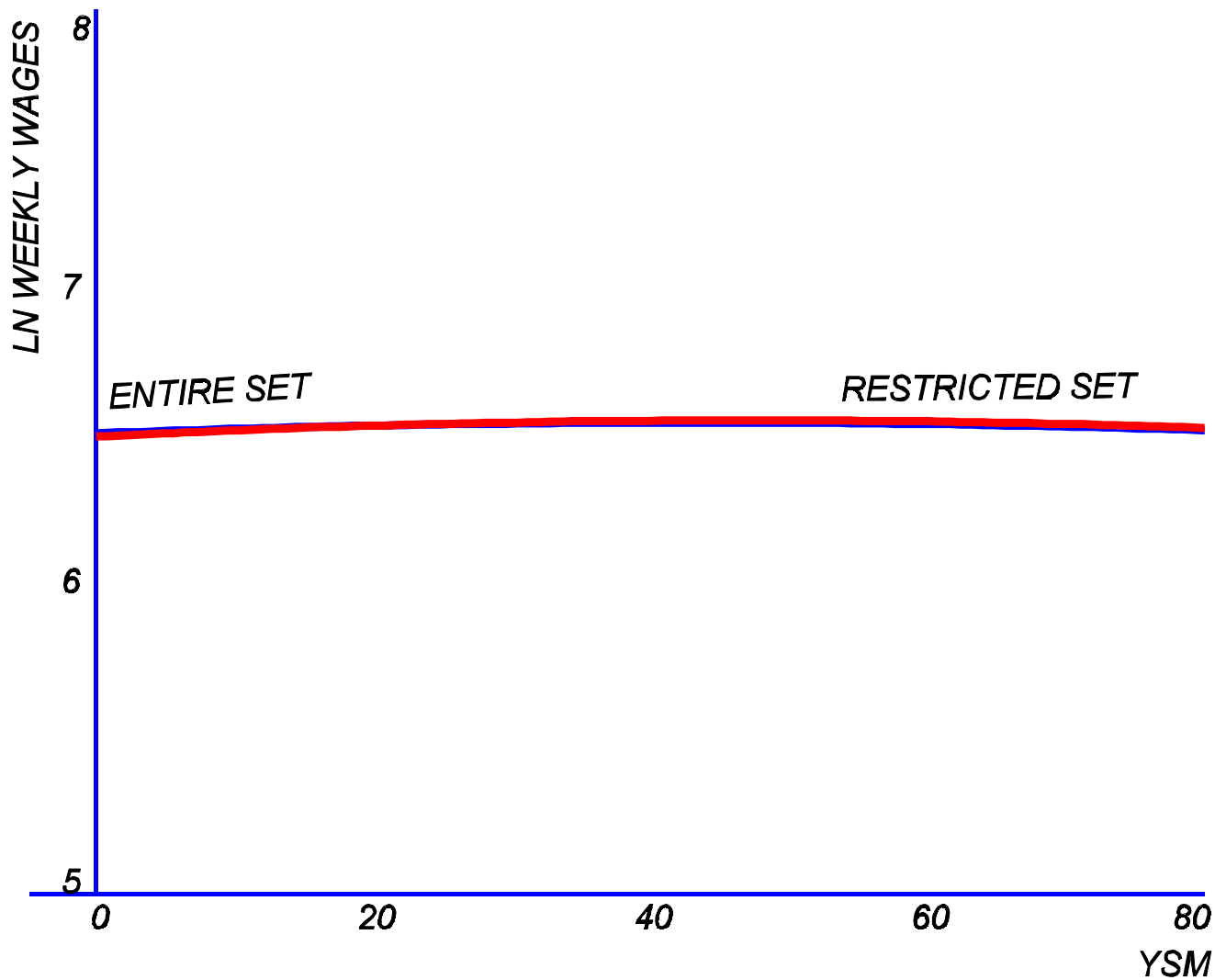**Figure 8**: Age/Earnings Profiles of Guestworkers in Germany in 1995

Figure 9: YSM/Earnings Profiles of Guestworkers in Germany in 1995

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