J Popul Econ (1996) 9:37–54

Journal of
Population
Economics

The social assimilation of immigrants

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Received December 9, 1994 / Accepted July 14, 1995

Abstract. Although there is some considerable empirical research on the economic assimilation of migrants to the labor markets of the host countries, little or no analysis exists on the social assimilation and integration of migrant workers. This is surprising since the integration of migrants is not only of political importance, but it should strongly interact with their economic behavior. This paper provides an empirical analysis of the determinants of migrants' integration, using data for Germany. Ordered probit models are estimated, where the dependent variable is an ordered response on the feeling of national identity. The results show that personal characteristics, the nationality and the family context affect the migrant's integration, while labor market variables appear to be quite unimportant.

1. Introduction

The adjustment of migrant workers to the labor market requirements of the immigration countries has found some considerable interest in the economic literature. Following Chiswick's (1978) article on the economic assimilation of immigrants in the United States, a large number of studies appeared which tested the assimilation hypothesis for various countries, using cross-sectional and longitudinal data. The results of this research reveal that migrant workers do surprisingly well in most foreign labor markets. [1]

One explanation for the economic assimilation of migrants which Chiswick gave in his 1978 article is that migrants have a strong incentive to acquire human capital which is specific to the labor market of the host country, thus quickly im-

The comments of two anonymous referees are appreciated. *Responsible editor:* John J. Ermisch.

proving their relative position in the foreign labor market. A major component of this country specific human capital has found some special attention in the recent literature: the ability of the migrant to communicate with the indigenous population.[2] Language abilities are found to be related to the time of residence of the migrant, his age at entry, and his educational background, as well as to variables describing his social and family environment.

Although we seem to know quite a lot by now about the economic assimilation, very little is known about the social assimilation of immigrants. One should expect that social and economic adjustment are to some extent correlated. The accumulation of human capital which is specific to the labor market of the host country requires an intensive contact with the native population and with the lifestyle of the host country. For instance, to learn the host country language, which has been shown to be an important human capital factor, requires communication with natives. It would be interesting to understand whether and to what extent economic and social assimilation are indeed related to one another.

Knowledge concerning the determinants of migrants' integration is important for the analysis of particular aspects of migration. For instance, integration into the host country society is crucial for explaining migrants' return behavior which, in turn, has quite a considerable impact on migrants' economic behavior in the host country (see Dustmann 1994b, c). Integration of migrants is also an issue of ongoing political debate – immigration countries have to decide whether they wish to actively force the integration of foreigners into their social and political structures, or whether they prefer that migrants from different nations maintain their national and cultural identities.[3]

Accordingly, the understanding of the process of migrants' integration is important not only for economic, but also for social policy. So far, the integration of migrants has not been extensively explored by economists. One major reason for this neglect seems to be a lack of appropriate data. If some measure on integration was available, it would be of interest to learn about the determinants of this process. The results of such an analysis should be useful as a basis for migration policies.

In this paper, some unique information on migrants' subjective feeling of integration from the German Socio-Economic Panel (SOEP) is exploited. The measure used is the reported feeling of migrant's national identity. The intensity of this feeling will be explained by 4 groups of variables which represent personal characteristics, the social distance, the social environment and the working environment. The next section describes the data and discusses the variables used. Section 3 develops the econometric specification. Section 4 presents the econometric techniques used for the investigation and Sect. 5 presents and discusses the results. Finally, Sect. 6 summarizes the main findings.

2. Data and variables

The data which are used for this analysis stem from the first wave (1984) of the German Socio-Economic Panel SOEP. The SOEP contains information on about 6000 households, of which 1500 households have a household head of foreign nationality. This subsample consists of migrants who came to Germany during the strong economic post-war boom, lasting from the late fifties until the early 70's, which caused a severe shortage of labor in Germany. Although the panel is

Table 1. Description of variables and sample characteristics

Variable	Male subsample		Female subsample		Description
	Mean	SD	Mean	SD	
AGE	**42.260**	*9.527*	**39.778**	*10.232*	Age of the Migrant
AGEENTRY	**27.270**	*7.113*	**27.044**	*8.303*	Age at Immigration
YSM	**14.991**	*5.383*	**12.735**	*5.607*	Years of Residence in Germany
SCHOOL[a]	**1.262**	*2.621*	**0.813**	*1.772*	Years of Schooling
SCHG	**0.052**		**0.028**		Dummy variable; equal to unity if some schooling in Germany
TRAIN[a]	**1.276**	*2.293*	**0.451**	*1.207*	Years of job-specific education
TRAING	**0.079**		**0.019**		Dummy variable; equal to unity if some training in Germany
GSPK	**0.382**		**0.240**		Dummy variable; equal to unity if individual speaks in German well or very well
GWRT	**0.157**		**0.081**		Dummy variable; equal to unity if individual writes in German well or very well
WORK	**0.889**		**0.462**		Dummy variable; equal to unity if in the work force
WHITE	**0.036**		**0.028**		Dummy variable; equal to unity if white collar worker
SELF	**0.046**		**0.024**		Dummy variable; equal to unity if self employed
NEVERWF	**0.006**		**0.269**		Dummy variable; equal to unity if never been in the work force
CHILDSCH	**0.462**		**0.512**		Dummy variable; equal to unity if at least on child older than 6 years
CHOME	**0.109**		**0.114**		Dummy variable; equal to unity if children in home country
MARRIED	**0.910**		**0.901**		Dummy variable; equal to unity if married
PARTGERM	**0.047**		**0.006**		Dummy variable; equal to unity if partner of German Nationality
PARTNER	**0.815**		**0.878**		Dummy variable; equal to unity if partner lives in Germany
GSPKPART	**0.210**		**0.313**		Dummy variable; equal to unity if partner speaks German well or very well
HHSIZE	**3.658**	*1.727*	**3.951**	*1.648*	Household size
SPA	**0.138**		**0.123**		Dummy; Spanish Nationality
TUR	**0.305**		**0.333**		Dummy; Turkish Nationality
YUG	**0.202**		**0.217**		Dummy; Yogoslavian Nationality
ITA	**0.212**		**0.174**		Dummy; Italian Nationality
GR	**0.139**		**0.150**		Dummy; Greek Nationality
LHWMONTH[b]	**5.10**		**4.95**		Logarithm of monthly hours worked
LGEARN[b]	**7.87**		**6.96**		Logarithm of monthly earnings
EXP[a,b]	**23.15**		**17.58**		Years of labor market experience
Observations	**1217**		**1002**		

