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A Simple Test of the Efficiency Wage Hypothesis Revisited

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Abstract

Gerlach and Stephan (1994) proposed a test based on the idea that the "wage premium", the part of the wage which is not explained by the stock of human capital, should help predict variables such as career expectations (quit, change occupation, leave the labour force) and some job characteristics (like degree of supervision). We examine a number of issues related to sample selection and split, as well as the choice of tenure and experience variables, and obtain surprisingly robust results, which differ somewhat from theirs: in particular, we find no effect of the wage premium on career expectations. The main source of these differences appears to lie in the pooling of Germans and foreigners.

Key Words: Efficiency wages, wage equations.

JEL Classification: E24, J41

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Summary

This study reconsiders results obtained by Gerlach and Stephan (1994) concerning a simple test of the efficiency wage hypothesis. Their test is based on the idea that the part of the wage which is not explained by the stock of human capital should help predict variables such as career expectations (quit, change occupation leave the labour force) and some job characteristics (like degree of supervision), which can be directly related to the efficiency wage arguments. Using the same data set, the German Socio-Economic Panel for the years 1985, 1987 and 1989, we follow their procedure and first estimate earnings equations. The residuals of these are then related to career expectations and job characteristics. However, we motivate a different selection rule and treat the subsamples of Germans and foreigners separately for the earnings equations but jointly in the second stage. We also investigate different treatments of the experience and tenure variables. In the end we reach the same conclusions as Gerlach and Stephan concerning the relationship between job characteristics and wage premia, but obtain diverging results as regards career expectations. By pooling Germans and foreigners while keeping to a narrow range of hours we obtain some limited convergence towards their results. Including hours of work in the regressions deteriorates the specification test results, but it brings no notable change to the second stage results, i.e. to the test of the efficiency wage hypothesis.

A tentative general conclusion we would like to draw is that there might be substantial rewards for studies based on the GSOEP in avoiding to pool samples A et B — or Germans and foreigners.

1. Introduction

Direct tests of the efficiency wage hypothesis are rendered difficult by the nature of the variables involved in the theoretical model: ideally, a direct measure of effort should be available, as well as a precise measure of the alternative wage available to each worker. We shall not attempt to survey the literature on empirical tests of that assumption — a good survey is provided in the introduction of the paper by Agell (1994) —, but it is probably worth stressing the wealth of identification problems associated with such an endeavour, as this suggests that the proper data to conduct such tests convincingly should be matched data on firms and employees, as used by Abowd et al. (1994) with a related, but distinct focus.

Researchers having only household data at their disposal have typically tried to oppose compensating differentials and efficiency wage arguments, in an indirect way based on the estimation of various types of earnings or wage equations (see for instance Bellmann, 1992). The idea of the test proposed by Gerlach and Stephan (1994) is of a similar vein: they argue that the "wage premium", the part of the wage which is not explained by the stock of human capital, should help predict variables such as career expectations (quit, change occupation, leave the labour force) and some job characteristics (like degree of supervision), which can be directly related to the efficiency wage arguments. We shall not question that view but focus on the relationship between earnings and the stock of human capital.

Using basically the same data set, the German Socio-Economic Panel (GSOEP), for the years 1985, 1987 and 1989, we follow the procedure of Gerlach and Stephan (henceforth GS) and estimate earnings equations, the residuals of which are related in a second stage to a series of variables which are pertinent to the efficiency wage hypothesis. However, we motivate a different selection rule and treat the subsamples of Germans and foreigners separately for the earnings equations but jointly in the second stage.

In the terminology of Arulampalam et al. (1997), this study is a re-analysis rather than a strict replication of the GS study. In fact, our first intention had

been to investigate non-linearities in the wage-human capital relationship, along the lines of Bierens and Hartog (1988) and Lee et al. (1996), and their possible impact on the results of the proposed test for the efficiency wage hypothesis. However, along the way we reached the conclusion that the two subsamples of Germans and foreigners were best analysed separately. The resulting smallish sample sizes then left little scope for the identification of non-linearities.

In section 2 we consider a number of issues related to sample selection and split, as well as the choice of tenure and experience variables. In section 3 we present estimation and test results for the earnings equations. Section 4 presents the test results pertaining to the efficiency wage hypothesis. These are surprisingly robust to the choice of specification and estimation method. They differ in some respects from the results of Gerlach and Stephan: in particular, we find no effect of the wage premium on expectations. Section 5 investigates possible sources of the differences between our results and those of Gerlach and Stephan. We look at results obtained separately for German and foreigners in the second stage and at results obtained by pooling the two subsamples throughout. We also estimate their specification both with and without hours of work as explanatory variable in the earnings equation, but with our sample selection. The results are stable for the job characteristics, but extremely unstable for the career expectations. The only specifications for which career expectations appear to be significantly related to wage premia are those for which the two subsamples are pooled.

2. Specification issues

We now discuss a number of issues that could be raised in connection with the GS study. We do not mean to systematically criticise the choices they have made. These are consistent and respectable, but other choices can be made, with a series of implications. There is an inevitable compromise to be reached between retaining enough observations to ensure power in testing, and duly accounting for heterogeneity.

2.1 Hours and sample selection

While we understand the wish of Gerlach and Stephan to avoid losing observations by restricting hours, and the subsequent need to control for variation in these hours, we are reluctant to use hours worked as an explanatory variable in an earnings equation. Thus, in order to obtain a fairly homogeneous sample as regards hours, we introduce restrictions on average weekly hours worked in our sample selection. These restrictions are chosen in the form of an interval [35, 42] which covers full time for different occupations, while still entailing some variation in hours. As documented in Table A1, this causes substantial attrition. An alternative would have been to impose the restriction in connection with the precise occupation, but it would have entailed even more drastic attrition, due to missing values.[1]

2.2 Schooling: pooling Germans and foreigners?

Two possibilities are basically available to describe initial human capital. One, chosen by Gerlach and Stephan, consists in constructing a variable "years of schooling". The other consists in directly using the information underlying the construction of that variable. This is the route we choose, because we wish to make full use of the information available on human capital (as Steiner and Wagner, 1996, also do).[2] However, as documented in Table A3, the variables needed to describe the human capital of Germans and foreigners do not coincide. These are the indicators "unskilled", "high skill", and "university entrance level" for the Germans, and "unskilled" and "no degree" for the foreigners. The discrepancy

[1] Knut Gerlach and Gesine Stephan kindly drew our attention to the fact that the variable they use for weekly hours are not average weekly hours, but contract hours ("vereinbarte Wochenarbeitszeit"), and that with their choice, over 90% of all observations fall in the [35, 42] interval. Different arguments can be advanced for the choice of one or the other measure — see Bertschek et al. (1991) for a thorough discussion — but we still favour our choice, precisely because contract hours do not properly reflect the heterogeneity in actual hours worked (for instance, they do not include overtime work).

