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Getting behind the East-West Wage Differential: Theory and Evidence[1]

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Abstract

Labor markets are the most important mediator of German unification and wages are a central indicator of its progress. Starting from the observation that a wage differential between two workers can arise either because workers have different endowments of human capital characteristics or remuneration to these characteristics differ, we apply an Oaxaca-style decomposition to the post-unification waves of the GSOEP to analyze the extent and causes of the East-West German wage differential. We derive an empirical specification allowing us to assess directly whether (i) the initial wage disadvantage of East German workers is increasing in "age at unification" and (ii) subsequent wage growth is increasing in the time remaining in the labor force. Furthermore, we derive and estimate a measure of East-West wage convergence that accounts for both differences in human capital endowments and interference generated by the aging process.

JEL classification: J31, J61.

Key words: German unification, wage differentials, convergence.

1 Introduction and Motivation

Labor markets are the most important mediator of east-west German integration and wages are a central indicator of its progress. Despite an initial surge of more than 100% immediately following unification, aggregate wages in Eastern Germany have stabilized by mid-1996 at about three-quarters of average western levels, leading

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many analysts to question optimistic predictions of early convergence. At the same time, it is well-known that aggregate wage data yields little information on the sources of differences in remuneration.[2] Not only do effective hourly wages deviate significantly from contractual wages, but industrial, occupational and demographic composition of employment may also differ between the two regions. **Table 1** shows that convergence has been uneven: in regions such as Berlin, wages have converged rapidly, while average wages in other Eastern German regions evidence a large, persistent wage gap with respect to the West. Within-West German differences, while much smaller, also exist and seem to persist over time.

Table 1: Wages in Eastern and Western Germany

	1991	1992	1993	1994	1995
Gross hourly earnings in industry (DM/hour)					
Eastern Germany	10,45	13,42	15,57	16,95	18,23
East-Berlin	11,59	15,05	17,57	19,38	21,19
Sachsen	10,35	13,19	15,08	16,53	17,78
Thüringen	9,96	12,82	14,98	16,15	17,18
Western Germany	21,45	22,66	23,93	24,66	25,57
West-Berlin	21,20	22,66	24,27	24,97	25,98
Bayern	20,26	21,39	22,70	23,32	24,23
Schleswig-Holstein	20,79	21,94	23,16	24,02	24,99
Gross hourly earnings, full- time male workers (DM/hour)					
Eastern Germany	9.80	12.05	14.29	–	–
Western Germany	21.76	23.36	24.74	–	–
Ratio East:West	0.450	0.516	0.578	–	–
Gross monthly earnings (DM), all workers					
Eastern Germany	1593	2239	2676	2834	3029
Western Germany	3599	3737	3865	3916	4052
Ratio East:West	0.443	0.599	0.692	0.724	0.748

Sources: Statistisches Jahrbuch (1992-1996); average gross hourly wages of male and female wage and salary earners in industry; DIW Wochenbericht 8/96; GSOEP and authors' calculations. Gross hourly earnings for fulltime male workers exclude agriculture and fishing.

In this paper, we evaluate the wage convergence issue at the microeconomic level. Starting from the observation that a wage differential between two workers can arise either because (i) workers have different endowments of human capital characteristics or (ii) because the remuneration to these characteristics differ, we use the post-unification waves of the German Socioeconomic Panel (GSOEP) to construct such a decomposition. In the empirical implementation, we take the perspective that East German workers face a situation similar to that depicted in the immigrant assimilation literature. Albeit not the result of a physical move, East German

[2] For an extensive discussion of these problems see BILS (1985) and SOLON, BARSKY AND PARKER (1994).

workers in 1990 "arrived" in a completely new environment which devalued much of their previous individual human capital. The migration literature suggests that in such situations, workers generally accumulate human capital over and above the productivity dynamics typically arising over a worker's life cycle, and tend to catch up subsequently. The empirical specification we propose allows us to assess directly whether (i) the initial wage disadvantage of East German workers is increasing in "age at unification" and (ii) subsequent wage growth is increasing in the time remaining in the labor force. Furthermore, we derive and estimate a measure of East-West wage convergence that accounts for both differences in human capital endowments, and the interference generated by the aging process.

The paper is organized as follows. Section 2 summarizes previous research on East German wages and draws some analogies to the migration literature. Section 3 develops the empirical framework. Data and results are presented and discussed in Section 4. Section 5 offers some tentative extensions and concludes.

2 East German Wages after Unification

Background and Previous Studies

Even before the first state treaty on economic and monetary union was signed in May 1990, real wages in Eastern Germany had begun to rise at rates rarely seen in modern economic history. Most attribute this "wage explosion" to the activities of West German unions, which anticipated the potential for expansion of their membership base and launched massive organization drives in the ex-GDR.[3] By early 1991, their activities led to the wage increases shown in Table 1; in one famous pilot contract involving metalworkers, full wage parity was promised by 1995. These wage increases are often blamed for the unemployment which followed; this unemployment has since been associated with a dramatic decline in membership rates and an acknowledged failure to achieve rapid wage convergence.[4]

Because it offers a unique opportunity to test theories of wage determination, the unification of Germany has stimulated a modest literature. Most work on wages in Eastern Germany has focused on remuneration to human capital attributes and the consequences of unification on the Eastern German wage structure.[5] In one of the earliest and most comprehensive papers on the subject, KRUEGER AND PISCHKE

[3]This activity was reported by AKERLOF ET AL. (1991); for theoretical discussion of the union drive and some evidence on its success see BURDA AND FUNKE (1995, 1996).

[4]It should be stressed that these wage measures are negotiated, not effective wages: several sources of deviations account for a much greater disparity in actual remuneration than that observed in contractal pay. For example, Eastern Germans work more hours than Westerners do (in the GSOEP in 1993, 42.8 hours per week in the West; 45.9 hours in the East!); Easterners earn less vacation pay and fewer receive annual bonuses (thirteenth month, etc.).

[5]Some researchers have looked at returns to schooling and other attributes before unification. SCHWARZE (1992) found that preunification returns to schooling in the GDR and Federal Republic were similar although a smaller percentage of overall variation of GDR wages could be explained by a traditional earnings equation.

(1992) examined wages in a large cross section of households in the German Democratic Republic taken under the communist regime. Although the sample was not fully representative of the overall population, their results show (1) less wage inequality in the East before unification 2) an increase in dispersion afterwards. They also find that East Germans working in the West earn similar payoffs to their characteristics with the major exception of work experience.

GEIB ET AL. (1992) and BIRD, SCHWARZE, AND WAGNER (1994) confirm Krueger and Pischke's findings that experience accumulated under the old system was poorly remunerated afterwards. Similar evidence has been provided for other economies in transition.[6] To date, however, few if any researchers have focused on quantitatively attributing the East-West German wage gap to these factors. Moreover, it remains to be investigated how not only the discounting of old-system work experience, but also the relative post-unification wage dynamics have varied across different age groups.

Lessons from the Literature on Migration and Assimilation

In essence, Eastern German workers faced exactly the situation depicted in the literature on immigrant assimilation.[7] Migrants usually experience an abrupt loss in productive capacity but are given an opportunity to pick up new environment-specific skills. In 1990, East German workers "arrived" in a completely new environment, albeit neither voluntarily nor as the result of a physical move. In consequence, much of their individual human capital was rendered unproductive at the time of unification. In particular, the devaluation of education and work experience acquired under the old regime implied a post-unification wage structure dramatically different from that prevailing before.

The migration literature yields a number of testable predictions besides lower overall average wages in the East due to overall human capital losses. First, across-the-board depreciation of human capital should induce flatter age-earnings profiles in the East at the outset of unification. Second, the migration literature predicts that workers will accumulate environment-specific human capital over time which exceeds normal evolution of productivity arising over a worker's life cycle, either as a matter of simple learning-by-doing or by active investment.

[6] BLANCHFLOWER AND FREEMAN (1994) who assess wage determination in several transition economies. For work on specific countries see CHASE (1995) for the Czech Republic and Slovakia, and ORAZEM AND VODOPICEK (1995) for Slovenia.

[7] The migration decision is an investment in human capital, as most of its returns - increased wage earnings - accrue over time while the initial decision entails costs. Besides direct moving expenses and the opportunity cost of initially reduced earnings, workers may forego their full current earnings potential during the first years after the move to increase overall life-time earnings. As a result of these additional investments, the wage gap between immigrants and incumbent workers tends to close over time (CHISWICK, 1978). While the preoccupation in the recent migration literature has been with properly controlling for systematic differences in the unobserved "quality" of immigrants arriving at different points in United States history (BORJAS, 1985), East Germans unequivocally entered the Western-type labor market at the same time. Thus, the focus here should be on differences in "age at immigration" and its impact on initial disadvantage and relative growth of wages.

Expressed in terms of wages, migrants experience a disadvantage in their earnings potential when arriving in their new environment, compared to demographically identical natives, and then tend to catch up subsequently. The initial wage disadvantage should be increasing in "age at migration", since at unification, older workers' experience involves a large old-system component. This differential will disappear over time, however, as West and East grow together, and younger workers in both regions start on equal footing. We would also predict the subsequent wage growth to increase in the time until retirement, since incentives for investment will be higher for younger workers. Since, in particular, "years since migration" are identical for all Eastern German workers, differences in their relative wages directly identify effects of age at immigration.

3 Empirical Strategy and Formal Framework

Preliminaries and the Oaxaca-Blinder Decomposition

Beginning with the work of Mincer, wages have been successfully modeled as an inner product of a vector of human capital attributes, such as education, experience, and job tenure with a corresponding vector of hedonic prices for these attributes. In analyzing wage differences between workers in a common environment, it has become customary to follow OAXACA'S (1973) and BLINDER'S (1973) decomposition into components due to differences in endowments ("productivity differences") and differences in remuneration of those characteristics. The latter is often interpreted as a measure of discrimination, an interpretation that presumes that productivity differences are measured perfectly by the included regressors. Alternatively, differences in remuneration might be interpreted as the result of distinct productivity levels associated with the same realization of the measured characteristics (not the same realization of the theoretical construct "productivity component") for the two groups under study. This is the perspective taken in the migration literature, and we propose to follow this view in the comparison of East and West German wages.

Implicit in the discussion is a model of individual wage determination with origins in human capital theory; for each worker one postulates

$$y = \sum_k \alpha_k W_k + u \tag{1}$$

where y is the log hourly wage, and W_k are observable characteristics ("endowments", "productivity"), α_k are parameters ("returns", "remuneration", "prices") and u is a random disturbance ("unobservables"), with $\mathbf{E}u = 0, \mathbf{E}u^2 = \sigma^2$, and $\mathrm{E}W_k u = 0$ or $\mathrm{plim}_{N\to\infty}(W_k u/N) = 0$. This model holds, in particular, for the average (perhaps hypothetical) individual in the sample, $\bar{y} = \sum_k \alpha_k \bar{W}_k$, representing, say, the typical West German worker. If one postulates the same general model to hold for another group of workers, East German workers, say, with average characteristics $\tilde{W}_k$ and with parameter values $\tilde{\alpha}_k$, we have for the average worker in this group $\tilde{y} = \sum_k \tilde{\alpha}_k \tilde{W}_k$.