Source: Socio-Economic Panel, wave 1, 1984.

[a] Numbers are constructed from a biographical scheme which reports activities only after the age of 14.

[b] Numbers refer to those individuals who are in the workforce.

organized on a household basis, all persons above the age of 16 were personally interviewed. In this analysis, only the foreign subsample will be used. The migrants considered are of Turkish, Yugoslavian, Spanish, Greek and Italian nationality.

The analysis is restricted to first generation migrants. All those who were younger than 16 years at the point of entry to Germany are excluded from the sample. After excluding individuals with missing values for relevant variables, the male sample population reduces to 1217 observations and the female sample population to 1002 observations. Table 1 presents sample characteristics and explains the variables used for the empirical analysis.

Male migrants in the sample are, on average, 42 years old. Female migrants are only slightly younger. The means of the years of residence variable indicate that males had been, on average, in Germany two years longer than females. This reflects a typical pattern of guest worker migration: the wife and the family of the migrant followed after the husband had settled, arranged appropriate housing and strengthened his position in the labor market. Both schooling and job specific education are considerably higher for male migrants, as is proficiency in the German language.[4] Nearly 89% of the male sample participates in the labor market, but only 46% of females. Most migrants are married, with similar percentages for females and males. The largest national group in the sample are migrants of Turkish nationality: they constitute 30.5 and 33.3% of the male and female sample, respectively.

The crucial variable for this analysis is an indicator for integration. The variable which is supposed to reflect integration is based on a question which asks the migrant to specify whether he/she feels *as a German, more as a German than as a Turkish, Spanish etc., as both nationalities at the same time, more as a Turkish, Spanish etc. than as a German, as a Turkish, Spanish etc.* Therefore, the term integration as it is used in the following is understood under this definition – it reflects the feeling of identity with the respective country. Table 2 presents some summary statistics on this variable for both the male and the female sample. The numbers indicate that only 1.8% of the male and 1.3% of the female sample feel as Germans, despite the fact that the average duration of residence in Germany is quite long: 15 years and 12.9 years for males and females, respectively. On the other hand, nearly 50% of the male and 57% of the female sample have a strong identity with their own nationality.

Table 2. National identity, individual feelings

Feeling of integration	Male subsample		Female subsample	
	Cases	Percent	Cases	Percent
As German	23	1.8%	14	1.3%
More as German	65	5.3%	37	3.6%
As German, as Nat[a]	324	26.6%	210	20.9%
More as Nat[a]	205	16.8%	166	16.5%
As Nat[a]	600	49.3%	575	57.3%
Sum	1217	100%	1002	100%

Source: Socio-Economic Panel, wave 1, 1984.
[a] Spanish, Turkish, Italian, Greek or Yugoslavian, respectively.

3. Determinants of integration

For the integration of an individual into a new society, four factors are important, and these will be called *Knowledge, Habituation, Exposure* and *Constraints*. Knowledge about a new social structure is a crucial condition for becoming accustomed to it and for appreciating the new environment. A change in the environment as radical as an international migration will necessarily lead to changes in consumption patterns, partly because relative prices and the availability of products in the host- and home country differ. Changes in consumption patterns will then induce changes in tastes and cause changes in habits. Habituation can be viewed as the process of changes in tastes and the evolution of new habits.

Habituation as it is understood here, however, is not restricted to changes in tastes towards consumption goods only, but also towards social habits. The degree to which social habituation takes place depends largely on *Exposure*: exposure is the extent to which the individual interacts with the new environment. Knowledge should positively influence the effect of exposure on habituation. In technical terms, if exposure is a factor which produces habituation, then knowledge may be considered as a technological parameter.

Conditional on knowledge and exposure, habituation may differ among individuals who face different constraints, like religious barriers or strong ideological views. Furthermore, habituation alone, although necessary, is not sufficient to develop feelings of identity with the new (social) environment. The individual compares features of the new structure with features of the old, familiar one of his home country. Only if these comparisons turn out to be favorable for the new structure may feelings of integration and national identity with the host country develop.

While variables which are inputs in the building-up of knowledge and habituation are (partly) observable, the result of this comparison is determined by very personal and individual factors which are difficult to monitor. Therefore, an econometric analysis explaining feelings of national identity will largely concentrate on *necessary* determinants.

For analytical purposes, integration may be written as follows:

Integration = F [Habituation, Exposure, Knowledge, Personal Constraints].