[2] Again, Knut Gerlach and Gesine Stephan pointed to us that in constructing their "years of schooling" variable, they made use of much more detailed information than that reflected in the general and vocational indicators we use. In fact we also have to aggregate some categories, because otherwise we would include indicators for very few observations, which would more or less amount to deleting them from the sample.

is even reinforced if one considers interactions, not only between general and vocational education, but also between these and regional information. This leads us to estimate separate earnings equations for Germans and foreigners. This in itself will entail no loss of power in the "test" of the efficiency wage hypothesis, because there is no objection to pooling Germans and foreigners at the second stage of the analysis. The notion that employers might pay efficiency wages to one category of workers and not to the other would even seem extraordinary.

2.3 Potential and actual experience

There is a tradition in the empirical labour economics literature to avoid using actual experience as a regressor in a wage equation, on the grounds that this poses an endogeneity problem: as experience is past labour supply, any unobservable individual characteristic that influences both the wage and the labour supply will induce a correlation between the error term in the wage equation and that regressor. On the other hand, potential experience is not entirely satisfactory either as a proxy for acquired human capital, and causes a measurement error problem. Since regressions are cheap, we do not choose a priori between these two evils but duplicate the analysis. Furthermore, since we are not primarily interested in measuring returns to experience as such, the endogeneity problem is not important here, provided that the unobserved characteristics mentioned above relate to human capital.

2.4 The role of tenure

The endogeneity of the tenure variable is more important in the context of this study: as argued, among others, by Dustmann and Meghir (1997), the decision to stay in a job is related to pay and it may seem a priori doubtful to include tenure as an explanatory variable for earnings or wages if we want to relate the residuals to the efficiency wage hypothesis. Again, we choose to be agnostic here and carry out estimation both with and without the tenure variable. When including tenure, we will allow for some amount of non-linearity by including a linear spline, as Abowd et al. (1994) do: after looking at histograms for all subsamples, we placed the join at 15 years of tenure.

2.5 Functional form

We follow the GS study and the bulk of the literature on wage and earnings equations in choosing log earnings as the dependent variable, and a model with additive error term. The regression model we consider has up to two continuous explanatory variables, experience and eventually tenure, while the model considered by Gerlach and Stephan has three, with schooling the third one. In both cases there is no reason a priori for linearity in these variables, and the GS study even reports rejection of that assumption. This had motivated our interest for non linear alternatives, in particular nonparametric regression and neural network, as exemplified for wage equations by Lee et al. (1996) and models taking account of the discrete nature of the "continuous" variables considered here — all are measured in years — as in Bierens and Hartog (1988). However, it turns out that non-linearity is not an issue for our subsamples

2.6 Heteroskedasticity and normality

Heteroskedasticity is not a real problem at the level of estimation, whether or not the regression function is linear, because least squares will produce a consistent estimator of the parameters, and thus a consistent estimator of each residual. When producing predicted wage premia it does matter, however. Indeed if the error terms are normally distributed, the minimum mean square error prediction of the wage premium is not simply the exponential of the residual but the exponential of the sum of this residual and half its variance. If the latter is constant, the distribution of wage premia is just scaled down when ignoring this factor, but it will be distorted in the presence of heteroskedasticity. Again the GS study reports heteroskedasticity.

2.7 Choice of regressors

We choose to remain as close as possible to the inclusion of human capital variables only in the earnings equation. In particular we see no reason to include firm or sector specific variables other than perhaps variables attempting to capture an "alternative wage". And even for the latter, we do not quite see the rationale in this indirect test of the efficiency wage hypothesis. Thus we consider

experience and its square, both interacted with all education indicators relevant to the particular subsample ("unskilled", "high skill", and "university entrance level" for the Germans, and "unskilled" and "no degree" for the foreigners). As explained above, we also consider a linear spline for tenure. For the initial stock of human capital, on top of the indicators for general and vocational education mentioned above, we consider interactions between both these two groups and a set of regional indicators (north, south, and three agglomeration size indicators). We also take some limited account of cohort effects on the returns to education by interacting the education indicators with two cohort indicators "born before 1938" and "born between 1938 and 1946", whereby the choice of boundaries was based on inspection of histograms for the date of birth, so as to obtain roughly equal groups. For each subsample separately we exclude all interactions for which the proportion of ones is below 5%. The resulting lists can be read in Tables B1 and B2 which show regression results for Germans and foreigners for all years. Note that, because of the exclusions above, the initial lists of regressors differ substantially for the two subsamples, as mentioned above.

Residuals from these regressions will be orthogonal to the human capital variables in the sense of the empirical (sample) distribution: they will satisfy $\hat{u}'X = 0$. However, there is an argument for going a step further and try and generate residuals that will be orthogonal to human capital in the sense of the actual distribution, by eliminating regressors that appear irrelevant (these will approximately satisfy $E(u|X) = 0$). The corresponding residuals will exhibit more variation than the former, and might for this reason prove better regressors in the second stage of the analysis.

For each specification, we further assess the impact of possible outliers on results by obtaining both OLS and trimmed least squares estimates. Summing up, the second stage analysis will be performed for 48 (= 4 specifications $\times$ 2 initial/final $\times$ 2 estimation methods $\times$ 3 years) sets of residuals. In the first stage we estimate 96 sets of parameters (Germans and foreigners separately).

2.8 Using the panel structure of the data

Finally, using the panel structure of the data is not obviously attractive in our situation. In principle it could both allow the identification of individual effects and the realisation of efficiency gains in estimation. But firstly, we are interested in the residuals themselves and not in any decomposition, and secondly, efficiency gains could only be realised under the assumption of (some) parameter stability over time. As it will turn out, this may not be an attractive assumption.

3. Estimated earnings equations and tests

Tables 1 and 2 show estimation results for the final specification 2, including actual experience and tenure.[3] This is the result of a limited specification search where, starting from the complete list of regressors, we have kept all variables that were significant for at least one year and one specification. While the list of significant variables varies a lot from one year to the next, we found it to be surprisingly stable across specifications and estimation methods. In the OLS columns we report the heteroskedasticity robust t-values produced by SHAZAM. These correspond to the use of the unweighted squared residuals, and thus to the variance estimator termed HC_0 by Davidson and MacKinnon (1993, p.554), and they should be considered as optimistic estimates.

Returns to experience appear concave and significant for the unskilled only. Estimated returns to tenure for Germans amount in 1985 to some 1.5% p.a. for the first 15 years, and 0.3% thereafter (the corresponding figures are 0.6% and 0.7% throughout for 1987 and 1989, respectively). For foreigners these returns appear nil below 15 years and amount to some 0.8% thereafter, both for 1985 and for 1987. For 1989 they are a little lower and insignificant. Being unskilled was extremely disadvantageous for Germans in 1985, a year with record unemployment; it was less disadvantageous for foreigners, particularly in cities. Finally, for Germans, university entrance level has a small positive impact throughout. Note that the R^2 increase over time, both for Germans and foreigners, which is probably due to a loss of heterogeneity in the panel, but that they are much

[3] All results have been obtained using the version 8.0 of SHAZAM.

larger for Germans than for foreigners. For the trimmed least squares estimates, the reported R^2 is the squared correlation coefficient between observed and predicted log earnings, the predictions concerning all observations, whether or not they were discarded in estimation. Outliers do not seem to pose an obvious problem here.