Next, obtain ordinary least squares estimates a_k and $\tilde{a}_k$ of α_k and $\tilde{\alpha}_k$, respectively. Now write the observed *average* East-West log wage ratio $\tilde{y} - \bar{y}$ as

$$\begin{aligned} \tilde{y} - \bar{y} &= \sum_k \tilde{a}_k \tilde{W}_k - \sum_k a_k \bar{W}_k \\ &= \underbrace{\sum_k (\tilde{W}_k - \bar{W}_k) a_k}_{\substack{\text{"endowment"} \\ \text{"quantities"}}} + \underbrace{\sum_k \tilde{W}_k (\tilde{a}_k - a_k)}_{\substack{\text{"discrimination"} \\ \text{"prices"}}} \end{aligned} \tag{2}$$

This is the famous Oaxaca-Blinder decomposition which we implement below.

Econometric Implementation

We now let superscripts E and W denote variables and coefficients characterizing workers in East and West Germany, respectively. Individual subscripts are suppressed where possible for notational simplicity. The dependent variable is the natural logarithm of gross hourly earnings in year t, denoted by y_t. A number of independent covariates will comprise W. To illustrate our decomposition, we first consider only age to account for earnings differences. We assign workers to 16 different age groups Z_{jt}, where $j = 1, ..., 16$ and $j = 1$ refers to age bracket 18 to 20, $j = 2$ to age 21 to 23, and so forth (the groupings are presented in Table A1 for convenience). The last age bracket, $j = 16$, is age 63 to 65. Specifically, a generic worker in the East in any year $t = 90, 91, 92, 93$ earns

$$y_t^E = \delta_t^E + \sum_{j=1}^{16} \gamma_{jt}^E Z_{jt} + u_t^E, \tag{3}$$

whereas a generic worker in the West earns

$$y_t^W = \delta_t^W + \sum_{j=1}^{16} \gamma_{jt}^W Z_{jt} + u_t^W, \tag{4}$$

The linear restrictions $\sum_{j=1}^{16} \gamma_{jt}^E \bar{Z}_{jt}^E = 0$ and $\sum_{j=1}^{16} \gamma_{jt}^W \bar{Z}_{jt}^W = 0$ will be imposed on the coefficients of these earnings regressions, where $\bar{Z}_{jt}^E$ and $\bar{Z}_{jt}^W$ are the fractions of workers in age group j at time t in the East and in the West, respectively (and thus $\sum_{j=1}^{16} \bar{Z}_{jt}^E = \sum_{j=1}^{16} \bar{Z}_{jt}^W = 1$). Thus, δ_t^E and δ_t^W measure the average wages over the population of workers in East and West, respectively, while γ_{jt}^E and γ_{jt}^W give the deviation of wages in age group j from the contemporaneous East or West average (for an implementation of this specification see HAISKEN-DE NEW AND SCHMIDT, 1997). A plot of the figures $\delta_t^E + \gamma_{jt}^E$ and $\delta_t^W + \gamma_{jt}^W$ for a given t yields age-wage profiles in each region (with appropriate standard error bands). For each individual age bracket, we can therefore express the *contemporaneous wage difference* between typical workers in age group j as the difference between their regional averages and their within group deviations:

$$\Delta_{jt}^{E,W} = \delta_t^E + \gamma_{jt}^E - (\delta_t^W + \gamma_{jt}^W) \tag{5}$$

It is possible to plot this corresponding profile for the relevant j with standard errors that are functions of the covariance matrix of the underlying regression coefficient estimates.

The next step is to perform the Oaxaca-Blinder decomposition described in the previous section. Define $\bar{y}_t(E,E) = \delta_t^E$ as the predicted average wage obtained by applying Eastern returns to average Eastern characteristics, and $\bar{y}_t(W,W) = \delta_t^W$ as the average wage predicted by applying Western returns to average Western characteristics. Define respectively $\bar{y}_t(E,W) = \delta_t^E + \sum_{j=1}^{16} \gamma_{jt}^E \bar{Z}_{jt}^W$ and $\bar{y}_t(W,E) = \delta_t^W + \sum_{j=1}^{16} \gamma_{jt}^W \bar{Z}_{jt}^E$ as the average wage predicted by applying one region's estimated returns to the average characteristics of the other. Taking Western coefficients as the benchmark, one can decompose the difference in average Eastern and Western earnings into a component due to accumulated differences in remuneration within age groups and a component due to differences in age composition,

$$\Delta_t^{E,W} = \delta_t^E - \delta_t^W = (\bar{y}_t(E,E) - \bar{y}_t(W,E)) + (\bar{y}_t(W,E) - \bar{y}_t(W,W)). \tag{6}$$

That is, the first difference on the right-hand side of the equation demonstrates how an identical demographic composition would lead to different region averages, while the second difference accounts for the fact that the work force in the two regions displays a distinct age structure. Again, appropriate standard errors of these different components can be derived as functions of the variances of the regression coefficients.

The Impact of Other Explanatory Variables

East-West German wage differences are not only consequences of age composition and differing remuneration of work experience acquired before unification, but also of systematic differences in endowments and remuneration of other worker attributes, including human capital, occupation and industry affiliation, and other characteristics. Define X_{it} as the vector of the worker's attributes at time t, and denote the conformable list of returns on these attributes as β. An augmented specification would express individual wage earnings as

$$y_t^E = \delta_t^E + \sum_{i=1}^{I} \beta_{it}^E X_{it} + \sum_{j=1}^{16} \gamma_{jt}^E Z_{jt} + u_t^E, \tag{7}$$

for East Germany, and

$$y_t^W = \delta_t^W + \sum_{i=1}^{I} \beta_{it}^W X_{it} + \sum_{j=1}^{16} \gamma_{jt}^W Z_{jt} + u_t^W, \tag{8}$$

for the West. It is possible to formulate the augmented Eastern and Western wage regressions in an identical fashion, since schooling and job preparation in both parts of the country followed a similar albeit not identical structure. Our analysis includes in the vector X_t as additional explanatory variables indicators for schooling $i = 1, ..., 4$, and job training $i = 5, ..., 8$. Using the appropriate region averages of these characteristics as weights, each set of coefficients is linearly restricted to express deviations from the region average. For instance, for schooling, $\sum_{i=1}^{4} \beta_{it}^{E} \bar{X}_{it}^{E} = 0$ and $\sum_{i=1}^{4} \beta_{it}^{W} \bar{X}_{it}^{W} = 0$, where $\bar{X}_{it}^{E}$ and $\bar{X}_{it}^{W}$ are the fractions of workers in age group i at time t in the East and in the West, respectively.

In this augmented specification, the coefficients δ_t^E and δ_t^W still represent the average wages over the population of workers in the East and in the West, respectively, while individual coefficients γ_{jt}^E and γ_{jt}^W measure average deviation of wages in age group j from the contemporaneous region average, holding the other explanatory characteristics fixed at the region average. The basic decomposition (6) of the average East-West German wage difference into components due to differences in characteristics and due to distinct remuneration of these characteristics can be applied in a similar fashion.

Wage Convergence

A central objective of our investigation is to assess the pattern of convergence of Eastern and Western wages. Here, we are particularly interested in the intertemporal development of the relative wages of different age groups. As the two regions grow together, so should age-earnings profiles, albeit at different rates for workers who were in distinct age groups at the time of unification. For each age group j at time $t + \tau$, a measure of the convergence experienced over the past τ periods of time can be defined as

$$\begin{aligned} \Delta_j^{E,W}(t+\tau, t) &= \Delta_{j,t+\tau}^{E,W} - \Delta_{j,t}^{E,W} \\ &= (\delta_{t+\tau}^E + \gamma_{j,t+\tau}^E) - (\delta_{t+\tau}^W + \gamma_{j,t+\tau}^W) - \\ &\quad -[(\delta_t^E + \gamma_{j,t}^E) - (\delta_t^W + \gamma_{j,t}^W)]. \end{aligned} \quad (9)$$

which can be plotted over time (with appropriate standard error bands). Aggregate wage convergence is measured correspondingly as

$$\Delta^{E,W}(t+\tau, t) = \Delta_{t+\tau}^{E,W} - \Delta_t^{E,W} = (\delta_{t+\tau}^E - \delta_{t+\tau}^W) - (\delta_t^E - \delta_t^W). \quad (10)$$

Both convergence measures are potentially contaminated by demographic effects, however. First, relative wage growth within single age cells is weighted differently in the East and the West. Therefore, we hold age composition fixed at Eastern levels and express aggregate relative wage growth as

$$\tilde{\Delta}^{E,W}(t+\tau, t) = \sum_j \left(\Delta_{j,t+\tau}^{E,W} - \Delta_{j,t}^{E,W}\right) \bar{Z}_{j,t}^E. \quad (11)$$

Second, letting $\tau = 3$ years, it is likely that workers in age group j at $t = 90$ experienced a larger loss in pre-unification human capital than those younger cohorts who are in the same age group at $t = 93$. Thus, a shrinking East-West difference for workers in age bracket j, i.e. $\Delta^{E,W}_{j,90+\tau} - \Delta^{E,W}_{j,90} > 0$ might result either from genuine convergence, or the effect of younger birth cohorts entering age bracket j, or both.

This suggests an additional perspective for studying East-West German age-wage profiles over time not yet considered in the literature.[8] Specifically, we propose decomposing the difference in the relative wage growth in age bracket j into a component due to different East German birth cohorts experiencing a different relative starting position, $\Delta^{E,W}_{j-1,90} - \Delta^{E,W}_{j,90}$, and a component due to genuine wage convergence for workers in a given birth cohort, $\Delta^{E,W}_{j,90+\tau} - \Delta^{E,W}_{j-1,90}$. Thus, for each age group j

$$\begin{aligned} \Delta^{E,W}_{j}(90+\tau,90) &= \Delta^{E,W}_{j,90+\tau} - \Delta^{E,W}_{j,90} \\ &= \left(\Delta^{E,W}_{j,90+\tau} - \Delta^{E,W}_{j-1,90}\right) + \\ &\quad + \left(\Delta^{E,W}_{j-1,90} - \Delta^{E,W}_{j,90}\right) \end{aligned} \tag{12}$$

Standard errors can again be calculated straightforwardly from the variance-covariance matrix of the original regression coefficient estimates. Note that due to the formulation of three-year age brackets, this decomposition will specifically apply to the choice of τ as a multiple of three, for instance in a comparison of 1990 and 1993.

In the aggregate, measured wage convergence as expressed in $\tilde{\Delta}^{E,W}(90+\tau, 90) > 0$ might overstate genuine convergence by allowing young East German birth cohorts who suffered lower declines in productivity upon unification to replace older cohorts who presumably experienced more dramatic losses. Thus, in order to measure "true" wage convergence, we propose a composition-adjusted measure

$$\hat{\Delta}^{E,W}(t+\tau, t) = \sum_{j=2}^{16} \left(\Delta^{E,W}_{j,t+\tau} - \Delta^{E,W}_{j-1,t}\right) \hat{Z}^{E}_{j-1,t}. \tag{13}$$

where the $\hat{Z}^{E}_{j,t}$ are the relative shares of age groups 1 to 15 in the East German work force.

4 Data, Empirical Results and Discussion

The Data

The dataset employed in the analysis are individuals surveyed in the 1990-1993 waves of the German Socioeconomic Panel (Soziooekonomisches Panel, DIW Berlin) sampled in both Eastern and Western Germany. We consider only self-reported full-time employed men aged 18 to 64 who are not in agriculture or fishing and are not self-employed. In this paper, residents of West Berlin are treated as Westerners for

[8] For a related application of this idea see BORJAS (1985).

estimation purposes[9]. For a variety of reasons, we conduct our analysis on gross hourly earnings computed from self-reported gross monthly wages divided by 4.3, divided by self-reported normal weekly hours. The complete set of variables is shown in **Table A1** in Appendix A; a definition of age cells and birth cohorts can be found in **Table A2**.