When discussing the variables which are used as regressors, it is helpful to distinguish for groups of determinants. The first group are personal characteristics and human capital variables, which include age at the time of entry, education, the time of residence and the ability to communicate with the population of the host country. It is likely that the ability to habituate and to absorb knowledge about a new environment decreases over the life cycle. Certain habits and views consolidate in later years, and new influences from the outside are more easily rejected. Therefore, the age at entry to the foreign country (AGEENTRY) should have a negative impact on integrative feelings. Education, on the other side, should have the opposite effect: a higher level of education is likely to support the absorption of knowledge and communication. Education is further likely to reduce constraints on the ability to learn about the new environment, where constraints are created by the cultural and national frame people were exposed to before entering the host country. Lastly, education may help one to perceive advantages in the foreign society and to overcome more easily cultural barriers and restrictions. In the econometric analysis, two measures of education are used: the

variable SCH measures the years of schooling, and the variable TRAIN measures the years of job-specific education. The two dummy variables SCHG and TRAING indicate whether the individual has received some schooling or training in Germany.

Exposure is mainly reflected by the years of residence in the host country (YSM). This variable is emphasized by Chiswick (1991) as the most important factor explaining language proficiency, and it is the crucial variable in all studies on economic assimilation of migrants. The ability to communicate with the incumbent population is a factor which promotes the absorption of knowledge and favors exposure. The two variables used in the empirical analysis are dummy variables which indicate whether the individual is fluent in spoken German (GSPK) or proficient in written German (GWRT). Language is found to be an important factor for the economic assimilation of migrants (see e.g. Chiswick 1991; Chiswick and Miller 1994; Dustmann 1994a; Rivera-Batiz 1990). Language proficiency should also be a positive determinant of integration.

The second group of determinants are measures of *distance* between the host country society and the home country society. It is obvious that habituation is more easily achieved in a society which is similar in important cultural and historical aspects to the own home environment. One measure for *distance* is simply the nationality of the migrant. Nationality may reflect a variety of factors which affect integration, like the degree of nationalism of nationalistic feelings prevailing in the respective countries, or different religions. In the empirical analysis, nationality dummies are used as measures of distance.

A third group of determinants are variables which describe the social environment and the family environment of the migrant. Being alone in a new environment forces the migrant to make new friends and to establish new social contacts. If these contacts include individuals from the indigenous population, this will certainly promote exposure and should positively affect habituation and the accumulation of knowledge about the host country. On the other side, living with the family in the foreign country makes it easier to preserve home country values and habits and renounce contacts with natives. Therefore, one should expect that being married and/or living in a large family has a negative impact on integration. But being married with a national from the host country should have an opposite effect. The variables which describe the partner relation is a dummy for being married (M), a dummy which indicates whether the partner is of German nationality (PARTGER) and a dummy which indicates whether the partner lives in Germany (PARTNER).

Children are likely to be a further important determinant in the integration process. If children are enrolled in schools, they may force the parents to become involved with the host country environment. As discussed above, the size of the household is also likely to affect integration. The household size is represented by the variable HHSIZE. Lastly, the ability of the partner to communicate in the home country language (GSPKPART) should also positively affect integration. If both partners are fluent in the host country language, contacts with natives are more easy to establish.

A fourth group of variables characterizes the working environment. The work place itself provides important possibilities for communication and exposure to social structures of the host country. The mere fact of being in the work force (WORK) is therefore likely to affect integration positively. Furthermore, the labor market status should have some effect on integrative feelings. For example, being

self-employed reflects some economic success which may support positive feelings towards the host country. The migrant's economic success reflects on his feelings towards the host country, and may therefore influence integration. One measure for success would simply be the migrant's wage rate.

4. Econometric modeling

The reported feeling of national identity can be viewed as an ordered response with five categories. Since the percentages in the first category are extremely low for both subsamples (see Table 2), the first two categories are combined into one category. Therefore, the statistical model considers the response of the migrant to be drawn from one of four groups: he/she feels (1) as a Turkish, Spanish etc., (2) more as a Turkish, Spanish etc. than as a German, (3) as a German and as a Turkish, Spanish etc. to equal parts, and (4) as a German or more as a German than as a Turkish, Spanish etc. An appropriate tool to analyzing such categorical data is the ordinal probit model.

Let y_i^* be a continuous, latent variable which represents the feeling of relative national identity of some migrant i. Assume that y_i^* is a linear function of X_i, parameters α and a stochastic term ε_i:

$$y_i^* = X_i'\alpha + \varepsilon_i \tag{1}$$

Let the random variable ε_i follow the normal distribution, with $\varepsilon_i \sim N(0, \sigma^2)$. The variable y_i^* defines a variable y_i which is related to the above mentioned categories in the following way:

$$y_i = \begin{cases} 1 \text{ iff } y_i^* \leq \theta_1 \\ 2 \text{ iff } \theta_1 < y_i^* \leq \theta_2 \\ 3 \text{ iff } \theta_2 < y_i^* \leq \theta_3 \\ 4 \text{ iff } y_i^* > \theta_3 \ , \end{cases} \tag{2}$$

where θ_i, $i = 1,2,3$, are unobserved thresholds.

Denoting the cumulative density function of the standard normal distribution as Φ, it follows from (1) and (2) that the probabilities of an individual to falling in a respective category are given by:

$$\Pr[y_i = 1] = \Phi[\mu_0 - X_i'\beta] \ , \tag{3a}$$

$$\Pr[y_i = 2] = \Phi[\mu_1 - X_i'\beta] - \Phi[\mu_0 - X_i'\beta] \ , \tag{3b}$$

$$\Pr[y_i = 3] = \Phi[\mu_2 - X_i'\beta] - \Phi[\mu_1 - X_i'\beta] \ , \tag{3c}$$

$$\Pr[y_i = 4] = \Phi[X_i'\beta - \mu_2] \ , \tag{3d}$$

with $\beta = \alpha/\sigma$ and $\mu_{j-1} = \theta_j/\sigma$, $j = 1,2,3$. Only the ratios α/σ and θ/σ are estimable. From these probabilities, the likelihood function follows directly.