Tables 3 and 4 show test results for the OLS estimates of all specifications. In columns 1 and 2 we report p-values of heteroskedasticity tests with 1 and some twenty degrees of freedom.[4] Heteroskedasticity does not appear to be a serious issue either. The only situation where a mild rejection of homoskedasticity appears to occur concerns foreigners in 1985 and perhaps in 1987, but the reported numbers are maxima from three p-values obtained from Breusch-Pagan-Godfrey, Harvey, and Glejser tests, and in each case only the Glejser test rejected. We chose to ignore those rejections. Moreover, the LM test of normality consistently rejects, so that we do not have had a clear guideline as to how to correct the predicted wages (see subsection 2.6).

Column 3 reports the results of a RESET specification test. We report only RESET(1), because in some occasions there were numerical difficulties with the computation of RESET(2) or RESET(3). Again, we find no strong evidence of non-linearity, which leads us to abandon our grand plans for dealing with it. Note that this finding is at variance with what Gerlach and Stephan report (footnote 1, p. 339). This may be because our smaller sample sizes do not allow us to identify existing non-linearities, but it may also be due to the fact that they ignore a large amount of heterogeneity, the latter interpretation being substantiated by the findings of Lee et al. (1996).

Columns 4 to 7 report F tests of joint significance of different groups of variables. We will not comment these in detail but draw attention to the significant impact of the "unskilled" indicator that they suggest, especially for foreigners.

Finally the R^2 show generally the same pattern as was already discussed for the specification with actual experience and tenure, and they are largest for

[4] As Godfrey and Orme (1997) demonstrate, there is a strong case for using bootstrap critical values for these tests rather than relying on the asymptotic distribution of the test statistics, as we do here.

that specification — which does not say much about the endogeneity problems mentioned above. But uncovering these problems is not our purpose here, and, as we shall now see, the differences in estimates have almost no impact on second stage results.

4. Test results concerning the efficiency wage hypothesis

We have looked at kernel regressions of the dichotomous variables described in Appendix A (see Table A4 and the corresponding text) on the wage premia (exponentiated residuals from the earnings equations) and a constant, and at confidence intervals based on twice the standard error derived from the kernel estimate of the conditional variance using the same weights as the kernel estimate of the conditional mean. In commenting on the profiles obtained we take these confidence intervals into account. However, these regressions should be seen only as a descriptive device, in particular we do not wish to imply any causal relationships. Recall that in this second stage we do pool Germans and foreigners.

The results are bulky, since for each type of specification (initial/final) and each year we have produced 64 graphs. As a kind of summary, Table 5 reports the corresponding logit estimates for the specification with actual experience and tenure (Table 6 reports the sample sizes and the proportions of ones for each of the dependent dichotomous variables considered). However, there are many similarities. The comparisons between OLS and trimmed least squares results, and between initial and final specification, reveal no striking differences. Across models (actual or potential experience, with or without tenure), the most notable difference concerns the item "no participation in job-related decisions", for which the relationship is essentially linearly decreasing for specification 1 (actual experience, no tenure), while it is slightly concave for the others.

Results for each item and each year can be summarised as follows. The sign given after the denomination of each item shows the direction of the relationship with the wage premium suggested by the efficiency wage hypothesis.

4.1 Career expectations

For this group of items, Gerlach and Stephan find significant results in accordance with the efficiency wage hypothesis, on the basis of ordered probit estimates. The reason why we refrain from using an ordered-probit-type model here is that, given our smallish sample sizes and the high proportions in one response modality, if often happens that one of the other modalities is sufficiently under-represented to cause numerical problems. Since, for purely practical reasons, we must avoid distinguishing different cases, we dichotomised the items. The ensuing information loss cannot be large, though.

No expected search for new job (+) We observe a non monotonous profile for 1985, with two maxima and two minima, and a slightly increasing profile for 1987 and 1989. The logit results give positive but insignificant slope estimates.

No expected change of occupation (+) Again the profile is non monotonous for 1985, it is flat for 1987, flat and then increasing for 1989. Logit estimates are insignificant.

No expected exit from the labour force (+) The profile is decreasing then flat for 1985, non monotonous for 1987, flat then increasing for 1989. For the logits, the slope estimates are negative for 1985 (with a t-value of -1.7), positive for 1987 (t=1.2), nil for 1989.

Considerations based on the efficiency wage hypothesis would lead to anticipate an increasing relationship: for this group of items we do not find a *single* instance which would provide support for that hypothesis, in contrast to the finding of the GS study. It is perhaps worth stressing here that the large percentages of ones reported in Table 6 for those items are not sufficient to explain this lack of support, as the last item in the next list yields significant results with an even higher percentage of ones.

4.2 Job characteristics

For this group of items we find a much better agreement with the results of the GS study. That study reports rank correlations, with signs and relative magnitudes that are compatible with what we find.

Variety of tasks (+) For all years we find a positive relationship, with a plateau for intermediate values, and significant estimated slopes.

No freedom to organise work (-) For all years we find a negative relationship, with a plateau for 1985 and 1987, and significant estimated slopes.

Working time not related to work load (?) We find a flat profile for 1985 and 1989, an inverted U shape for 1987, and no significant slope (the large negative coefficient given for 1989 in Table 5, with a t-value of -1.5, is driven by outliers with large wage premia).

No stringent supervision (+) The profile is flat then increasing for 1985, increasing with a plateau for 1987, and flat for 1989. Slopes are positive significant for 1985 and 1987, insignificant for 1989.

No participation in job-related decisions (-) The profile is decreasing for all years, linear for 1985 and 1987, and concave for 1989. The slopes, negative, have large absolute values and are well determined.

4.3 Comparison between years

A priori one could expect the results for 1985 to provide the least evidence for efficiency wages, because of the large unemployment that prevailed then — unless of course one were to see efficiency wages as a main determinant of unemployment. Indeed, this is also what we find, and 1989 is the year for which the confirmation is the strongest. As regards job characteristics, the evolution from 1985 to 1989 described in Table 5 exactly replicates what Gerlach and Stephan report in their Table 3, but there is some disagreement as to the relative position of 1987.

5. Where do the differences come from?

In this section we try to see what drives the differences concerning the relationship between career expectations and wage premia between the GS study and ours.

First, starting from the same first stage results as above, we have produced second stage results for Germans and foreigners separately. For foreigners, the only significant relationship we find concerns the job characteristic "variety of tasks" for 1989, with the expected sign. For Germans the results are very similar

to the overall results presented above, but there is no significant relationship for the career expectations. Otherwise, slopes become larger in absolute values, and profiles steeper.