Tying Down the Western Profile

To provide a benchmark for comparison, we initially set out to estimate wage profiles across age for West Germany for each of the years 1990 to 1993. In these estimations, we had to compromise between imposing tight restrictions to improve upon the precision of the estimates and allowing for appropriate flexibility of functional form and intertemporal changes.

In a first set of regressions, we estimated wage equations separately on the Western sample for each year 1990 to 1993, controlling for age only or for age and formal education. Here age proxies for a number of factors, including general human capital, as well as firm- and industry-specific capital to the extent that they, too, are correlated with age in the sample. The results from the baseline regression on age indicators should be thought of as unconditional estimates of the age-earnings profile. Instead of the usual quadratic profile in age or work experience, we allow for a more general shape of the wage profile across the life-cycle and estimate separate coefficients for each of the 16 age groups. We also control for differential endowments of formal human capital across age groups by including two sets of indicators of formal education, one for schooling, another one for job training.

The estimation results indicate a remarkably stable age-wage profile over time, irrespective of whether the set of additional controls is used or not. Thus, in a second set of regressions, we pooled the observations of all years 1990 to 1993 and estimated a restricted model postulating identical returns to increasing age for each of the calendar years; in this restricted specification, all intertemporal changes are captured by separate constants for each of the survey waves. These regressions are reported in **Table B1** in the Appendix. Despite the magnitude of the shock, unification seems to have had little immediate effect on the western German wage structure. On the basis of an F-test, we did not reject this restricted specification in the regression controlling for age only ($F = 1.02983$, p-value $= 0.41673$). Similarly, when we controlled for schooling and job training, and under the maintained hypothesis of time-constant returns to formal education, we did not reject the restricted specification ($F=0.86166$, p-value$=0.77418$).

The results of the restricted specification are reported in **Table 2** for the year 1990. Here, in contrast to Table B1, individual coefficients express the logarithmic differences of hourly earnings for the typical worker in a given age group from the hourly earnings of a (hypothetical) average worker; they are reported together with their exact standard errors (see HAISKEN-DENEW AND SCHMIDT, 1997). The results for other years combine a different annual grand average with the same age

[9] In future work we plan to allow for an explicit interaction which recognizes that Berlin is now more or less a single labor market with substantial mobility.

(and education) coefficients; the weights for each coefficient in the calculation of the hypothetical mean wage fluctuate slightly from year to year, though, leading to modest vertical shifts of the complete profile.[10]

Table 2: Western Age-Wage Profiles, GSOEP 1990. With and Without Human Capital Controls, Restricted, Re-normalized Coefficients (Pooled).

	No Human Cap. Con.		With Human Cap. Con.	
category	b	t-value	b	t-value
constant	3.0051	46.0512	2.9498	39.5479
z1	-0.4567	-12.1536	-0.3744	-11.0534
z2	-0.3404	-17.4723	-0.2752	-15.5150
z3	-0.2469	-17.2963	-0.2062	-15.8891
z4	-0.1582	-13.1986	-0.1540	-14.2938
z5	-0.0704	-5.6643	-0.0784	-6.9400
z6	0.0127	1.0091	-0.0160	-1.4099
z7	0.0389	2.8612	0.0032	0.2584
z8	0.0793	5.5945	0.0655	5.1641
z9	0.1087	7.9693	0.0979	7.9988
z10	0.1088	6.6719	0.0992	6.8238
z11	0.1769	11.7059	0.1552	11.4700
z12	0.1342	10.3902	0.1342	11.5879
z13	0.0510	3.2537	0.0787	5.5391
z14	0.0718	3.7871	0.0858	5.0191
z15	0.0545	2.0481	0.0747	3.1235
z16	0.0686	1.3606	0.0878	1.9484
x1	-	-	-0.0349	-1.3543
x2	-	-	-0.0569	-14.6938
x3	-	-	0.0537	7.5139
x4	-	-	0.1113	10.4812
x5	-	-	-0.1372	-12.6049
x6	-	-	-0.0268	-9.8609
x7	-	-	0.2118	14.6254
x8	-	-	0.2327	13.4524
	Weighted Adj. Std. Dev. of Coeff.s: 0.14578		Weighted Adj. Std. Dev. of Coeff.s: 0.12909; 0.07013; 0.09901	

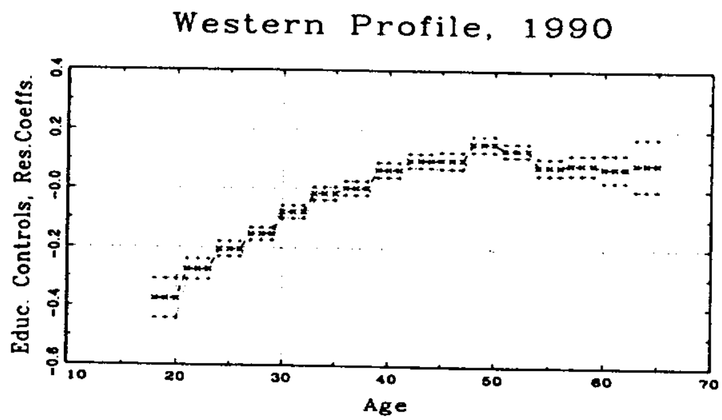
In 1990, West German workers in their early 30s received average hourly earnings. Youngest workers experienced by far the lowest earnings (a logarithmic difference of -0.46 to the average worker); hourly earnings rise continuously across age groups until reaching a peak at the end of the 40s, lying more than 17% above the average. Beyond the early 50s, workers experience only minor wage advantages of between

[10]The complete set of estimates and corresponding plots can be found in the detailed Appendix (available upon request).

5% and 7% over the typical worker. Local peaks in the estimated profile for workers between 57 and 59 yearas and between 63 and 65 years indicate the potential presence of selection phenomena due to early retirement regulations.

Adding human capital controls does not change the age profile very much. While the magnitude of the individual differentials and, thus, the summary measure of their overall variability, the weighted adjusted (to account for the accumulation of LS sampling error) standard deviation, falls slightly (from approximately 15% to approximately 13%), the general shape of the wage profile is retained. This estimated profile is plotted, also for the year 1990, in **Figure 1**, together with appropriate (two) standard error bands. This figure emphasizes that the Western benchmark profile is estimated with considerable precision and that its shape is similar, but not identical to the tighter parametrizations typically used in the literature.

Figure 1: Western Age-Wage Profile, GSOEP 1990-93. Including Schooling and Training Controls. Restricted, Re-normalized Coefficients.



In addition to age and work experience, formal education is a substantial factor in the heterogeneity of individual West German wages. In addition to the age coefficients, Table 1 reports separate sets of coefficients for the four indicators of formal schooling and for the four indicators for formal job training. These coefficients again express logarithmic differences between the hourly earnings of typical workers a given formal education bracket and the hourly earnings of a hypothetical average worker. Workers without a formal schooling degree earn approximately 4% less than an average worker, the earnings disadvantage of workers who graduated from a *Hauptschule* even exceeds 5%. In contrast, workers with a medium school degree earn 5% above average, those with *Abitur* even more than 10% (The weighted adjusted standard deviation of the schooling coefficients is approximately 7%).

Similarly, workers without any formal training display an earnings disadvantage compared to the typical worker of almost 14%, whereas workers with formal job training receive higher hourly earnings; workers with vocational training earn only approximately 3% less, those with training at a technical college or a university even over 20% more than the average worker. Finally, combining vocational training with further education at a college or unversity yields an additional advantage over university training of approximately two percentage points. The weighted adjusted standard deviation of the job training coefficients is approximately 10%). We cautiously interpret these results as a benchmark long-run wage structure against which the East German wage structure will converge over time.

Eastern Age-Earnings Profiles

This stable Western structure of hourly pay was contrasted with that in the Eastern part of the country, both at the time of German unification and for the subsequent years. Instead of imposing a stable structure of Eastern wages across years, we deliberately estimated analogous hourly earnings equations for Eastern German men separately on each GSOEP survey wave from 1990 to 1993. The intertemporal flexibility of the estimated Eastern wage structure then allows us to characterize contemporaneous East-West differences as well as their evolution over time in a meaningful way.

The Eastern wage structure in 1990, the year of German unification, is characterized in the first part of **Table 3**. Regression controls only include indicators for age, but no other regressors. Here, as in Table 2, individual coefficients express the logarithmic differences of hourly earnings for the typical worker in a given age group from the hourly earnings of a (hypothetical) average worker. In contrast to the distinctly hump-shaped Western age-wage profile, many segments of the estimated Eastern profile are not significantly different from zero. The youngest workers receive relatively low wage earnings, a disadvantage as compared to the average Eastern worker of approximately 12%. The estimated wage profile is completely flat beyond the age of 23, however, with a minor exception for workers at the end of their 30s.

In the socialist pre-unification regime such flat age-earnings profiles reflect the well-known egalitarian aims of central planning, in later years the wage compression of the previous economic system will at least partially give way to a revelation of productivity differences and of the way human capital is depreciated across cohorts (and, like in the West, of the distortionary forces characterizing most market economies, such as union-backed minimum wages). The second part of Table 3 characterizes the age structure of hourly earnings for 1993. While in the initial year of unification, estimation error around the flat profile is small, after three years the wage structure has become visibly steeper and less precisely estimated. The weighted adjusted standard deviation of age coefficients has increased from approximately 3% to almost 7%. Remarkably, the greatest increase in imprecision occurs in the two ends of the profile: for the employed young people and seasoned workers nearing retirement. It is tempting to link this finding to convergent initial conditions for labor market entrants in the former case; for the latter, to a radical selection process that has occurred due to generous early retirement programs offered until 1993.[11]

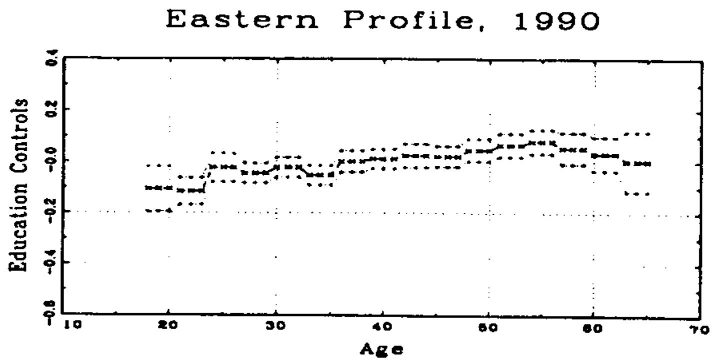
[11] See the EC's Employment Observatory Report on Eastern Germany (1994).

Table 3: Eastern Age-Wage Profiles, GSOEP 1990 & 1993. No Human Capital Controls, Unrestricted, Re-normalized Coefficients.