If the vector X_i' contains a constant term, the full set of parameters is not identified. A most common normalization is to set μ_0 equal to zero: $\mu_0 = 0$. After this normalization, the estimated parameters $\bar{\mu}_i$, $i = 1,2$ represent the difference in the respective thresholds: $\bar{\mu}_i = \mu_i - \mu_{i-1}$.

The interpretation of the parameters in the ordinal probit model is not straightforward. A positive parameter estimate indicates that an increase in the respective variable shifts weight from category 1 into category 4. Those for whom the respective variable has a larger value are more likely to be in category 4 and less likely to be in category 1, everything else being equal. However, for the effect on the probability to being in category 2 or 3, the sign of the parameter estimates does not even provide a qualitative indication. This is directly obvious from (3b) and (3c).

The marginal effects of changes in variables on probabilites are obtained by simple differentiation (for $\beta_x > 0$):

$$\frac{\delta \Pr[y_i = 1]}{\delta x} = -\phi(X_i'\beta)\beta_x < 0 \ , \tag{4a}$$

$$\frac{\delta \Pr[y_i = 4]}{\delta x} = \phi(\bar{\mu}_2 - X_i'\beta)\beta_x > 0 \ , \tag{4b}$$

$$\frac{\delta \Pr[y_i = k]}{\delta x} = [\phi(\bar{\mu}_{k-1} - X_i'\beta) - \phi(\bar{\mu}_{k-2} - X_i'\beta)]\beta_x \ ; \quad k = 2,3 \ ; \quad \bar{\mu}_0 = 0 \ , \tag{4c}$$

where ϕ is the density function of the standard normal distribution and β_x is the parameter of the variable x. The asymptotic standard errors of the marginal effects are easily calculated by a first order Taylor approximation.

5. Estimation results

Estimation results of ordered probit models for the male and female sample are given in Tables 3 and 4. To calculate the marginal effects or the effects of dummy variables, a reference individual is specified which has the following characteristics: YSM = 15, SCH = EDU = 2, AGEENTRY = 26, CHILD6 = 0, HHSIZE = 2, and all other dummy variables set equal to zero.

Columns 1 of Tables 3 and 4 present results of the basic configuration. Regressors are human capital variables and the age at entry. The marginal effects for the continuous variables are given in Table 5. The reported t-statistics are based on asymptotic standard errors which are calculated as described above. Table 5 reports also the calculated probabilities for the reference individual of falling in a respective category.

The coefficient of the years of residence variable (YSM) is positive and strongly significant for both subsamples. The results in Table 5 show that 10 years of residence increase the probability of being in category 4 (feels more as German than as Turkish, ...) by 3 percentage points – this is a large effect, given that the probability for the reference individual to be in category 4 is only 3.9%. On

Table 3. Parameter estimates, ordinal probit. Male subsample

Variable	(1)	(2)	(3)	(4)
CONST	−0.4864 (2.927)	−0.3309 (1.705)	−0.1525 (0.706)	−0.0675 (0.286)
YSM	0.0358 (5.663)	0.0351 (5.299)	0.0344 (5.068)	0.0342 (5.018)
SCHOOL	0.0374 (3.125)	0.0395 (3.287)	0.0358 (2.996)	0.0321 (2.699)
SCHG	−0.1187 (0.716)	−0.0631 (0.380)	−0.0551 (0.324)	−0.0411 (0.240)
TRAIN	0.0344 (2.146)	0.0214 (1.256)	0.0230 (1.315)	0.0205 (1.151)
TRAING	−0.1390 (0.972)	−0.1137 (0.809)	−0.1101 (0.781)	−0.1223 (0.857)
AGEENTRY	−0.0128 (2.603)	−0.0108 (2.193)	−0.0079 (1.559)	−0.0083 (1.619)
GSPK	0.6294 (7.782)	0.5805 (7.088)	0.5616 (6.704)	0.5532 (6.555)
GWRT	0.0712 (0.706)	0.0864 (0.856)	0.0833 (0.811)	0.0678 (0.654)
TUR		−0.3506 (2.917)	−0.3234 (2.574)	−0.3307 (2.628)
YUG		0.0897 (0.712)	0.1010 (0.779)	0.1015 (0.782)
GR		−0.3863 (2.876)	−0.3682 (2.698)	−0.3844 (2.796)
ITA		−0.1427 (1.159)	−0.1591 (1.269)	−0.1765 (1.405)
MARRIED			−0.3879 (2.275)	−0.3792 (2.198)
CHILDSCH			0.0814 (1.988)	0.0838 (2.044)
CHILDHOME			0.0800 (0.767)	0.0843 (0.806)
HHSIZE			−0.0533 (1.852)	−0.0543 (1.879)
PARTGERM			0.3148 (2.018)	0.2968 (1.884)
PARTNER			0.2685 (1.975)	0.2655 (1.927)
GSPKPART			−0.0287 (0.311)	−0.0372 (0.400)
WORK				−0.0776 (0.723)
SELF				0.2743 (1.796)
WHITE				0.1518 (0.879)
MU1	0.4715 (15.529)	0.4800 (15.536)	0.4836 (15.543)	0.4843 (15.530)
MU2	1.621 (26.183)	1.648 (26.192)	1.663 (26.221)	1.666 (26.183)
No. of Obs.	1217	1217	1217	1217
L. L.	−1368.49	−1353.56	−1346.18	−1344.39
Restr. L. L.	−1449.40	−1449.40	−1449.40	−1449.40

Source: Socio-Economic Panel, wave 1, 1984. Absolute *t*-ratios in parenthesis.
Dependent variable: Integration.

the other hand, 10 years of residence *decrease* the probability of being in category 1 (feels as Turkish, ...) by 14% for both samples. The years of residence of migrants are therefore not only crucial to explaining economic but also social assimilation.