We have next looked at an extreme kind of pooling of Germans and foreigners for the estimation of earnings equations, simply adding an indicator for nationality. We had a new look at all interactions between the indicators in order to determine which ones ought to be excluded at the outset (proportion of ones below 5%), and we simply added an indicator for nationality. No specification search was conducted. A striking difference with the results presented in Tables 1 and 2 and B1 and B2 is that here more or less the same coefficients remain significant for the three years, and several of these concern variables that contrast the two subsamples, like the "unskilled", "no degree" and "university entrance level" indicators. Test results — as those reported in Table 3 — show no single rejection of homoskedasticity or linearity for 1987 and 1989. For 1985 there appears to be little heteroskedasticity, but linearity is rejected for all four specifications. Second stage results for job characteristics are almost unchanged, but there are some differences for the career expectations. For 1985, we obtain a near significant slope for "no expected exit from the labour force", but the wrong sign (t=-1.9). The corresponding profile is decreasing then flat, as previously. For 1987, all signs are positive and slopes are significant for "no expected search for new job", but less so for the models including tenure among the regressors. However, for 1989 no relationship is significant and some are negative. The similarity between results obtained for job characteristics suggests that the problem does not lie in a lack of power of our "test" due to insufficient sample size.

Our next step was to estimate the GS specification, both with and without average weekly hours as a regressor. That is, we regressed log earnings on experience, experience squared, years of schooling, a "German" indicator and its interaction with years of schooling, and a constant, combining again actual and potential experience with tenure as described above — except that we considered no spline. Test results *are* affected by the inclusion of hours of work. *Without hours,* we observe again no rejection of homoskedasticity except for 1985 (mild rejection for the specification with actual experience and no tenure), but rejection

of linearity (with the exception of the two specifications without tenure for 1989, and the specification with potential experience and no tenure for 1987). *With hours,* homoskedasticity is (mildly) rejected for the specification with actual experience in 1985, and for all specifications except actual experience - no tenure in 1989; linearity is rejected for all specifications and all years — strongly in most cases (p-values below 0.01) — except for actual experience - no tenure in 1985. The second stage results again remain very similar as regards job characteristics, whether or not we included hours of work. For career expectations the results without hours were virtually identical to those obtained in the previous paragraph, except for the models with tenure, were slopes are no longer significant, even for 1987 (t-values of 1.7). Including hours did not reinforce the difference between these and our own results, so that our final impression is that the main cause for the discrepancies between our results and those of the GS study lies in their neglect of heterogeneity, manifested in the pooling of Germans and foreigners, and in the pooling of workers with starkly different average working hours — even though the sample appears to be quite homogeneous as regards contract hours, see footnote 1.

6. Conclusion

Our re-analysis of the study by Gerlach and Stephan starts from the same underlying data set but uses more homogeneous subsamples, in two respects: we restrict average weekly working hours to a fairly narrow interval covering essentially "full time" work, and estimate separate earnings equations for Germans and foreigners. Furthermore, we make full use of the available information on initial human capital rather than describe the latter one-dimensionally by "years of schooling". We also investigate different treatments of the experience and tenure variables. In the end we reach the same conclusions as Gerlach and Stephan concerning the relationship between job characteristics and wage premia, but obtain diverging results as regards career expectations.

By pooling Germans and foreigners while keeping to a narrow range of hours we obtain some limited convergence towards their results, as regards expected

search, and that only for 1987 (also the year for which they found the most significant results). Including average weekly hours of work in the regressions deteriorates the specification test results, but it brings no notable change to the second stage results, i.e. to the test of the efficiency wage hypothesis.

A tentative general conclusion we would like to draw is that there might be substantial rewards for studies based on the GSOEP in avoiding to pool samples A et B — or Germans and foreigners — where possible. This view should not be understood as xenophobic, it rests on the different characteristics of the two subsamples, from a purely statistical point of view.

Table 2: Regressions for the final specification with actual experience and tenure, Foreigners

	1985		1987		1989	
	OLS	trim 4.5%	OLS	trim 4.5%	OLS	trim 4.5%
experience/10	.093	.109	.138	**.188**	.075	.085
	(1.2)	(1.7)	(1.9)	**(3.1)**	(.8)	(1.2)
(experience/10)*unskilled	**.063**	**.066**	**.073**	**.069**	.057	.051
	(2.0)	**(2.4)**	**(2.3)**	**(2.3)**	(1.6)	(1.5)
experience^2/100	-.021	**-.025**	**-.037**	**-.046**	-.020	-.021
	(-1.5)	**(-2.0)**	**(-2.5)**	**(-3.9)**	(-1.2)	(-1.6)
(tenure/10)*(tenure>15)	**.085**	.057	.075	**.096**	.062	.064
	(2.2)	(1.3)	(1.9)	**(2.7)**	(1.5)	(1.7)
unskilled	**-.154**	**-.163**	**-.241**	**-.227**	**-.193**	**-.181**
	(-2.1)	**(-2.5)**	**(-3.2)**	**(-3.3)**	**(-2.3)**	**(-2.2)**
unskilled*south	.022	.027	**.065**	**.072**	**.063**	**.069**
	(.7)	(.9)	**(2.6)**	**(2.6)**	**(2.1)**	**(2.4)**
unskilled*city	**.106**	**.101**	**.086**	**.091**	**.152**	**.160**
	(3.1)	**(3.0)**	**(3.3)**	**(3.1)**	**(4.6)**	**(5.0)**
unskilled*born before 1947	**-.140**	**-.126**	**-.082**	**-.095**	**-.119**	**-.117**
	(-3.2)	**(-3.1)**	**(-2.3)**	**(-2.3)**	**(-2.4)**	**(-2.7)**
no degree*city	-.021	-.017	.066	.067	.052	.050
	(-.5)	(-.4)	(1.8)	(1.7)	(1.4)	(1.3)
no degree *born before 1947	.162	-.153	**-.095**	**-.075**	**-.082**	**-.079**
	(.5)	(-.0)	**(-2.8)**	**(-2.1)**	**(-2.2)**	**(-2.3)**
constant	**7.793**	**7.787**	**7.870**	**7.807**	**7.977**	**7.957**
R^2	.052	.049	.089	.087	.137	.136

Table 1: Regressions for the final specification
with actual experience and tenure, Germans