	East 1990		East 1993	
category	b	t-value	b	t-value
constant	1.9650	293.5223	2.6597	231.4320
z1	-0.1225	-2.5231	-0.1796	-1.0267
z2	-0.1228	-4.2741	-0.1074	-2.1791
z3	-0.0378	-1.2297	-0.1678	-4.0980
z4	-0.0330	-1.5974	-0.0166	-0.4303
z5	-0.0103	-0.4853	0.0251	0.7654
z6	-0.0260	-1.2643	-0.0089	-0.2493
z7	0.0245	1.0506	-0.0072	-0.2173
z8	0.0390	1.8766	0.0317	0.8054
z9	0.0240	0.9438	0.0299	0.8404
z10	0.0210	0.9373	0.0077	0.1944
z11	0.0278	1.1702	0.1244	3.2506
z12	0.0410	1.6367	-0.0296	-0.6944
z13	0.0337	1.3138	-0.0257	-0.5323
z14	0.0310	0.9108	0.3657	3.7868
z15	0.0077	0.2142	0.1254	0.9500
z16	-0.0257	-0.3987	-0.0427	-0.1726
	Weighted Adj. Std. Dev. of Coeff.s: 0.03428		Weighted Adj. Std. Dev. of Coeff.s: 0.06667	

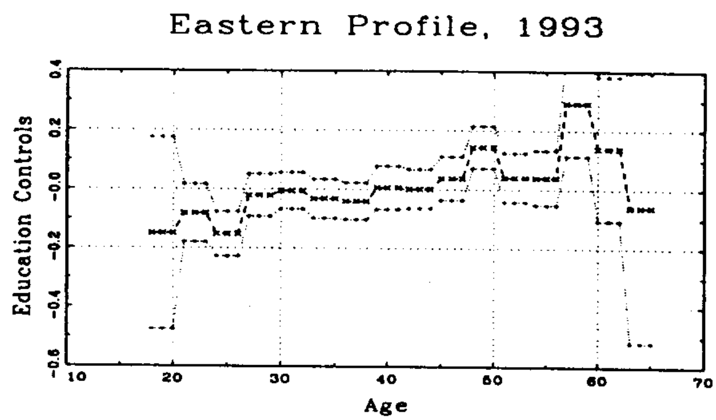
The pattern of relatively flat wage profiles which are becoming steeper over time is robust to the introduction of additional controls for formal education. **Table 4** reports estimated age-wage profiles for East Germany when indicators of schooling and job training are included into the regression. In the regression for 1990, while the wage disadvantage of the very young becomes slightly less accentuated in the augmented specification, many of the estimated age coefficients become more pronounced, and the summary measure of their overall variability rises to over 4%. This profile is plotted in **Figure 2**; this profile is slightly steeper than without education controls. That is, older East German workers generally possess fewer formal skills than younger workers.

Figure 2: Eastern Age-Wage Profile, GSOEP 1990. Including Schooling and Training Controls. Unrestricted, Re-normalized Coefficients.



The estimated age-earnings profile for 1993 is plotted in **Figure 3**; it is very similar to the profile arising from the regression without education controls.

Figure 3: Eastern Age-Wage Profile, GSOEP 1993. Including Schooling and Training Controls. Unrestricted, Re-normalized Coefficients.



In contrast to age, differences in education had considerable consequences for the wages of East German workers already at the time of German unification. In addition to the age coefficients, Table 4 reports separate sets of coefficients for the four indicators of formal schooling and for the four indicators for formal job training. These coefficients again express logarithmic differences between the hourly earnings of typical workers a given formal education bracket and the hourly earnings of a hypothetical average worker. Workers who graduated from a *Hauptschule* earn approximately 8% less than an average worker, whereas workers with a medium school degree earn 2% above average, those with *Abitur* even more than 6%. These returns to schooling were similar to but not as pronounced as those in the West (The weighted adjusted standard deviation of the schooling coefficients is approximately

5% as compared with the Western figure of 7%). By 1993, these differences have become even more accentuated than in the West, with a weighted adjusted standard deviation of almost 8%.

Table 4: Eastern Age-Wage Profiles, GSOEP 1990 & 1993. Including Schooling and Training Controls, Unrestricted, Re-normalized Coefficients.

	East 1990		East 1993	
category	b	t-value	b	t-value
constant	1.9654	318.5264	2.6584	244.7636
z1	-0.1070	-2.3725	-0.1508	-0.9085
z2	-0.1161	-4.3350	-0.0813	-1.6199
z3	-0.0232	-0.8143	-0.1529	-3.9240
z4	-0.0449	-2.2854	-0.0203	-0.5543
z5	-0.0220	-1.1096	-0.0054	-0.1709
z6	-0.0533	-2.7559	-0.0321	-0.9505
z7	0.0011	0.0509	-0.0403	-1.2698
z8	0.0111	0.5721	0.0055	0.1468
z9	0.0240	1.0177	0.0016	0.0484
z10	0.0209	1.0078	0.0379	1.0146
z11	0.0457	2.0341	0.1435	3.9371
z12	0.0656	2.8046	0.0408	0.9657
z13	0.0801	3.3158	0.0401	0.8504
z14	0.0534	1.6918	0.2916	3.1964
z15	0.0322	0.9571	0.1387	1.1126
z16	0.0016	0.0264	-0.0606	-0.2592
x1	0.4012	1.8882	0.0882	0.3561
x2	-0.0769	-6.7220	-0.1341	-5.8892
x3	0.0188	2.4559	0.0194	1.5780
x4	0.0625	3.3459	0.1056	2.9288
x5	-0.1445	-3.3229	-0.1223	-1.5265
x6	-0.0176	-4.4041	-0.0218	-3.0100
x7	0.1333	4.5677	0.2226	4.0810
x8	0.1226	4.2802	0.0886	1.7336
	Weighted Adjusted Standard Deviation of Coefficients:			
	0.04394;0.051167;0.05317		0.06342; 0.07713; 0.06322	

In 1990, workers without any formal training displayed an earnings disadvantage compared to the typical worker of more than 14%, workers with vocational training earned only approximately 2% less, those with training at a technical college or a university over 13% more than the average worker. These differences are also reminiscent of the Western differences, albeit not as pronounced. By contrast to the West, though, combining vocational training with further education at a college or unversity did not yield any additional advantage over university training. The weighted adjusted standard deviation of the job training coefficients was approximately 5% (as compared to 10% in the West). The return to university training has increased over time. By 1993, it was comparable to the Western return (and the weighted adjusted standard deviation of training coefficients was more than 6%).

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In 1990, workers without any formal training displayed an earnings disadvantage compared to the typical worker of more than 14%, workers with vocational training earned only approximately 2% less, those with training at a technical college or a university over 13% more than the average worker. These differences are reminiscent of, but less pronounced than the Western differences. By contrast to the West, though, combining vocational training with further education at a college or unversity did not yield any additional advantage over university training. The weighted adjusted standard deviation of the job training coefficients was approximately 5% (as compared to 10% in the West). The return to university training has increased over time. By 1993, it was comparable to the Western return (and the weighted adjusted standard deviation of training coefficients was more than 6%).

The Oaxaca-Blinder Decomposition

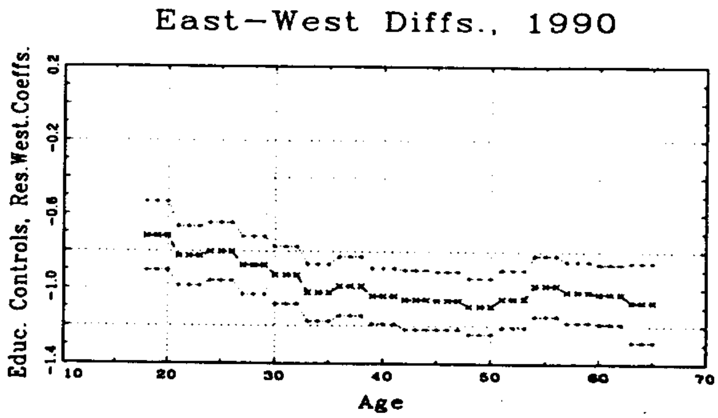
Together with the large average discrepancy, the flat Eastern wage structure translates into large East-West wage differentials for all groups considered. Corresponding estimates are reported in **Table 5**.

Table 5: East-West Wage Differentials 1990. With and Without Human Capital Controls, Restricted Western Coefficients.

	No Human Cap. Con.		With Human Cap. Con.	
category	differentials	t-value	differentials	t-value
holding schooling and training at respective average values				
z1	-0.7059	-7.7625	-0.7170	-7.5837
z2	-0.8225	-10.9983	-0.8253	-10.1134
z3	-0.8310	-11.5088	-0.8014	-10.0283
z4	-0.9149	-12.7519	-0.8754	-11.0046
z5	-0.9800	-13.7965	-0.9280	-11.7764
z6	-1.0788	-15.6150	-1.0217	-13.1569
z7	-1.0545	-14.2433	-0.9865	-12.1624
z8	-1.0805	-16.1032	-1.0388	-13.6206
z9	-1.1249	-15.1078	-1.0583	-13.0052
z10	-1.1279	-15.7665	-1.0628	-13.4228
z11	-1.1892	-17.6344	-1.0940	-14.2761
z12	-1.1333	-16.1676	-1.0530	-13.4438
z13	-1.0575	-13.8335	-0.9830	-11.8211
z14	-1.0810	-14.0092	-1.0168	-12.1754
z15	-1.0870	-14.7414	-1.0270	-12.6251
z16	-1.1345	-10.4554	-1.0706	-9.8590
holding age and training at respective average values				
x1	-	-	-0.5484	-2.4128
x2	-	-	-1.0045	-13.2936
x3	-	-	-1.0194	-13.4324
x4	-	-	-1.0333	-13.2304
holding age and schooling at respective average values				
x5	-	-	-0.9917	-11.3679
x6	-	-	-0.9753	-13.0060
x7	-	-	-1.0629	-13.0096
x8	-	-	-1.0945	-13.3387
	Decompositions (std. error):			
Overall	-1.0401	(0.0656)	-0.9844	(0.0748)
Coefficients	-1.0395	(0.0658)	-1.0223	(0.0752)
Endowments	-0.0006	(0.0009)	0.0378	(0.0030)

Consider first the estimates from the regressions without human capital controls. Because the Eastern age-wage profile was relatively flat at the outset, young workers initially suffer a relatively small disadvantage, mature workers a larger relative disadvantage. Overall, the Oaxaca-Blinder decomposition across the East-West subsamples suggests unambiguously that differing rates of return to endowments, and not measurable endowments themselves, are to blame for observed differentials. When we controlled for measurable human capital endowments, the East-West wage differentials became less pronounced; part of the large differential displayed by older workers stems from the remuneration of human capital. The corresponding profile of East-West wage differentials is plotted in **Figure 4**.

Figure 4: East-West Wage Differentials, GSOEP 1990-93. Including Schooling and Training Controls. Restricted Western Coefficients.



Across schooling groups (and abstracting from the "no degree" category which is hardly observed in the East) the East-West differential is relatively uniform, with point estimates slightly increasing with schooling. Relatively large discrepancies arise for workers with college or university training, the result of the more egalitarian pre-unification Eastern wage structure discussed above. Again, the Oaxaca-Blinder decomposition demonstrates that most of the aggregate East-West differential stems from across-the-board discrepancies. In fact, were East Germans remunerated for their endowments at the same rate as western Germans, their relative hourly earnings would have been almost 4% higher. Note that the estimated aggregate differentials vary substantially across the two principal specifications (age only or age and education as controls), because the intertemporal restrictions imposed in estimation on the Western profiles lead average Western predicted wages to be considerably smaller in 1990 than in an unrestricted specification.

East-West Wage Convergence

We argue throughout that East-West variation of estimated returns is more appropriately interpreted as a measure of human capital depreciation, rather than wage "discrimination" often studied in the US literature (Oaxaca, 1973, Blinder, 1973, and Oaxaca and Ransom, 1994).[12] Tables 6 and 7 address the issue of wage convergence, for all East German workers taken together and for the various groups of workers considered. In **Table 6** we report the relative growth rates of East German hourly wages across age groups for the years 1990-91 and 1991-92.

[12] For a review of this literature,see Hamermesh and Rees (1993).