The variable which measures the age at entry to the host country (AGEENTRY) has a negative effect. This supports the hypothesis stated above that the ability to adopt to a new environment decreases over the life cycle. The variable is, however, only significantly different from zero for the male sample, and the marginal effect is quite small – being 10 years older upon entry reduces the probability to being in category 4 by 1 percentage point, while it increases the probability to being in category 1 by 5 percentage points. For male migrants, the educational variables have a strong and positive impact on integration. Each year of schooling (SCH) or training (TRAIN) increases the probability of being in category 4 by about 0.3%. For females, the educational variables have the expected sign, but they are not significantly different from zero. Surprisingly, the

Table 4. Parameter estimates, ordinal probit. Female subsample

Variable	(1)	(2)	(3)	(4)
CONST	0.6972 (4.327)	−0.6370 (2.987)	−0.4042 (1.420)	−0.3808 (1.273)
YSM	0.0363 (5.022)	0.0366 (4.693)	0.0358 (4.487)	0.0349 (4.186)
SCHOOL	0.0368 (1.397)	0.0270 (1.100)	0.0199 (0.781)	0.0209 (0.819)
SCHG	0.0228 (0.105)	0.1413 (0.628)	0.2126 (0.945)	0.2094 (0.930)
TRAIN	0.0209 (0.703)	0.0029 (0.095)	0.0014 (0.047)	0.0006 (0.020)
TRAING	0.1822 (0.681)	0.1138 (0.439)	0.1095 (0.433)	0.1230 (0.484)
AGEENTRY	−0.0058 (1.193)	−0.0055 (1.115)	−0.0037 (0.750)	−0.0036 (0.715)
GSPK	0.5433 (5.369)	0.3866 (3.615)	0.2930 (2.706)	0.2905 (2.662)
GWRT	0.2571 (1.674)	0.2716 (1.802)	0.3030 (2.012)	0.3096 (2.050)
TUR		−0.2616 (1.833)	−0.2201 (1.529)	−0.2210 (1.534)
YUG		0.4239 (3.036)	0.3727 (2.555)	0.3667 (2.500)
GR		−0.3009 (2.026)	−0.2970 (1.984)	−0.3073 (2.052)
ITA		0.0820 (0.553)	0.0704 (0.473)	0.0659 (0.442)
MARRIED			0.1896 (0.736)	0.1908 (0.735)
CHILDSCH			0.0497 (1.012)	0.0505 (1.026)
CHILDHOME			−0.0673 (0.543)	−0.0685 (0.552)
HHSIZE			−0.0603 (1.607)	−0.0582 (1.538)
PARTNER			−0.3702 (1.577)	−0.3704 (1.559)
GSPKPART			0.3330 (3.768)	0.3388 (3.797)
NEVERWF				−0.0099 (0.107)
WORK				−0.0626 (0.543)
WHITE				−0.0873 (0.348)
MU1	0.4935 (14.040)	0.5106 (14.063)	0.5169 (14.059)	0.5170 (14.052)
MU2	1.570 (21.405)	1.633 (21.307)	1.655 (21.158)	1.655 (21.010)
No. of Obs.	1002	1002	1002	1002
L. L.	−1039.65	−1014.67	−1004.37	−1004.15
Restr. L. L.	−1097.80	−1097.80	−1097.80	−1097.80

Source: Socio-Economic Panel, wave 1, 1984. Absolute *t*-ratios in parenthesis. Dependent variable: Integration.

variables which reflect that the migrant received schooling or job-specific education in Germany, SCHG and TRAING, are both insignificant (Tables 3 and 4).

The last variables in columns 1 of Tables 3 and 4 are indicators for language proficiency. For both samples, the fact of speaking the German language well or very well (GSPK) has a strongly significant and positive effect on the feeling of national identity, compared with those who speak German at an intermediate level only. For males, the probability for being in category 4 increases by 3.07 percentage points; the respective number for females is 2.1. Writing ability, however, is only significant for females (at the 10% level, and the effect is considerably smaller than for speaking fluency). Accordingly, speaking fluency is an important variable for explaining the feeling of national identity of the migrant. Language appears therefore not only important for the economic success of migrants, but, additionally, it seems to promote social assimilation quite considerably. While for earnings assimilation writing proficiency is at least as important as fluency in the spoken language (see Dustmann 1994a; Chiswick 1991 finds that reading ability is more important for a favorable earnings position than speaking fluency), only fluency seems to matter for social assimilation. For social assimilation, it is the

Table 5. Parameter estimates, ordinal probit. Marginal effects

	Male sample			
Category	(1)	(2)	(3)	(4)
YSM	−0.0141 (5.671)	0.00229 (4.563)	0.00883 (5.671)	0.00303 (5.134)
SCHOOL	−0.01479 (3.143)	0.00239 (2.698)	0.00922 (3.153)	0.00317 (3.239)
TRAIN	−0.01362 (2.157)	0.00220 (1.927)	0.00849 (2.163)	0.00292 (2.253)
AGEENTRY	0.00507 (2.616)	−0.00082 (2.312)	−0.00316 (2.623)	−0.00108 (2.702)
Base probability, reference individual	55.5%	17.4%	23.2%	3.9%
	Female sample			
Category	(1)	(2)	(3)	(4)
YSM	−0.01423 (5.113)	0.00275 (3.540)	0.00839 (5.150)	0.00308 (4.699)
SCHOOL	−0.01443 (1.413)	0.00278 (1.238)	0.00851 (1.421)	0.00312 (1.535)
TRAIN	−0.00822 (0.707)	0.00158 (0.658)	0.00485 (0.710)	0.00178 (0.746)
AGEENTRY	0.00228 (1.194)	−0.00044 (1.161)	−0.00134 (1.194)	−0.00049 (1.187)
Base probability, reference individual	57.5%	17.8%	20.83%	3.9%

Source: Socio-Economic Panel, wave 1, 1984. Absolute asymptotic *t*-ratios in parenthesis. Dependent variable: Integration.

exposure effect of language which matters, while for economic assimilation it is the positive effect of language on the productivity of the immigrant. A straightforward policy implication is to promote language programs. These investments should not only have a productivity effect, but also a positive and relatively large assimilation effect.