	1985		1987		1989	
	OLS	trim 2.5%	OLS	trim 2.5%	OLS	trim 2.5%
experience/10	-.041	-.011	.168	**.154**	**.140**	**.124**
	(-.4)	(-.1)	(1.9)	**(2.3)**	**(2.5)**	**(2.0)**
(experience/10)*unskilled	**.853**	**.709**	.139	.128	.278	.196
	(3.2)	**(2.9)**	(.6)	(.6)	(1.2)	(1.0)
(experience/10)*high skill	-.030	.006	.191	.188	-.051	-.026
	(-.2)	(.0)	(1.5)	(1.5)	(-.4)	(-.2)
experience²/100	-.000	-.005	**-.033**	**-.030**	**-.028**	**-.026**
	(-.0)	(-.4)	**(-2.1)**	**(-2.3)**	**(-2.7)**	**(-2.3)**
(experience²/100)*unskilled	**-.145**	**-.122**	-.021	-.019	-.041	-.026
	(-3.1)	**(-2.7)**	(-.5)	(-.5)	(-1.1)	(-.7)
(experience²/100)*high skill	.002	-.007	**-.054**	**-.054**	-.012	-.018
	(.1)	(-.3)	**(-2.1)**	**(-2.2)**	(-.5)	(-.8)
tenure/10	**.152**	**.141**	**.054**	**.057**	**.067**	**.071**
	(4.6)	**(4.8)**	**(2.2)**	**(2.2)**	**(2.5)**	**(2.8)**
(tenure/10)*(tenure>15)	**-.122**	**-.113**	-.007	-.023	.025	.214
	(-2.4)	**(-2.6)**	(-.2)	(-.6)	(.6)	(.6)
unskilled	**-**	**-**	-.388	-.375	-.551	-.466
	1.291	**1.067**	(-1.2)	(1.2)	(-1.8)	(-1-7)
	(-3.5)	**(-3.3)**				
unskilled*north	.079	.063	**.116**	**.125**	.061	.060
	(1.5)	(1.1)	**(2.2)**	**(2.5)**	(1.2)	(1.2)
high skill	.107	.009	.030	.031	**.310**	**.307**
	(.7)	(.7)	(.2)	(.2)	**(2.3)**	**(2.3)**
high skill*born before 1947	**.170**	**.155**	.074	.075	.138	.132
	(2.0)	**(2.0)**	(1.2)	(1.1)	(1.6)	(1.9)
university entrance level	**.243**	**.241**	**.265**	**.260**	**.246**	**.250**
	(4.3)	**(5.1)**	**(5.7)**	**(6.1)**	**(5.3)**	**(5.6)**
constant	**7.910**	**7.879**	**7.793**	**7.801**	**7.861**	**7.877**
R^2	.296	.295	.321	.320	.348	.347

Table 3: Test results for OLS estimation and all initial specifications, Germans: p-values

	het_1	het_2	rst(1)	exp	exp²	vd1	vd2	R²
1985								
actual experience	.874	.394	.871	**.010**	**.008**	.052	.404	.252
act. exp. and tenure	.999	.343	.422	**.016**	**.018**	.091	.369	.303
potential experience	.924	.739	.774	**.020**	**.034**	.252	.971	.246
pot. exp. and tenure	.819	.690	.824	.109	.207	.203	.860	.293
1987								
actual experience	.566	.710	.533	**.004**	**.006**	**.016**	.716	.309
act. exp. and tenure	.690	.415	.846	**.031**	**.015**	**.017**	.765	.328
potential experience	.838	.912	.767	.212	.178	**.004**	.783	.296
pot. exp. and tenure	.779	.697	.832	.561	.414	**.007**	.796	.317
1989								
actual experience	.590	.186	.792	**.004**	**.008**	.528	.236	.298
act. exp. and tenure	.459	.415	.288	**.035**	**.008**	.243	.231	.355
potential experience	.718	.912	.761	.297	.347	.320	.669	.286
pot. exp. and tenure	.480	.697	.964	.571	.422	.150	.721	.341

Notes: Column het_1 gives the smallest p-value obtained with the one-degree-of freedom tests associated with regressions of the square residual on the predicted dependent variable, on its square and on the log of ist square. Column het_2 gives the smallest p-value obtained with the Breusch-Pagan-Godfrey, Harvey and Glejser tests, with 20 or 22 degrees of freedom, depending on the presence of tenure. Column rst(1) gives the p-value of a RESET(1) test, a linearity test. The next four columns report on F-tests for the joint significance of coefficients affecting the variables indicated. Variable vd1 (vocational degree) corresponds to "unskilled", vd2 to "high skill". The last columns reports the R^2 of the corresponding regression.

Table 4: Test results for OLS estimation and all initial specifications, Foreigners: p-values

	het_1	het_2	rst(1)	exp	exp²	vd1	gd1	R²
1985								
actual experience	.488	**.019**	.671	.305	.570	**.000**	.398	.058
act. exp. and tenure	.241	**.018**	.724	.315	.517	**.000**	.432	.065
potential experience	.685	**.025**	.146	.417	.532	**.008**	.566	.051
pot. exp. and tenure	.546	**.009**	.367	.359	.426	**.009**	.545	.063
1987								
actual experience	.975	**.023**	.262	.168	.132	**.000**	.219	.090
act. exp. and tenure	.887	**.021**	.148	.248	.157	**.000**	.354	.098
potential experience	.874	.109	.957	.560	.388	**.005**	.189	.082
pot. exp. and tenure	.872	.056	.616	.737	.481	**.006**	.288	.092
1989								
actual experience	.854	.699	**.038**	.288	.545	**.000**	**.036**	.155
actual experience and tenure	.775	.689	**.025**	.405	.649	**.000**	**.030**	.165
potential experience	.788	.505	.115	.426	.379	**.000**	.097	.155
pot. exp. and tenure	.554	.468	.156	.563	.465	**.000**	.081	.170

Notes: Column het_1 gives the smallest p-value obtained with the one-degree-of freedom tests associated with regressions of the square residual on the predicted dependent variable, on its square and on the log of ist square. Column het_2 gives the smallest p-value obtained with the Breusch-Pagan-Godfrey, Harvey and Glejser tests, with 19 or 21 degrees of freedom, depending on the presence of tenure. Column rst(1) gives the p-value of a RESET(1) test, a linearity test. The next four columns report on F-tests for the joint significance of coefficients affecting the variables indicated. Variable vd1 (vocational degree) corresponds to "unskilled", gd1 (general degree) to "no degree". The last columns reports the R^2 of the corresponding regression.

Table 5: Binary logits for the initial specification
with actual experience and tenure (Germans and foreigners together).

	1985		1987		1989	
No expect. search for new job (+)	.115	(.3)	.588	(1.6)	.185	(.5)
No expect. change of occup. (+)	.112	(.3)	.329	(.9)	.446	(1.0)
No expect. exit from lab. force(+)	-.619	(-1.7)	.509	(1.2)	-.054	(-.1)
Variety of tasks(+)	**.721**	**(2.4)**	**1.039**	**(3.6)**	**1.151**	**(3.4)**
No freedom to organise work(-)	**-.705**	**(-2.2)**	**-.586**	**(-2.0)**	**-1.058**	**(-2.8)**
Work time not related to load (?)	-.234	(-.8)	-.054	(-.2)	-.497	(-1.5)
No stringent supervision (+)	**1.108**	**(3.6)**	**1.066**	**(3.7)**	.290	(.9)
No part. in job-related decis. (-)	**-2.225**	**(-5.5)**	**-2.120**	**(-5.5)**	**-2.489**	**(-5.4)**

Notes: The first panel concerns expectations over the next two years, the second panel concerns characteristics of the present job. The sign in parentheses after each item's denomination corresponds to what the efficiency wage hypothesis leads us to expect. For each item the first entry gives the slope estimate in a logit regression on a constant and the wage premium (the second gives the corresponding t-statistic).