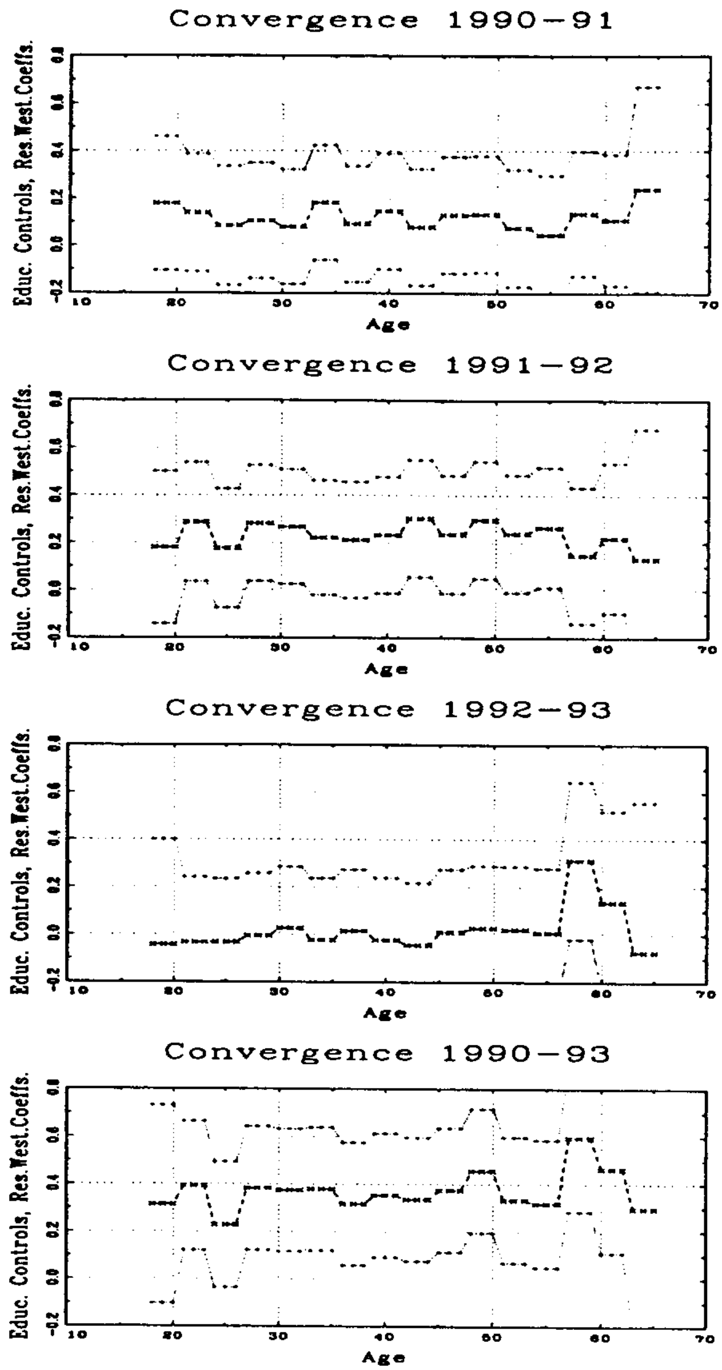
Table 6: East-West Wage Convergence 1990-91 and 1991-92. No Human Capital Controls, Restricted Western Coefficients.

	1990-91		1991-92	
category	Δ differentials	t-value	Δ differentials	t-value
z1	0.2844	2.2235	0.1183	0.7887
z2	0.2516	2.2540	0.2317	1.9965
z3	0.1962	1.7374	0.1418	1.2183
z4	0.2117	1.9567	0.2478	2.2034
z5	0.1832	1.7068	0.2497	2.2552
z6	0.2766	2.5813	0.1871	1.6892
z7	0.1932	1.7733	0.1950	1.7394
z8	0.2206	2.0223	0.2183	1.9305
z9	0.1851	1.6847	0.2841	2.4940
z10	0.2257	2.0490	0.1989	1.7250
z11	0.2510	2.2889	0.2530	2.2251
z12	0.1491	1.3546	0.2322	2.0391
z13	0.1320	1.1756	0.2532	2.1644
z14	0.2309	1.9178	0.1321	0.9610
z15	0.2037	1.5833	0.2486	1.6127
z16	0.3236	1.4824	0.1265	0.4476
	Aggregate (std.error):			
Standard Weights	0.2140	(0.1003)	0.2180	(0.1015)
Fixed Endowments	0.2122	(0.1005)	0.2192	(0.1015)

While these results document substantial relative wage growth across the board for both years, wage convergence was virtually absent in the period 1992-93. In this third year after unification, only the relative wages of older Eastern workers increased measurably; this pattern is likely to reflect selection issues, not genuine wage convergence. In the first year, particularly large relative wage gains occur at the two ends of the profile, whereas relative wage gains are more concentrated in the middle of the age range in 1991-92. The estimated aggregate relative wage growth exceeds 20% in both periods.

These conclusions are qualified by the results of the regressions controlling for measurable human capital endowments which are documented in **Table 7**. Hardly any relative wage growth is found in the first period, neither for the various age categories nor for the distinct schooling and job training indicators (always holding the other two sets of controls at their respective average values). Relative East-West wage growth is estimated to be more pronounced in all categories for 1991-92, though, than in the estimations without human capital controls. Largest relative wage gains can be observed for workers in the highest schooling bracket, *Abitur*, and for workers with college or university training. The four panels of **Figure 5** display East-West wage convergence for the three periods 1990-91, 1991-92, and 1992-93, and for the three-year period 1990-93.

Figure 5: East-West Wage Convergence, GSOEP 1990-93. Including Schooling and Training Controls. Restricted Western Coefficients.



The point estimates for the age-group dummies for each year can be translated into birth cohorts using Table A2 in the Appendix. These figures emphasize most convergence to be similar across all age groups, but also the potential estimation problems at both ends of the profile.

Genuine East-West Wage Convergence

At the same time, the changing cohort composition of the age groups – a measure of the temporal proximity to unification – does seem to be important.

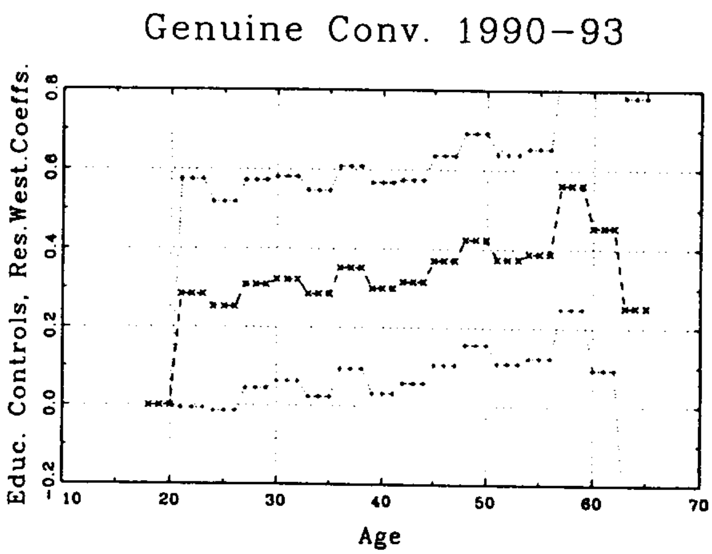
Table 7: East-West Wage Convergence 1990-91 and 1991-92. Including Schooling and Training Controls, Restricted Western Coefficients.

	1990-91		1991-92	
category	Δ differentials	t-value	Δ differentials	t-value
holding schooling and training at respective average values				
z1	0.1779	1.2319	0.1795	1.0963
z2	0.1385	1.0913	0.2869	2.2398
z3	0.0842	0.6583	0.1758	1.3711
z4	0.1056	0.8496	0.2821	2.2555
z5	0.0801	0.6483	0.2674	2.1647
z6	0.1814	1.4709	0.2208	1.7893
z7	0.0907	0.7270	0.2112	1.6938
z8	0.1443	1.1567	0.2319	1.8503
z9	0.0778	0.6204	0.3026	2.3988
z10	0.1289	1.0255	0.2354	1.8505
z11	0.1328	1.0577	0.2958	2.3466
z12	0.0744	0.5911	0.2379	1.8784
z13	0.0455	0.3557	0.2641	2.0422
z14	0.1352	1.0084	0.1475	1.0087
z15	0.1088	0.7705	0.2200	1.3650
z16	0.2382	1.0781	0.1319	0.4716
holding age and training at respective average values				
x1	-0.3650	-0.9149	0.2141	0.5272
x2	0.0881	0.7339	0.2618	2.2002
x3	0.1225	1.0325	0.2243	1.9222
x4	0.1148	0.9268	0.2821	2.2642
holding age and schooling at respective average values				
x5	0.2200	1.5160	0.1935	1.2691
x6	0.1212	1.0267	0.2405	2.0736
x7	0.0722	0.5488	0.3224	2.3837
x8	0.0346	0.2640	0.2439	1.8065
	Aggregate (std. error):			
Standard Weights	0.1132	(0.1179)	0.2446	(0.1156)
Fixed Endowments	0.1116	(0.1180)	0.2450	(0.1157)

In a final step, we implement the composition-adjusted, or "true" measure of convergence proposed in equation (11), which corrects for the changing cohort composition of age groups. This correction proves to be rather important. The results suggest higher wage growth variation across age groups in comparison to that across birth cohorts.

In the regressions without human capital controls, this pattern is not clearly reflected in the average; when human capital controls are included the estimated average genuine convergence is clearly lower than that implied by the standard difference-in-difference measure. According to the standard measure, the point estimate overall for aggregate 1990-93 convergence is 35.9% (standard error: 12.6%), whereas it declines to 21.4% when cohort composition is controlled for (standard error: 14.2%). The estimated genuine relative wage growth across cohorts is contrasted in **Figure 6** for the period 1990-93 with the estimated relative wage growth according to the standard measure which had been displayed in the last panel of Figure 5.

Figure 6: Genuine East-West Wage Convergence, GSOEP 1990-93.



5 Conclusions and Potential Extensions

By mid-1996, it was clear that rosy promises of East-West German wage convergence were grossly exaggerated. It seems possible, if not likely that a wage gap on the order of 20-30% could persist between East and West Germany for some time to come. Furthermore, our conclusion is not due to restricting attention to full-time male wage and salary employees and focusing on an hourly earnings measure. Yet the wage gap is not a global constant and is evidently much smaller for some Eastern Germans than for others.[13] Theory suggests that younger workers who suffered a smaller of human capital, but especially those who have the greatest incentive to retool, will do relatively better than other groups. Naturally there is a large amount

[13]Add to this the problem of self-selection through actual (as opposed to imaginary) migration. In a recent paper, DUNN, KREYENFELD AND WAGNER (1996) found that Eastern Germans working in the West earned 83% of average Western wages in 1994.

of within group heterogeneity, and some skills were certainly transferable (human capital is not all alike). Unobserved heterogeneity in returns among workers within groupings also may confound our results.

Our findings strongly suggest a differential pattern of convergence, and one which can be usefully studied using our adaptation of the Oaxaca-Blinder decomposition. We find that, while endowments of education and training are comparable if not more favorable in the East, returns to age were depressed under socialism and continue to be so several years after market relations were introduced. Thus only a weak tendency exists for the age-earnings profile to reassert itself over time, by virtue of the fact that younger workers, with the lowest age at unification, have the greatest potential to accumulate human capital which pays off under the new system.

Our analysis contains a number of problems which we plan to address in future work. Besides the inclusion of a more expansive set of controls, including job tenure, industry and occupational variables, there are a number of potential extensions which should be noted. While we are able to rule out adverse selection at one level of the analysis (all Eastern Germans participated in unification whether or not they wanted to) it may return at another: given a generous option to retire prematurely, less productive, older workers with higher valuations of leisure are likely to exit the labor force, biasing estimated age effects upward for them as well. In future work we would like to perform a mover-stayer analysis to account for this selection problem.