One may suspect that the language indicators reduce the effect of variables like YSM, AGEENTRY and education, since these variables are also determinants of language proficiency.[5] However, estimating a type of reduced form model by excluding the language indicators does not change the main conclusions (results not reported). For both the male and the female sample, the dummy variables for education received in Germany remain insignificant. The effect of the residence variable YSM remains unchanged, and the effect of the variables SCH, TRAIN and AGEENTRY increases only slightly.

Columns 2 in Tables 3 and 4 report estimates for specifications when dummy variables for nationalities are added. The base group are migrants of Spanish nationality. The parameter estimates show that the feeling of national identity is differently developed among different nationalities, keeping personal characteristics constant. While for both samples Spanish and Italian migrants do not differ significantly, Turkish and Greek migrants have a lower probability to identify with the host country. The probability for male Turkish or Greek migrants of being in category 4 is respectively 5.0 and 5.6 percentage points lower, but the probability of being in category 1 is 13.8 and 15.1 percentage points higher than for Spanish migrants. For females, Turkish and Greek nationals have a probability of being in category 4 which is 2.5 and 3.0 percentage points lower than for the Spanish

reference group. While male Yugoslavian migrants do not differ from the Spanish base group, female Yugoslavian migrants have a significantly higher (2.2 percentage points) probability of being in category 4.

These estimations suggest that the feeling of identity with the host country is differently developed for the various national groups. The results are quite reasonable – low probabilities for Turkish and Greek migrants may reflect the relatively large distance between cultures and, in the case of Turks, also religion in the home- and host country. However, notice that national dummies may also reflect enclave-effects. Living in enclaves consisting predominantly of co-nationals reduces exposure and, therefore, integration. If the tendency to live in enclaves differs between nationalities, nationality dummies reflect to some extent different degrees of exposure.

Columns 3 show estimates for regressors which represent the family context of the migrant. Being married (M) reduces the probability of being in category 4 for males by 3.7 percentage points. It increases the probability of being in category 1 by 15.3 percentage points. This variable is insignificant for the female sample. To be married to a partner of German nationality has, as one should expect, a positive effect on integration. A male migrant who is married to a partner of German nationality (PARTGERM = 1) and whose partner is living in Germany (PARTNER = 1) has a probability of being in category 4 which is 2.9 percentage points higher than that of an unmarried migrant.

For females, the percentage of those who are married to a partner with German nationality is very low (0.6%), so this variable is excluded from the list of regressors. The variable PARTNER has a negative effect on the feeling of integration: those who are married to a partner who resides in Germany have a lower probability (1.4 percentage points) of being in category 4.

The variable for household size is negative in both samples. Individuals who live in large households have a lower probability of being in category 4. For males and females, each additional household member reduces the probability of being in category 4 by 0.5 and 0.7 percentage points, respectively; on the other hand, it increases the probability of being in category 1 by 1 and 4 percentage points. This reflects the fact that those who live in larger family units are exposed to a lower degree to the host country environment and preserve traditions and national feelings towards the home country. The variable which measures the number of children enrolled in school (CHILD6) is positive and significant for males, but not significant for females. Since most schools attended by children of migrants are German schools, the involvement of children in German institutions seems to have some effects on the family, especially on the father. It is surprising that this variable is insignificant for females.

The variable GSPKPART equals one if the spoken German of the partner is good or very good. It is insignificant for males but strongly significant for females. Being married to a partner who resides in Germany and who speaks the German language well or very well increases the probability of a female migrant of being in category 4 by 1.4 percentage points. This indicates that the exposure effect which language fluency has on the husband carries over to the wife, while the opposite is not true.

The specification in columns 4 adds measures for the individual's labor market status. Surprisingly, most of these variables turn out to be insignificant. Only the variable SELF, indicating whether an individual is self-employed, is significantly different from zero and positive for the male sample. For both males

and females, integration is not affected by the fact of being in the labor force (WORK). Furthermore, those who never participated in the labor market (variable NEVERWF, female sample) likewise do not have significantly different probabilities. This is a striking result: one should expect that the work place is an important determinant for exposure to a host country. The estimation results, however, indicate that integration is not determined by the professional life, but rather by personal characteristics and the family environment.

A further variable which may affect integration is the wage of the migrant. Economic success as reflected by high wages may generate some positive feelings towards the host country which promote integration. Since the specifications discussed above contain human capital variables, introducing the wage as an additional regressor should allow identification of the direct effect of economic success on integration. Different versions of ordered probits with various specifications of the hourly wage (linear, polynomial, logarithms) are estimated for samples of all individuals and only those individuals who are in the labor force (results not reported). In all specifications, the null hypothesis that the coefficients on the wage variables are equal to zero could not be rejected. Furthermore, introducing wages does not affect coefficients of the other variables in the ordered probit. Since the wage is potentially endogenous in the integration probit, endogeneity is controlled along the lines of Blundell and Smith (1989).[6] This does not change the conclusions.