Table 6: Number of observations and proportion of ones for binary variables summarising career expectations and job characteristics
(Germans and foreigners together).

	1985	1987	1989
No expected search for new job	952 (.80)	958 (.78)	818 (.73)
No expected change of occupation	949 (.84)	954 (.82)	817 (.83)
No expected exit from labour force	950 (.87)	956 (.85)	817 (.83)
Variety of tasks	778 (.43)	948 (.42)	819 (.46)
No freedom to organise work	776 (.40)	950 (.41)	818 (.33)
Work time not related to work load	773 (.63)	950 (.63)	816 (.61)
No stringent supervision	778 (.44)	950 (.42)	818 (.42)
No participation in job-related decisions	776 (.87)	948 (.88)	816 (.88)

Notes: The first panel concerns expectations over the next two years, the second panel concerns characteristics of the present job. For each item the first entry gives the number of observations (and the second the proportion of ones).

Appendix A: Data

The data used are drawn from the German Socio-Economic Panel (GSOEP) for the years 1985, 1987 and 1989. The sample selection is described in Table A1. Large losses in observations occur for the restrictions on average weekly hours worked and on occupation type. A significant loss also occurs for the "tenure" variable, as discussed further down. The resulting sample sizes are much smaller than in the GS study (1704, 1623 and 1718, respectively). The wage concept retained here is monthly gross earnings in the month preceding the interview. For the purpose of this study this may be inferior to the measure used for instance by Steiner and Wagner (1996), average monthly gross earnings in the last calendar year: this also includes fringe benefits such as 13th and 14th month, and holiday and Christmas bonuses. Our choice was guided by two considerations: we wanted to avoid losing further observations due to missing values on the various benefits, and we found it convenient to use the same measure as Gerlach and Stephan, for ease of comparison.

Initial human capital accumulation is described by four indicators, two for general education and two for vocational education. The indicators for general education are "no degree" (gd1) and "university entrance level" (gd2) (the reference category is "intermediate secondary"). The indicators for vocational education are "no vocational degree" (vd1) — which we will abbreviate into "unskilled" — and a "high skill" category (vd2), which it is easiest to define starting from the reference category, as the latter is "apprenticeship".

For experience, we consider in turns two variables. One is the familiar potential experience, defined as age - 6 - years of schooling, where the latter are approximated — following to some extent Steiner and Wagner (1996) — as described in Table A2. This approximation is much less precise for foreigners than it is for the Germans, as there is also some approximation in the definition of the indicators for the former. The other variable is actual experience, defined as the number of years of full time employment. This is not automatically smaller than the potential experience defined above, as one might expect, and indeed it turns out that for all subsamples a significant proportion of individuals exhibits an ac-

tual experience which is slightly larger than potential experience. In fact, while years of schooling are underestimated for people who repeat some classes, they are overestimated for those who obtain degrees or qualifications while working. Setting the age of school begin at 6 is also a source of error.

The variable "tenure", defined as number of years with the current employer does not appear to require any comment. Yet it turns out that this exceeds actual experience for a substantial number of observations. In such cases we have checked the possibility that the date of hire in the current job (two digits) is actually the tenure itself. We have made the corresponding adjustment where possible, and discarded the observation otherwise.

Regional information is used only in interactions with the former variables. Due to the federal structure of the State in Germany, there is some variability in curricula and standards across federal states (Länder), to the point that degrees are not automatically recognised across state borders. Moreover, it can be expected that the market value of degrees and qualifications varies with the degree of urbanisation. We thus consider two sets of indicators, one opposing the north (Berlin, Bremen, Hamburg, Schelswig-Holstein, Lower Saxony and North-Rhine Westphalia) and the south (Bavaria and Baden-Württemberg) to the central states (Hessia, Saarland and Rhineland-Palatinate), the other distinguishing agglomeration sizes (population below twenty thousands, twenty to hundred thousands, one hundred to five hundred thousands, and above half a million).

Table A3 gives summary statistics on all those variables year by year and for Germans and foreigners separately. The GSOEP consists of two separate samples, termed sample A and sample B. The latter is designed to represent the immigrant work force, and is oversampled compared to sample A. However, there are also foreigners in sample A, and Germans in sample B, presumably following naturalisation. The distinction we make is not between samples A and B but between Germans and foreigners, and we do not take sampling weights into account. Given our framework of conditional models, this is of no consequence — the situation would be different if we were to consider distributional aspects, like studying inequality. The numbers in Table A3 reflect only the composition

of our samples, not the underlying populations.

Some differences between Germans and foreigners are worth noting. Earnings, actual experience and tenure are larger for the Germans. The foreigners are more concentrated in densely populated areas and in the south. But it is for the education variables that the largest differences occur. The category "no degree" is almost non-existent for the Germans, but concerns well over a quarter of the foreigners. "University entrance level" concern less than 10% of Germans, but less than 1% of foreigners. Similar contrasts can be observed for qualifications.

Table A4 gives information on the questions that have been chosen in the GS study as informative as regards efficiency wages. After looking at histograms of the answers, we have decided to dichotomise the questions and have reformulated these so as to make clear what modality we have coded as 1. For instance the entry "no freedom to organise work" is derived from the original item "job is characterised by freedom to organise work", with the three answer modalities "1: true", "2: partially true", and "3: not true": as indicated in the first column of the table, we have chosen to code 1 for modality 3, and 0 for the other 2, and reformulated accordingly. The first panel shows items related to career expectations over the next two years (with 4 original modalities) and the second panel shows items related to job characteristics (3 original modalities). After the description of each item, we have shown the sign of the expected relationship with the wage premium, as derived from the efficiency wage hypothesis.[5] Thus we anticipate that "no expected search for new job", "no expected change of occupation" and "no expected exit from the labour force" should relate positively to the wage premia — although less directly so for the third one; the same should apply for jobs with a "variety of tasks" or "no stringent supervision", whereas we expect the reverse for jobs with "no freedom to organise work" or "no participation in job-related decisions". We must admit that the status of jobs with "working time not related to work load" with respect to the efficiency

[5] Compensating differentials (at least for job characteristics) would result in the opposite sign.

wage hypothesis is not clear to us.[6] Entries in the second column record which original modality we have recoded as 1. Entries in subsequent columns report the proportions of ones. In the upper panel, corresponding to career expectations, the proportions are high throughout, both for Germans and for foreigners. This is true also for the last line of the second panel, where most Germans, and virtually all foreigners report the absence of participation in job-related decisions. It is worth noting that such asymmetric answers make it a priori more difficult to identify patterns from this dichotomous information than if the proportion of ones were nearer to 0.5. The answers are more differentiated in the rest of the second panel, where some strong discrepancies between the answers of Germans and foreigners appear. The latter report less variety of tasks, less freedom to organise work, and more supervision. For this reason we will also analyse the two subsamples separately.