Another extension would be to account for industry composition, particularly the co-existence of protected and market firms. The mechanism by which worker's skills are devalued or revalued is a process which is not well-understood, even in advanced capitalist economies. In Eastern Germany, beyond the constant restructuring which characterizes capitalist economies, leading to a coexistence of new self-sufficient and old, dying firms, there is a large number of protected firms in the East. Thus, workers can be in two situations or regimes. They can work in a new or restructured firm that is competitive in the sense that it can survive the market such as any Western firm or they can work in an ailing firm. For the latter, a high contract wage exacerbates its situation, while the former will be able to pay wages at the Western level. In effect, we have a switching regression model.

An informative extension in this direction is to split the East German sample into workers in new or re-organized firms versus existing subsidized entities, and estimate two wage regressions. The hypothesis would be that the new-firm sample will be close to West German results, the old-firm sample will be remunerated for the same schooling level etc. Wage convergence will then not be an adaptation of the remuneration of East German characteristics to Western betas in an Oaxaca-Blinder decomposition accruing to the standard worker, but rather a change in the composition of jobs. In the long-run, if complete convergence occurs, this could mean different average wages, and yet still be conistent with identical coefficients in an Oaxaca-Blinder decomposition.

Another promising extension of our analysis would modify Blau and Kahn's (1994) dynamic analysis of inequality to wage developments in the Eastern German states. Our idea is to implement an alternative decomposition using an OLS estimate of returns from the stable Western wage structure. Under the maintained hypothesis that the distribution of unobservable factors determining remuneration is distributed in the East as in the West, the change over time in the wage differential can be decomposed into parts due to the change in differences of endowment, the change in returns over time in the West, the change in the position within the distribution of Western unobservables, and the change in overall inequality in Western unobservables. This analysis would require panel information, since it estimates the contribution to changes in inequality at the individual level. It has the interesting advantage of measuring changes over time of unobservable, unmeasurable human capital variables. Since inequality in the West may also be changing over time this factor may also contribute to convergence as well.

Important considerations not yet addressed in this paper include purchasing power disparities between East and West, which shift the focus from nominal relative wages to real relative wages. Moreover, we would like to consider the special situation of Berlin, which involves a labor market which was rapidly unified following 1990. Finally, we plan to consider the effect of (regional) unemployment on wage determination, and the related wage-curve literature. It is interesting to speculate whether German unification and the transition to market in general may help shed light on several still-smoldering debates in labor economics. To the extent that the introduction of market relations represents a cohort and not an age-related effect, we may soon be able to observe variation both at the same time, yielding insights into the source of the age-wage profile – whether it primarily reflects market forces or long-term contractual arrangements.

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Appendix

Appendix A Data and Variable Definitions.

Table A1: Definitions.

Variable		Label		Label
Age	18-20	Z1	42-44	Z9
	21-23	Z2	45-47	Z10
	24-26	Z3	48-50	Z11
	27-29	Z4	51-53	Z12
	30-32	Z5	54-56	Z13
	33-35	Z6	57-59	Z14
	36-38	Z7	60-62	Z15
	39-41	Z8	63-65	Z16
Schooling	East		West	Label
	No Degree		No Degree	X1
	Hauptschule		Hauptschule	X2
	10. Klasse		Mittlere Reife	X3
	Abitur		Fachabitur, Abitur	X4
Job Training	East		West	Label
	No Training		No Training	X5
	Technical Training		Vocational Training	X6
	University		Techn.Coll. / Univ.	X7
	Techn.Tr. + Univ.		Voc.Tr. + Coll./Un.	X8

Table A2: Age Cells and Birth Cohorts.

	Year			
Age	1990	1991	1992	1993
18-20	1970-72	1971-73	1972-74	1973-75
21-23	1967-69	1968-70	1969-71	1970-72
24-26	1964-66	1965-67	1966-68	1967-69
27-29	1961-63	1962-64	1963-65	1964-66
30-32	1958-60	1959-61	1960-62	1961-63
33-35	1955-57	1956-58	1957-59	1958-60
36-38	1952-54	1953-55	1954-56	1955-57
39-41	1949-51	1950-52	1951-53	1952-54
42-44	1946-48	1947-49	1948-50	1949-51
45-47	1943-45	1944-46	1945-47	1946-48
48-50	1940-42	1941-43	1942-44	1943-45
51-53	1937-39	1938-40	1939-41	1940-42
54-56	1934-36	1935-37	1936-38	1937-39
57-59	1931-33	1932-34	1933-35	1934-36
60-62	1928-30	1929-31	1930-32	1931-33
63-65	1925-27	1926-28	1927-29	1928-30

Appendix B Estimation Results: West Germany.

Table B1: Standard Wage Regressions for West Germany, GSOEP 1990-93.

	no human capital controls		controlling for education	
category	b	std.error	b	std.error
(1990=1)	2.5484	0.0766	2.4032	0.0882
(1991=1)	2.6578	0.0638	2.6088	0.0775
(1992=1)	2.6429	0.0776	2.5677	0.0847
(1990=1)	2.8307	0.0837	2.7330	0.0893
z1	-	-	-	-
z2	0.1163	0.0419	0.0993	0.0379
z3	0.2098	0.0407	0.1682	0.0367
z4	0.2985	0.0397	0.2204	0.0357
z5	0.3863	0.0402	0.2960	0.0363
z6	0.4694	0.0402	0.3584	0.0362
z7	0.4956	0.0405	0.3776	0.0364
z8	0.5360	0.0406	0.4399	0.0367
z9	0.5655	0.0403	0.4723	0.0362
z10	0.5655	0.0416	0.4737	0.0374
z11	0.6336	0.0408	0.5296	0.0369
z12	0.5909	0.0401	0.5086	0.0361
z13	0.5077	0.0414	0.4532	0.0371
z14	0.5285	0.0426	0.4602	0.0383
z15	0.5112	0.0461	0.4491	0.0417
z16	0.5254	0.0623	0.4622	0.0558
x1	-	-	-	-
x2	-	-	-0.0220	0.0266
x3	-	-	0.0886	0.0269
x4	-	-	0.1462	0.0283
x5	-	-	-	-
x6	-	-	0.1104	0.0121
x7	-	-	0.3490	0.0197
x8	-	-	0.3699	0.0217
	F-Test for Equality of Age Coefficients			
	F = 1.02983	p-value 0.41673	F = 0.86166	p-value 0.77418

Table B2: Western Age-Wage Profiles, GSOEP 1990-93. No Human Capital Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

	West 1990			West 1991		
category	b	std.error	t-value	b	std.error	t-value
constant	3.0563	0.0083	370.3307	3.0802	0.0076	407.6584
z1	-0.5079	0.0762	-6.6697	-0.4225	0.0634	-6.6655
z2	-0.3471	0.0402	-8.6236	-0.3072	0.0332	-9.2597
z3	-0.1942	0.0284	-6.8400	-0.2419	0.0276	-8.7503
z4	-0.1846	0.0258	-7.1582	-0.1650	0.0220	-7.4966
z5	-0.0792	0.0261	-3.0295	-0.0345	0.0243	-1.4200
z6	0.0097	0.0256	0.3804	0.0110	0.0247	0.4465
z7	0.0306	0.0293	1.0440	0.0589	0.0251	2.3449
z8	0.1059	0.0270	3.9278	0.0783	0.0270	2.9062
z9	0.1130	0.0297	3.8086	0.1095	0.0251	4.3573
z10	0.1159	0.0336	3.4517	0.1571	0.0313	5.0137
z11	0.1938	0.0275	7.0341	0.1772	0.0276	6.4087
z12	0.0756	0.0261	2.9040	0.1194	0.0247	4.8390
z13	0.1074	0.0338	3.1800	0.0216	0.0285	0.7575
z14	0.0242	0.0402	0.6016	0.1085	0.0371	2.9232
z15	0.0592	0.0470	1.2593	0.0221	0.0470	0.4697
z16	0.1683	0.1238	1.3594	0.0263	0.0821	0.3208
	Weighted Adjusted Standard Deviation of Coefficients: 0.14403			Weighted Adjusted Standard Deviation of Coefficients: 0.14268		

	West 1992			West 1993		
category	b	std.error	t-value	b	std.error	t-value
constant	3.1510	0.0077	409.4996	3.2085	0.0078	410.6068
z1	-0.5081	0.0772	-6.5841	-0.3778	0.0834	-4.5326
z2	-0.3161	0.0356	-8.8733	-0.4193	0.0422	-9.9291
z3	-0.2748	0.0291	-9.4494	-0.2792	0.0282	-9.9082
z4	-0.1424	0.0224	-6.3718	-0.1295	0.0233	-5.5543
z5	-0.0916	0.0238	-3.8574	-0.0627	0.0235	-2.6631
z6	0.0248	0.0250	0.9924	0.0126	0.0248	0.5070
z7	0.0196	0.0244	0.8042	0.0642	0.0243	2.6376
z8	0.0637	0.0283	2.2535	0.0579	0.0289	1.9997
z9	0.1219	0.0246	4.9576	0.1041	0.0257	4.0560
z10	0.1099	0.0330	3.3278	0.0770	0.0301	2.5621
z11	0.1690	0.0285	5.9193	0.1421	0.0320	4.4421
z12	0.1915	0.0254	7.5362	0.1614	0.0267	6.0480
z13	0.0288	0.0271	1.0642	0.0789	0.0260	3.0374
z14	0.1002	0.0369	2.7167	0.0693	0.0364	1.9070
z15	0.0876	0.0560	1.5635	0.0484	0.0568	0.8524
z16	0.0924	0.1008	0.9160	0.0666	0.1022	0.6514
	Weighted Adjusted Standard Deviation of Coefficients: 0.14832			Weighted Adjusted Standard Deviation of Coefficients: 0.14040		

Table B3: Western Age-Wage Profiles, GSOEP 1990-93. No Human Capital Controls. Restricted, Re-normalized Coefficients (Pooled).