Earnings and social assimilation

If the indicator on national identity reflects not only social, but also economic assimilation to the host country, it should be an important regressor in an earnings regression. To test whether integration affects the earnings position of the migrant, earnings regressions are estimated with dummy variables on the feeling of national identity as additional regressors.

Results are reported in Table 6. The discussion will concentrate on the integration variables only; estimates of other parameters are discussed elsewhere (Dustmann 1993, 1994a). The first two columns refer to the male sample, the last two columns to the female sample. Two specifications are estimated, which include and exclude the usual assimilation variable YSM. The dependent variable is the log of gross monthly earnings. For females, a correction term LAMBDA is included which controls for non-random selection into the workforce (see Heckman 1979).[7] The dummy variables IT2, IT3 and IT4 correspond to the definition of the dependent variable in the ordered probit models: the base category refers to an individual who feels as a Turkish, Spanish etc., IT2 equals one if the respondent feels more as a Turkish, Spanish etc. than as a German; IT3 equals one if the respondent feels as a German and as a Turkish, Spanish etc. to equal parts; IT4 equals one if the respondent feels as a German or more as a German than as a Turkish, Spanish etc.

Columns 1 and 3 report estimation results where gross monthly earnings are regressed on a standard set of human capital variables and the integration variables, but the usual assimilation variable YSM is excluded. Only for males is the set of integration variables significant at the 10% level, with the effect on earnings being nonlinear. For females, the effect on earnings seems to follow a linear pattern, but the set of variables is not significant, with a p-value of 0.85. Including the YSM variable as an additional regressor (results in columns 2 and 4) renders

Table 6. Earnings regressions, males and females

Variable	Male subsample				Female subsample			
	(1)		(2)		(3)		(4)	
CONST	5.9011	(10.745)	5.9445	(10.916)	4.7600	(3.689)	4.9401	(3.768)
TRAIN	0.01249	(2.939)	0.01020	(2.423)	0.06841	(0.981)	0.06065	(0.852)
SCHOOL	0.01298	(3.160)	0.01086	(2.558)	0.04700	(0.907)	0.04893	(0.934)
EXP	0.02418	(5.242)	0.02063	(4.796)	−0.03767	(−0.656)	−0.07652	(−1.070)
EXPSQ	−0.00049	(−5.612)	−0.00046	(−5.615)	0.00064	(0.558)	0.00129	(0.947)
YSM			0.00759	(3.511)			0.02678	(1.017)
M	0.12577	(3.691)	0.11634	(3.422)	0.12486	(0.454)	0.12173	(0.437)
LHWMONTH	0.30477	(2.839)	0.29113	(2.720)	0.52875	(2.944)	0.53071	(2.955)
IT2	0.02043	(0.562)	0.00942	(0.261)	0.68083	(1.726)	0.65701	(1.646)
IT3	0.04875	(2.600)	0.03603	(1.937)	0.38492	(1.777)	0.34534	(1.549)
IT4	0.02805	(1.287)	0.02137	(0.989)	0.25225	(1.028)	0.22135	(0.884)
LAMBDA					−0.65679	(−1.504)	−0.86947	(−1.735)
No. of Obs.	945		945		454		454	
adj. R^2	0.12		0.13		0.024		0.024	
Restr. L. L.	−1097.80		−1097.80		−1097.80		−1097.80	

Source: Socio-Economic Panel, wave 1, 1984. Absolute t-ratios in parenthesis. Dependent variable: log of monthly gross earnings. Reported t-statistics in columns 1, 2 are based on standard errors which are corrected for heteroskedasticity (White 1980). Reported t-statistics in columns 3, 4 are based on consistent standard errors (Heckman 1979).

the integration variables insignificant for both samples, with p-values of 0.69 and 0.78, respectively. One may therefore conclude that social assimilation, if represented by a variable which measures the feeling of national identity, does not affect economic assimilation. This is an important result. It suggests that social and economic assimilation, although determined by a similar set of variables, do not interact with each other.

Differences between males and females

The numbers of Table 2 indicate that males tend to develop stronger feelings of integration than females. This is likely to be a result of differences in characteristics, since those variables which have a strong impact on nationalistic feelings like the years of residence or the proficiency in the German language assume lower values for the female sample (Table 1). However, differences may also be induced by structural differences, being reflected by different parameters attached to these characteristics.

To investigate whether integrative behavior is structurally different between the two subsamples, the probabilities of falling into a respective category are calculated for an average male and female individual. The difference between males and females, ΔP, is then decomposed into a component with constant characteristics, $\Delta^2 P$, and a component with constant parameters, $\Delta^1 P$. The calculations are based on results in columns 1 of Tables 3 and 4. The numbers in Table 7 are calculated as follows (for category 4):

$$\Pr(y=4)_{\text{Male}} - \Pr(y=4)_{\text{Female}} = \Delta P = \Delta^1 P + \Delta^2 P \tag{5}$$

with

$$\Delta P = \frac{1}{n^M}\sum_{i=1}^{n_M} \Phi(X_i^{M'}\hat{\beta}^M - \bar{\mu}_3^M) - \frac{1}{n^F}\sum_{i=1}^{n_F} \Phi(X_i^{F'}\hat{\beta}^F - \bar{\mu}_3^F) ,$$

$$\Delta^1 P = \frac{1}{n^M}\sum_{i=1}^{n_M} \Phi(X_i^{M'}\hat{\beta}^F - \bar{\mu}_3^F) - \frac{1}{n^F}\sum_{i=1}^{n_F} \Phi(X_i^{F'}\hat{\beta}^F - \bar{\mu}_3^F) ,$$

$$\Delta^2 P = \frac{1}{n^M}\sum_{i=1}^{n_M} \Phi(X_i^{M'}\hat{\beta}^M - \bar{\mu}_3^M) - \frac{1}{n^M}\sum_{i=1}^{n_M} \Phi(X_i^{M'}\hat{\beta}^F - \bar{\mu}_3^F) ,$$

where $\hat{\beta}^F$ and $\hat{\beta}^M$ are estimated parameter vectors and $X_i^{F'}$ and $X_i^{M'}$ are vectors of characteristics for the i^{th} female or male individual, respectively. The number of observations in the female sample is given by n^F and the number of observations in the male sample by n^M. The term $\Delta^2 P$ should be very small relative to $\Delta^1 P$ if there are no structural differences between males and females. Decompositions for categories 1–3 follow straightforwardly.