Table A1: Sample Selection

	1985		1987		1989	
	cases	% loss	cases	% loss	cases	% loss
full sample	11 090		10 516		9 710	
males	5 459	50.78	5 208	50.48	4 780	50.77
age 30-65	3 393	37.85	3 204	38.48	2 923	38.85
full time	2 829	16.62	2 691	16.01	2 259	22.72
occupation	2 239	20.86	2 126	21.00	1 802	20.23
earnings > 0	2 113	5.63	2 037	4.19	1 704	5.44
hours > 34 < 43	1 151	45.53	1 243	38.98	1 020	40.14
regional info. compl.	1 151	-	1 243	-	1 020	-
tenure non missing	1 116	3.04	1 186	4.59	1 007	1.27
experience non miss.	1 087	2.60	1 134	4.38	935	7.15
tenure plausible	963	11.40	1 018	10.23	819	12.41
month. earn. < 25 000	962	0.10	1 017	0.10	819	-

Notes: The 'full time' indication corresponds to one modality of a 'labour market status variable'. The 'occupation' restriction selects 'workers' and 'employees' (it excludes the self-employed, the civil servants, etc.). For 'tenure plausible', please refers to the text.

[6] This is also the item for which Gerlach and Stephan find the lowest correlations with the wage premia, although these correlations are still significantly different from zero. We found no significant result for this variable.

Table A2: Years of schooling

	unskilled	apprenticeship	high skill
no degree	10	12	15
intermediate secondary	10	12	15
university entrance level	13	15	18

Table A.3: Descriptive statistics: (1) Germans.

	1985 (507)			1987 (537)			1989 (496)		
	mean	min	max	mean	min	max	mean	min	max
gross wage (DM)	3196	1000	10000	3415	1200	10300	3610	1300	9300
actual exp. (years)	26.3	2	46	26.9	4	48	26.9	6	51
pot. exp. (years)	27.5	6	47	27.9	6	45	27.8	8	46
tenure (years)	14.8	1	40	15.4	0	39	15.3	1	41
cohort	1939	1920	1955	1940	1922	1957	1944	1926	1959
urbanisation									
pop. 20'-100'	.078	0	1	.100	0	1	.117	0	1
pop. 100'-500'	.169	0	1	.168	0	1	.167	0	1
pop. > 500'	.467	0	1	.464	0	1	.454	0	1
region									
north	.471	0	1	.462	0	1	.472	0	1
south	.327	0	1	.322	0	1	.300	0	1
schooling									
no degree	0	0	0	.004	0	1	.002	0	1
univ. entr. level	.092	0	1	.093	0	1	.077	0	1
skill group									
unskilled	.116	0	1	.126	0	1	.129	0	1
high-skill	.195	0	1	.188	0	1	.181	0	1

Note: North is Berlin, Schleswig-Holstein, Hamburg, Nierdersachen, Bremen and Nordrhein-Westfalen. South is Baden-Wuerttemberg and Bayern.

Table A.3: Descriptive statistics: (2) Foreigners.

	1985 (455)			1987 (480)			1989 (323)		
	mean	min	max	mean	min	max	mean	min	max
gross wage (DM)	2701	1000	5000	2898	900	6500	3129	1300	6500
actual exp. (years)	24.7	5	47	25.2	4	49	26.6	6	45
pot. exp. (years)	27.2	12	47	27.8	7	47	28.8	9	46
tenure (years)	11.7	1	38	13.3	0	40	14.0	1	29
cohort	1941	1921	1955	1942	1922	1957	1943	1926	1959
urbanisation									
pop. 20'-100'	.077	0	1	.071	0	1	.071	0	1
pop. 100'-500'	.211	0	1	.187	0	1	.192	0	1
pop. > 500'	.547	0	1	.558	0	1	.545	0	1
region									
north	.374	0	1	.360	0	1	.322	0	1
south	.415	0	1	.431	0	1	.486	0	1
schooling									
no degree	.297	0	1	.256	0	1	.272	0	1
univ. entr. level	.007	0	1	.008	0	1	.009	0	1
skill group									
unskilled	.473	0	1	.483	0	1	.520	0	1
high-skill	.009	0	1	.015	0	1	.006	0	1

Note: North is Berlin, Schleswig-Holstein, Hamburg, Nierdersachen, Bremen and Nordrhein-Westfalen. South is Baden-Wuerttemberg and Bayern.

Table A4: Modality and proportion for binary variables summarising career expectations and job characteristics(for Germans and foreigners separately)

	mod.	1985		1987		1989	
		Ger.	for.	Ger.	for.	Ger.	for.
No exp. search for new job (+)	4	.770	.799	.738	.804	.651	.823
No exp. change of occup. (+)	4	.821	.954	.769	.822	.778	.860
No exp. exit labour force (+)	4	.833	.867	.779	.868	.778	.898
Variety of tasks (+)	1	.581	.234	.583	.238	.583	.263
No freedom to org.ork (-)	3	.176	.610	.207	.608	.183	.550
Work time not rel. to load (?)	3	.525	.668	.537	.659	.584	.620
No stringent supervision (+)	3	.533	.311	.516	.305	.466	.320
No part.in job-rel. decisions (-)	3	.782	.928	.811	.924	.792	.935

Note: The sign after each item indicates the expected direction of the relationship with the wage premium, under the efficiency wage hypothesis.

Appendix B: Further Regression Results

Table B1: Regressions for initial specification with actual experience and tenure, Germans