	West 1990			West 1991		
category	b	std.error	t-value	b	std.error	t-value
constant	3.0051	0.0653	46.0512	3.1083	0.0587	52.9773
z1	-0.4567	0.0376	-12.1536	-0.4505	0.0375	-12.0212
z2	-0.3404	0.0195	-17.4723	-0.3342	0.0193	-17.3176
z3	-0.2469	0.0143	-17.2963	-0.2407	0.0144	-16.6657
z4	-0.1582	0.0120	-13.1986	-0.1520	0.0118	-12.9220
z5	-0.0704	0.0124	-5.6643	-0.0642	0.0124	-5.1658
z6	0.0127	0.0125	1.0091	0.0188	0.0127	1.4863
z7	0.0389	0.0136	2.8612	0.0450	0.0134	3.3699
z8	0.0793	0.0142	5.5945	0.0855	0.0144	5.9208
z9	0.1087	0.0136	7.9693	0.1149	0.0134	8.5696
z10	0.1088	0.0163	6.6719	0.1150	0.0163	7.0395
z11	0.1769	0.0151	11.7059	0.1830	0.0154	11.8972
z12	0.1342	0.0129	10.3902	0.1404	0.0130	10.7776
z13	0.0510	0.0157	3.2537	0.0572	0.0154	3.7043
z14	0.0718	0.0190	3.7871	0.0780	0.0189	4.1152
z15	0.0545	0.0266	2.0481	0.0607	0.0268	2.2634
z16	0.0686	0.0505	1.3606	0.0748	0.0502	1.4900
	Weighted Adjusted Standard Deviation of Coefficients: 0.14578			Weighted Adjusted Standard Deviation of Coefficients: 0.14864		

	West 1992			West 1993		
category	b	std.error	t-value	b	std.error	t-value
constant	3.0972	0.0671	46.1894	3.2872	0.0706	46.5391
z1	-0.4543	0.0377	-12.0640	-0.4565	0.0377	-12.1007
z2	-0.3380	0.0194	-17.4002	-0.3402	0.0197	-17.2753
z3	-0.2444	0.0145	-16.8286	-0.2467	0.0144	-17.0796
z4	-0.1558	0.0117	-13.2672	-0.1580	0.0118	-13.3764
z5	-0.0680	0.0123	-5.5197	-0.0702	0.0122	-5.7364
z6	0.0151	0.0127	1.1922	0.0129	0.0126	1.0197
z7	0.0413	0.0132	3.1263	0.0391	0.0131	2.9746
z8	0.0817	0.0145	5.6212	0.0795	0.0146	5.4503
z9	0.1112	0.0133	8.3680	0.1089	0.0133	8.1672
z10	0.1112	0.0164	6.7928	0.1090	0.0162	6.7487
z11	0.1793	0.0155	11.5854	0.1771	0.0157	11.2770
z12	0.1367	0.0131	10.4457	0.1344	0.0132	10.1965
z13	0.0534	0.0152	3.5090	0.0512	0.0151	3.4021
z14	0.0742	0.0189	3.9290	0.0720	0.0188	3.8232
z15	0.0570	0.0270	2.1061	0.0547	0.0271	2.0209
z16	0.0711	0.0503	1.4119	0.0689	0.0504	1.3676
	Weighted Adjusted Standard Deviation of Coefficients: 0.14303			Weighted Adjusted Standard Deviation of Coefficients: 0.13725		

Table B4: Western Age-Wage Profiles, GSOEP 1990-93. Including Schooling and Training Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

	West 1990			West 1991		
category	b	std.error	t-value	b	std.error	t-value
constant	3.0569	0.0074	412.0374	3.0803	0.0069	448.9756
z1	-0.4387	0.0701	-6.2571	-0.3366	0.0589	-5.7193
z2	-0.2818	0.0369	-7.6445	-0.2634	0.0308	-8.5636
z3	-0.1665	0.0260	-6.3942	-0.1922	0.0256	-7.5209
z4	-0.1831	0.0232	-7.9036	-0.1673	0.0201	-8.3112
z5	-0.0846	0.0238	-3.5608	-0.0517	0.0226	-2.2835
z6	-0.0388	0.0234	-1.6602	-0.0303	0.0224	-1.3498
z7	0.0232	0.0263	0.8802	0.0291	0.0228	1.2763
z8	0.0747	0.0244	3.0670	0.0679	0.0245	2.7736
z9	0.1069	0.0267	4.0036	0.1056	0.0229	4.6075
z10	0.1028	0.0301	3.4167	0.1297	0.0284	4.5724
z11	0.1663	0.0249	6.6877	0.1612	0.0251	6.4295
z12	0.0998	0.0235	4.2464	0.1296	0.0224	5.7827
z13	0.1334	0.0306	4.3547	0.0579	0.0262	2.2110
z14	0.0493	0.0364	1.3553	0.1044	0.0339	3.0773
z15	0.0950	0.0422	2.2540	0.0538	0.0425	1.2659
z16	0.1392	0.1110	1.2545	0.0520	0.0742	0.7001
x1	-0.0461	0.0578	-0.7985	0.0028	0.0508	0.0550
x2	-0.0594	0.0083	-7.1791	-0.0525	0.0077	-6.7822
x3	0.0518	0.0153	3.3949	0.0493	0.0139	3.5530
x4	0.1215	0.0235	5.1755	0.0930	0.0207	4.4995
x5	-0.1688	0.0230	-7.3277	-0.1376	0.0212	-6.4933
x6	-0.0201	0.0059	-3.3871	-0.0247	0.0054	-4.6129
x7	0.1966	0.0314	6.2533	0.2025	0.0284	7.1291
x8	0.2274	0.0373	6.0960	0.2269	0.0344	6.5984
	Weighted Adjusted Standard Deviation of Coefficients:					
	0.13121; 0.07309; 0.09788			0.12802; 0.06036; 0.09515		

	West 1992			West 1993		
category	b	std.error	t-value	b	std.error	t-value
constant	3.1513	0.0068	462.4897	3.2090	0.0069	464.3241
z1	-0.4327	0.0680	-6.3649	-0.2793	0.0735	-3.7997
z2	-0.2390	0.0322	-7.4136	-0.3396	0.0376	-9.0335
z3	-0.2316	0.0260	-8.9139	-0.2361	0.0256	-9.2339
z4	-0.1259	0.0201	-6.2579	-0.1274	0.0208	-6.1153
z5	-0.0959	0.0212	-4.5285	-0.0676	0.0209	-3.2336
z6	0.0026	0.0223	0.1186	0.0108	0.0224	0.4843
z7	-0.0174	0.0217	-0.8007	0.0032	0.0217	0.1463
z8	0.0521	0.0250	2.0828	0.0582	0.0255	2.2855
z9	0.1059	0.0219	4.8448	0.0879	0.0228	3.8486
z10	0.1024	0.0292	3.5025	0.0863	0.0266	3.2422
z11	0.1383	0.0253	5.4583	0.1265	0.0282	4.4841
z12	0.1687	0.0225	7.4914	0.1417	0.0236	5.9979
z13	0.0665	0.0242	2.7514	0.0967	0.0231	4.1921
z14	0.1057	0.0331	3.1921	0.0980	0.0325	3.0148
z15	0.0886	0.0493	1.7982	0.0332	0.0509	0.6532
z16	0.1226	0.0888	1.3815	0.1075	0.0901	1.1938
x1	-0.0253	0.0474	-0.5334	-0.0799	0.0482	-1.6576
x2	-0.0544	0.0076	-7.1284	-0.0682	0.0080	-8.5214
x3	0.0494	0.0137	3.6141	0.0539	0.0135	4.0047
x4	0.0975	0.0199	4.8977	0.1237	0.0199	6.2312
x5	-0.1256	0.0215	-5.8453	-0.1169	0.0212	-5.5178
x6	-0.0351	0.0052	-6.7167	-0.0298	0.0054	-5.4714
x7	0.2515	0.0278	9.0470	0.1972	0.0277	7.1191
x8	0.2368	0.0333	7.1042	0.2384	0.0328	7.2733
	Weighted Adjusted Standard Deviation of Coefficients:					
	0.12766; 0.06300; 0.10854			0.12280; 0.07986; 0.09534		

Table B5: Western Age-Wage Profiles, GSOEP 1990-93. Including Schooling and Training Controls. Restricted, Re-normalized Coefficients (Pooled).

	West 1990			West 1991		
category	b	std.error	t-value	b	std.error	t-value
constant	2.9498	0.0746	39.5479	3.1517	0.0690	45.6450
z1	-0.3744	0.0339	-11.0534	-0.3695	0.0338	-10.9395
z2	-0.2752	0.0177	-15.5150	-0.2702	0.0176	-15.3824
z3	-0.2062	0.0130	-15.8891	-0.2013	0.0131	-15.3499
z4	-0.1540	0.0108	-14.2938	-0.1490	0.0106	-14.0757
z5	-0.0784	0.0113	-6.9400	-0.0734	0.0113	-6.4835
z6	-0.0160	0.0113	-1.4099	-0.0110	0.0114	-0.9641
z7	0.0032	0.0122	0.2584	0.0081	0.0120	0.6759
z8	0.0655	0.0127	5.1641	0.0704	0.0129	5.4562
z9	0.0979	0.0122	7.9988	0.1028	0.0120	8.5439
z10	0.0992	0.0145	6.8238	0.1042	0.0146	7.1511
z11	0.1552	0.0135	11.4700	0.1601	0.0138	11.6259
z12	0.1342	0.0116	11.5879	0.1391	0.0117	11.9132
z13	0.0787	0.0142	5.5391	0.0837	0.0140	5.9783
z14	0.0858	0.0171	5.0191	0.0907	0.0171	5.3104
z15	0.0747	0.0239	3.1235	0.0797	0.0241	3.3057
z16	0.0878	0.0450	1.9484	0.0927	0.0448	2.0681
x1	-0.0349	0.0258	-1.3543	-0.0364	0.0257	-1.4156
x2	-0.0569	0.0039	-14.6938	-0.0584	0.0040	-14.6749
x3	0.0537	0.0071	7.5139	0.0522	0.0071	7.3425
x4	0.1113	0.0106	10.4812	0.1098	0.0105	10.4126
x5	-0.1372	0.0109	-12.6049	-0.1370	0.0109	-12.6060
x6	-0.0268	0.0027	-9.8609	-0.0265	0.0027	-9.7046
x7	0.2118	0.0145	14.6254	0.2120	0.0145	14.6641
x8	0.2327	0.0173	13.4524	0.2330	0.0173	13.4468
	Weighted Adjusted Standard Deviation of Coefficients:					
	0.12909; 0.07013; 0.09901			0.13134; 0.07040; 0.09908		

	West 1992			West 1993		
category	b	std.error	t-value	b	std.error	t-value
constant	3.1146	0.0740	42.0985	3.2844	0.0765	42.9092
z1	-0.3719	0.0339	-10.9688	-0.3736	0.0340	-10.9984
z2	-0.2727	0.0177	-15.4143	-0.2743	0.0179	-15.3055
z3	-0.2037	0.0132	-15.4602	-0.2054	0.0131	-15.6559
z4	-0.1515	0.0106	-14.3205	-0.1532	0.0106	-14.4148
z5	-0.0759	0.0112	-6.7873	-0.0776	0.0111	-6.9837
z6	-0.0135	0.0115	-1.1771	-0.0152	0.0115	-1.3222
z7	0.0056	0.0119	0.4756	0.0040	0.0118	0.3382
z8	0.0680	0.0130	5.2284	0.0663	0.0130	5.0871
z9	0.1004	0.0119	8.4201	0.0987	0.0120	8.2473
z10	0.1017	0.0146	6.9601	0.1001	0.0144	6.9404
z11	0.1577	0.0139	11.3742	0.1560	0.0141	11.0969
z12	0.1367	0.0117	11.6554	0.1350	0.0118	11.4239
z13	0.0812	0.0138	5.8864	0.0796	0.0136	5.8374
z14	0.0882	0.0170	5.1776	0.0866	0.0170	5.0959
z15	0.0772	0.0243	3.1758	0.0755	0.0244	3.1009
z16	0.0902	0.0449	2.0079	0.0886	0.0449	1.9708
x1	-0.0371	0.0257	-1.4461	-0.0393	0.0257	-1.5303
x2	-0.0591	0.0040	-14.6202	-0.0612	0.0042	-14.6539
x3	0.0515	0.0071	7.2552	0.0493	0.0070	7.0349
x4	0.1091	0.0105	10.3881	0.1069	0.0104	10.2621
x5	-0.1378	0.0109	-12.6196	-0.1386	0.0109	-12.7514
x6	-0.0274	0.0027	-10.0533	-0.0282	0.0028	-9.9487
x7	0.2112	0.0144	14.6231	0.2104	0.0144	14.6325
x8	0.2321	0.0173	13.4100	0.2313	0.0172	13.4200
	Weighted Adjusted Standard Deviation of Coefficients:					
	0.12737; 0.07051; 0.09901			0.12318; 0.07073; 0.10080		

Appendix C Estimation Results: East Germany.