The results in Table 7 show that different parameters play only a minor role in explaining differences in the feeling of national identity. For instance, of the difference of 8.3 percentage points between males and females of being in category 1, 7.68 percentage points are explained by differences in characteristics. Accordingly, if female migrants had characteristics which are similar to those of their male counterparts, their probabilities of being in the respective categories should also be similar. Consequently, one may conclude that there are no structural differences in the process of integration between female and male migrants.

Table 7. Decompositions, males, females

Category j	$\Pr(y=j)^M$	$\Pr(y=j)^F$	ΔP	$\Delta^1 P$	$\Delta^2 P$
	Probabilities		Decomposition		
1	49.16	57.53	−8.37	−7.68	−0.68
2	16.79	16.54	0.25	0.23	0.01
3	26.85	20.76	6.09	5.68	0.40
4	7.18	5.16	2.02	1.75	0.26

Source: Socio-Economic Panel, wave 1, 1984.

6. Summary and conclusions

This paper analyzes the social assimilation of migrant workers. Social assimilation is measured as the feeling of national identity with the host country, relative to the home country. The dependent variable is categorical and modeled as an ordered response.

The estimation of ordered probit models reveals that personal characteristics are important for the feeling of national identity. As for the economic assimila-

tion of migrant workers, social integration is likewise strongly affected by the years of residence in the host country. A further important positive determinant is education. The age at entry affects integration negatively. For both males and females, language fluency affects integration positively. This is also a common finding in studies on the economic assimilation of migrants. However, while the economic assimilation is at least as strongly affected by writing proficiency than by language fluency, writing abilities are unimportant for social assimilation. The reason is that for economic assimilation language reflects higher productivity, while for social assimilation language reflects exposure to the host country. The exposure effect of fluency is stronger than that of writing proficiency. For females, also, the language fluency of the partner has a positive and strong effect on integration. Accordingly, language programs should be an effective policy device not only to increase productivity, but also to support the integration of migrant workers.

Dummies on nationalities show that individuals with different nationalities do assimilate differently. The two nationalities which have the lowest feelings of national identity are Greeks and Turks. It is likely that this result simply reflects a larger cultural and social distance between these countries and Germany. For both males and females, individuals from Yugoslavia have developed the strongest feelings of national identity.

The family context is most important for integration. In particular, individuals who live in large households identify to a lower extent with the host country, while the presence of children in the household who attend school increases this probability for males. To be married slows down the integration process if the partner does not have German nationality.

Interestingly, variables which reflect the work and labor force status of an individual are mostly insignificant. This is a somewhat unexpected result. It indicates that for the development of feelings of national identity the labor market plays only a minor role. Additional tests reveal that economic and social assimilation are not interdependent. The wage situation of the immigrant has no impact on his national identity. Furthermore, feelings of identity have no effect on the migrant's earnings position, if controlling for years of residence.

To summarize, this analysis shows that integration is strongly affected by variables which are also important determinants for the economic success of migrant workers, like education, the years of residence, and language proficiency. The processes of economic and social assimilation are accordingly closely related to each other in the way that they are dependent on similar determinants. While in the case of economic assimilation these variables reflect improvements in productivity, their positive effect on social assimilation comes about by favoring exposure and habituation. Social and economic assimilation, however, are not interdependent, but seem to be parallel processes. Policy measurs which aim to increase migrants' productivity (like language education) should have at the same time a positive effect on social integration.

Endnotes

[1] See, for example, Abbot and Beach (1993), Borjas (1985, 1987, 1989), Beggs and Chapman (1989), Chiswick (1978), Chiswick and Miller (1985), Carliner (1980), Dustmann (1993), Licht and Steiner (1992), Long (1980), Meng (1987), Pischke (1993) and Schmidt (1992).

[2] See, for example, Carliner (1981), McManus, Gould and Welch (1983), Grenier (1984), Tainer (1988), Kossoudji (1988), Rivera-Batiz (1990, 1992, 1993), Chiswick (1991), Chiswick and Miller (1992, 1993), Beenstock (1993) and Dustmann (1994a).

[3] In Germany, this issue led only recently to a heated discussion between the two major parties, who favored the *integrative* model and the *multi cultural* model, respectively. See Schmitter Heisler (1994) for a discussion.

[4] Notice that both variables on education are constructed from a biographical scheme which reports activities after the age of 14 only. Numbers therefore refer to education received after the age of 14.

[5] This point was suggested by an anonymous referee.

[6] For that purpose, wage regressions are estimated and the residuals are added as additional regressor in the probit equation. As instruments, a second order polynomial of actual labor market experience is used. The instruments are jointly significant at the 5% level.

[7] Instruments in the selection equation are a second order polynomial of age, the number of children and the number of children below 6, husband's years since migration and a dummy which indicates whether the husband is of German nationality. The set of instruments is significant at the 5% level.

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