	1985		1987		1989	
	OLS	trim 3%	OLS	trim 2%	OLS	trim 2.5%
experience/10	-.042	.024	.160	.126	**.144**	**.132**
	(-.4)	(.3)	(1.8)	(1.8)	**(2.5)**	**(2.2)**
(experience/10)*unskilled	**.852**	**.647**	.120	.256	**.266**	.205
	(3.3)	**(2.6)**	(.5)	(1.1)	**(1.2)**	(1.0)
(experience/10)*high skill	-.042	-.103	.082	-.023	-.095	-.031
	(-.2)	(-.4)	(.4)	(-.1)	(-.7)	(-.2)
(experience/10)* university entrance	.029	-.691	.102	.222	.052	**-.060**
level	(.1)	(-.3)	(.5)	(1.3)	(.3)	**(-.3)**
experience²/100	-.000	-.011	-.032	**-.026**	**-.029**	**-.027**
	(-.0)	(-.7)	(-1.9)	**(-2.0)**	**(-2.7)**	**(-2.5)**
(experience²/100)*unskilled	**-.150**	**-.108**	-.010	-.028	**-.039**	-.025
	(-3.2)	**(-2.4)**	(-.3)	(-.7)	**(-1.0)**	(-.6)
(experience²/100)*high skill	-.000	.005	-.038	-.023	-.014	-.022
	(-.0)	(.1)	(-1.0)	(-.7)	(-.4)	(-.7)
(experience²/100)* university	-.004	.020	-.015	-.033	-.010	.016
entrance level	(-.0)	(.4)	(-.3)	(-.9)	(-.3)	(.4)
tenure/10	**.155**	**.139**	**.057**	**.578**	**.067**	**.067**
	(4.6)	**(4.7)**	**(2.3)**	**(2.2)**	**(2.5)**	**(2.8)**
(tenure/10)*(tenure>15)	**-.128**	**-.127**	-.013	-.019	.024	.021
	(-2.5)	**(-2.9)**	(-.3)	(-.5)	(.6)	(.6)
unskilled	**-1.313**	**-1.15**	-.404	**-.660**	-.510	-.449
	(-3.6)	**(-3.3)**	(-1.3)	**(-2.1)**	(-1.7)	(-1.6)
unskilled*city	.095	.073	.079	.082	-.073	-.071
	(1.5)	(1.2)	(1.4)	(1.5)	(-1.3)	(-1.3)
unskilled*north	.062	.045	.067	.086	.091	.084
	(1.1)	(.7)	(1.1)	(1.5)	(1.6)	(1.6)
unskilled* born before 1938	.070	.006	-.091	.079	-.016	-.047
	(.9)	(.1)	(-1.4)	(-1.1)	(-.2)	(-.6)
high skill	.115	.171	.121	.328	**.350**	.282
	(.4)	(.6)	(.5)	(1.8)	**(2.3)**	(1.5)
high skill*city	.325	.066	.045	.010	.027	.0580
	(.6)	(1.4)	(1.0)	(.2)	(.6)	(1.3)
high skill*north	-.020	-.003	.049	-.007	.014	-.014
	(-.2)	(-.0)	(.7)	(-.1)	(.2)	(-.3)
high skill*south	-.001	.012	.339	-.008	.648	.069
	(-.0)	(.2)	(.5)	(-.1)	(1.2)	(1.3)
high skill*born before 1938	.230	**.273**	.112	.126	.196	.169
	(1.8)	**(2.3)**	(1.0)	(1.1)	(1.4)	(1.4)
high skill*born 1938-1946	.169	**.190**	.100	.112	.152	.148
	(1.8)	**(2.3)**	(1.4)	(1.4)	(1.7)	(2.1)
high skill* university entrance level	.100	.069	-.077	-.038	-.101	-.103
	(.7)	(.6)	(-.8)	(-.4)	(-1.2)	(-1.1)
university entrance level	.116	.219	.175	-.036	.257	**.380**
	(.4)	(.7)	(1.0)	(-.2)	(1.5)	**(2.0)**
constant	**7.910**	**7.837**	**7.799**	**7.842**	**7.854**	**7.870**
R^2	.303	.297	.328	.320	.355	.352

Table B2: Regressions for initial specification with actual experience and tenure, Foreigners

	1985		1987		1989	
	OLS	trim 4.5%	OLS	trim 4.5%	OLS	trim 4.5%
experience/10	.064	.133	.152	**.214**	-.022	-.046
	.(.6)	(1.5)	(1.3)	**(2.5)**	(-1)	(-.4)
(experience/10)*unskilled	.166	.127	.056	-.024	.045	.109
	(1.1)	(.8)	(.3)	(-.2)	(.2)	(.7)
(experience/10)* no degree	-.152	-.073	-.092	-.109	.317	**.494**
	(-.8)	(-.4)	(-.5)	(-.6)	(1.3)	**(2.1)**
experience²/100	-.014	-.029	-.041	**-.052**	-.001	.003
	(-.7)	(-1.6)	(-1.7)	**(-3.0)**	(-.0)	(.2)
(experience²/100)*unskilled	-.016	-.010	.003	.014	-.002	-.014
	(-.6)	(-.3)	(.1)	(.5)	(-.0)	(-.5)
(experience²/100)* no degree	.026	.016	.021	.022	-.041	-.072
	(.8)	(.5)	(.7)	(.7)	(-1.0)	(-1.7)
tenure	.015	.005	.030	.015	.042	.033
	(.5)	(.2)	(.9)	(.5)	(.9)	(1.0)
(tenure/10)*(tenure>15)	.055	.089	.025	.064	-.002	-.007
	(.9)	(1.5)	(.4)	(1.2)	(-.0)	(-.1)
unskilled	-.277	-.228	-.196	-.058	-.189	-.449
	(-1.4)	(-1.2)	(-.9)	(-.3)	(-.8)	(-1.3)
unskilled*north	.006	.002	-.018	-.032	.017	-.012
	(.1)	(.0)	(-.4)	(-.7)	(.4)	(-.3)
unskilled*south	.007	.023	.068	.041	.071	.059
	(.2)	(.5)	(1.6)	(.9)	(1.6)	(1.3)
unskilled*city	**.096**	**.087**	**.078**	**.086**	.156	**.169**
	(2.5)	**(2.5)**	**(2.8)**	**(2.8)**	(4.4)	**(5.3)**
unskilled*born before 1938	**-.194**	**-.174**	**-.097**	-.087	-.107	-.091
	(-2.3)	**(-2.7)**	**(-2.0)**	(-1.4)	(-1.3)	(-1.4)
unskilled* born 1938-1946	**-.160**	**-.157**	**-.095**	**-.112**	-.078	-.089
	(-3.2)	**(-3.2)**	**(-2.5)**	**(-2.3)**	(-1.2)	(-1.8)
no degree	.146	.035	.054	.091	-.382	**-.643**
	(.6)	(.2)	(.2)	(.4)	(-1.2)	**(-2.0)**
no degree*north	-.075	-.073	-.008	.025	**-.133**	-.082
	(-1.5)	(-1.3)	(-.1)	(.4)	**(-2.5)**	(-1.4)
no degree*south	-.016	-.051	-.048	-.010	**-.109**	-.107
	(-.3)	(-.9)	(-.7)	(-.2)	**(-2.0)**	(-1.8)
no degree*city	-.000	.004	.078	.088	.048	.009
	(-.0)	(.1)	(1.8)	(1.9)	(.9)	(.2)
no degree *born before 1938	.045	-.005	-.074	-.090	**-.229**	**-.192**
	(.4)	(-.0)	(-.8)	(1.0)	**(-2.3)**	**(-2.2)**
no degree* born 1938-1946	.088	.057	-.057	-.028	**-.185**	**-.163**
	(1.3)	(.8)	(-.8)	(-.4)	**(-2.2)**	**(-2.3)**
no degree* unskilled	.063	.089	.012	-.026	.047	.053
	(1.4)	(1.9)	(.3)	(-.6)	(.9)	(1.1)
constant	**7.816**	**7.749**	**7.831**	**7.767**	**8.050**	**8.090**
R^2	.065	.060	.098	.090	.165	.156

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