Table C1: Eastern Age-Wage Profiles, GSOEP 1990-93. No Human Capital Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

	East 1990			East 1991		
category	b	std.error	t-value	b	std.error	t-value
constant	1.9650	0.0067	293.5223	2.2821	0.0105	218.0891
z1	-0.1225	0.0486	-2.5231	-0.0459	0.0625	-0.7336
z2	-0.1228	0.0287	-4.2741	-0.0790	0.0392	-2.0138
z3	-0.0378	0.0307	-1.2297	-0.0494	0.0415	-1.1906
z4	-0.0330	0.0207	-1.5974	-0.0291	0.0343	-0.8483
z5	-0.0103	0.0212	-0.4853	-0.0349	0.0312	-1.1206
z6	-0.0260	0.0206	-1.2643	0.0428	0.0310	1.3804
z7	0.0245	0.0233	1.0506	0.0099	0.0351	0.2809
z8	0.0390	0.0208	1.8766	0.0517	0.0370	1.3985
z9	0.0240	0.0254	0.9438	0.0013	0.0364	0.0349
z10	0.0210	0.0224	0.9373	0.0390	0.0392	0.9937
z11	0.0278	0.0237	1.1702	0.0710	0.0370	1.9191
z12	0.0410	0.0251	1.6367	-0.0177	0.0373	-0.4743
z13	0.0337	0.0256	1.3138	-0.0421	0.0431	-0.9762
z14	0.0310	0.0340	0.9108	0.0541	0.0569	0.9496
z15	0.0077	0.0358	0.2142	0.0036	0.0720	0.0503
z16	-0.0257	0.0645	-0.3987	0.0901	0.1828	0.4930
	Weighted Adjusted Standard Deviation of Coefficients: 0.03428			Weighted Adjusted Standard Deviation of Coefficients: 0.01681		

	East 1992			East 1993		
category	b	std.error	t-value	b	std.error	t-value
constant	2.4891	0.0103	240.7510	2.6597	0.0115	231.4320
z1	-0.1494	0.0909	-1.6424	-0.1796	0.1750	-1.0267
z2	-0.0691	0.0403	-1.7150	-0.1074	0.0493	-2.1791
z3	-0.1293	0.0390	-3.3189	-0.1678	0.0409	-4.0980
z4	-0.0031	0.0341	-0.0919	-0.0166	0.0385	-0.4303
z5	-0.0070	0.0313	-0.2229	0.0251	0.0328	0.7654
z6	0.0081	0.0317	0.2562	-0.0089	0.0356	-0.2493
z7	-0.0169	0.0321	-0.5284	-0.0072	0.0333	-0.2173
z8	0.0483	0.0334	1.4454	0.0317	0.0394	0.8054
z9	0.0636	0.0367	1.7345	0.0299	0.0356	0.8404
z10	0.0161	0.0381	0.4229	0.0077	0.0394	0.1944
z11	0.1022	0.0354	2.8866	0.1244	0.0383	3.2506
z12	-0.0072	0.0357	-0.2029	-0.0296	0.0427	-0.6944
z13	-0.0107	0.0390	-0.2740	-0.0257	0.0482	-0.5323
z14	-0.0356	0.0731	-0.4878	0.3657	0.0966	3.7868
z15	0.0304	0.0909	0.3346	0.1254	0.1320	0.9500
z16	-0.0051	0.1903	-0.0270	-0.0427	0.2477	-0.1726
	Weighted Adjusted Standard Deviation of Coefficients: 0.03878			Weighted Adjusted Standard Deviation of Coefficients: 0.06667		

Table C2: Eastern Age-Wage Profiles, GSOEP 1990-93. Including Schooling and Training Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

	East 1990			East 1991		
category	b	std.error	t-value	b	std.error	t-value
constant	1.9654	0.0062	318.5264	2.2804	0.0101	225.2533
z1	-0.1070	0.0451	-2.3725	-0.0374	0.0700	-0.5337
z2	-0.1161	0.0268	-4.3350	-0.0859	0.0383	-2.2416
z3	-0.0232	0.0284	-0.8143	-0.0472	0.0406	-1.1643
z4	-0.0449	0.0197	-2.2854	-0.0476	0.0338	-1.4076
z5	-0.0220	0.0198	-1.1096	-0.0502	0.0308	-1.6312
z6	-0.0533	0.0193	-2.7559	0.0198	0.0302	0.6546
z7	0.0011	0.0215	0.0509	-0.0165	0.0344	-0.4793
z8	0.0111	0.0194	0.5721	0.0472	0.0358	1.3160
z9	0.0240	0.0236	1.0177	-0.0064	0.0356	-0.1804
z10	0.0209	0.0208	1.0078	0.0415	0.0381	1.0898
z11	0.0457	0.0225	2.0341	0.0702	0.0366	1.9178
z12	0.0656	0.0234	2.8046	0.0318	0.0374	0.8495
z13	0.0801	0.0242	3.3158	0.0173	0.0429	0.4041
z14	0.0534	0.0316	1.6918	0.0803	0.0553	1.4518
z15	0.0322	0.0336	0.9571	0.0327	0.0699	0.4677
z16	0.0016	0.0597	0.0264	0.1315	0.1770	0.7427
x1	0.4012	0.2125	1.8882	-0.0786	0.3164	-0.2483
x2	-0.0769	0.0114	-6.7220	-0.1036	0.0201	-5.1483
x3	0.0188	0.0076	2.4559	0.0265	0.0114	2.3115
x4	0.0625	0.0187	3.3459	0.0626	0.0336	1.8646
x5	-0.1445	0.0435	-3.3229	-0.0375	0.0727	-0.5150
x6	-0.0176	0.0040	-4.4041	-0.0094	0.0066	-1.4254
x7	0.1333	0.0292	4.5677	0.0926	0.0508	1.8236
x8	0.1226	0.0287	4.2802	0.0443	0.0496	0.8927
	Weighted Adjusted Standard Deviation of Coefficients:					
	0.04394; 0.051167;0.05317			0.02428;0.05783,0.01728		

	East 1992			East 1993		
category	b	std.error	t-value	b	std.error	t-value
constant	2.4880	0.0099	250.5415	2.6584	0.0109	244.7636
z1	-0.1049	0.0924	-1.1359	-0.1508	0.1660	-0.9085
z2	-0.0461	0.0394	-1.1693	-0.0813	0.0502	-1.6199
z3	-0.1186	0.0376	-3.1563	-0.1529	0.0390	-3.9240
z4	-0.0127	0.0334	-0.3800	-0.0203	0.0366	-0.5543
z5	-0.0299	0.0306	-0.9765	-0.0054	0.0317	-0.1709
z6	-0.0065	0.0306	-0.2111	-0.0321	0.0338	-0.9505
z7	-0.0524	0.0312	-1.6785	-0.0403	0.0317	-1.2698
z8	0.0320	0.0323	0.9892	0.0055	0.0374	0.1468
z9	0.0491	0.0355	1.3807	0.0016	0.0337	0.0484
z10	0.0298	0.0367	0.8120	0.0379	0.0373	1.0146
z11	0.1189	0.0342	3.4720	0.1435	0.0364	3.9371
z12	0.0226	0.0356	0.6347	0.0408	0.0422	0.9657
z13	0.0343	0.0387	0.8865	0.0401	0.0472	0.8504
z14	-0.0193	0.0702	-0.2754	0.2916	0.0912	3.1964
z15	0.0056	0.0878	0.0635	0.1387	0.1247	1.1126
z16	0.0162	0.1829	0.0887	-0.0606	0.2339	-0.2592
x1	-0.1098	0.2269	-0.4838	0.0882	0.2475	0.3561
x2	-0.0871	0.0198	-4.3942	-0.1341	0.0228	-5.8892
x3	0.0055	0.0112	0.4874	0.0194	0.0123	1.5780
x4	0.0993	0.0321	3.0929	0.1056	0.0361	2.9288
x5	-0.0895	0.0678	-1.3202	-0.1223	0.0801	-1.5265
x6	-0.0144	0.0064	-2.2389	-0.0218	0.0072	-3.0100
x7	0.1695	0.0485	3.4923	0.2226	0.0546	4.0810
x8	0.0427	0.0490	0.8707	0.0886	0.0511	1.7336
	Weighted Adjusted Standard Deviation of Coefficients:					
	0.04014; 0.05760; 0.04487			0.06342; 0.07713; 0.06322		

Appendix D East-West Convergence Analysis.

Table D1: East-West Wage Differentials. No Human Capital Controls, Restricted Western Coefficients.

	East-West Differentials 1990			East-West Differentials 1991		
category	differentials	std.error	t-value	differentials	std.error	t-value
z1	-0.7059	0.0909	-7.7625	-0.4215	0.0900	-4.6846
z2	-0.8225	0.0748	-10.9983	-0.5709	0.0711	-8.0334
z3	-0.8310	0.0722	-11.5088	-0.6348	0.0745	-8.5248
z4	-0.9149	0.0717	-12.7519	-0.7033	0.0692	-10.1631
z5	-0.9800	0.0710	-13.7965	-0.7968	0.0694	-11.4749
z6	-1.0788	0.0691	-15.6150	-0.8022	0.0691	-11.6116
z7	-1.0545	0.0740	-14.2433	-0.8613	0.0710	-12.1387
z8	-1.0805	0.0671	-16.1032	-0.8599	0.0719	-11.9605
z9	-1.1249	0.0745	-15.1078	-0.9398	0.0710	-13.2271
z10	-1.1279	0.0715	-15.7665	-0.9021	0.0738	-12.2183
z11	-1.1892	0.0674	-17.6344	-0.9382	0.0717	-13.0855
z12	-1.1333	0.0701	-16.1676	-0.9842	0.0714	-13.7830
z13	-1.0575	0.0764	-13.8335	-0.9254	0.0763	-12.1344
z14	-1.0810	0.0772	-14.0092	-0.8501	0.0852	-9.9752
z15	-1.0870	0.0737	-14.7414	-0.8832	0.0961	-9.1861
z16	-1.1345	0.1085	-10.4554	-0.8109	0.1965	-4.1260
	Decompositions:					
Overall	-1.0401	0.0656		-0.8261	0.0596	
Coefficients	-1.0395	0.0658		-0.8172	0.0595	
Endowments	-0.0006	0.0009		-0.0090	0.0009	

	East-West Differentials 1992			East-West Differentials 1993		
category	differentials	std.error	t-value	differentials	std.error	t-value
z1	-0.3032	0.1200	-2.5273	-0.3506	0.1943	-1.8045
z2	-0.3392	0.0798	-4.2525	-0.3947	0.0929	-4.2507
z3	-0.4930	0.0812	-6.0745	-0.5486	0.0839	-6.5401
z4	-0.4555	0.0759	-5.9975	-0.4861	0.0823	-5.9032
z5	-0.5471	0.0756	-7.2379	-0.5322	0.0786	-6.7709
z6	-0.6151	0.0766	-8.0298	-0.6492	0.0810	-8.0147
z7	-0.6664	0.0752	-8.8662	-0.6738	0.0782	-8.6168
z8	-0.6416	0.0784	-8.1870	-0.6753	0.0848	-7.9607
z9	-0.6557	0.0767	-8.5459	-0.7065	0.0806	-8.7701
z10	-0.7032	0.0814	-8.6441	-0.7288	0.0812	-8.9744
z11	-0.6852	0.0784	-8.7376	-0.6801	0.0865	-7.8657
z12	-0.7520	0.0780	-9.6382	-0.7915	0.0859	-9.2110
z13	-0.6722	0.0787	-8.5421	-0.7044	0.0843	-8.3599
z14	-0.7180	0.1016	-7.0701	-0.3338	0.1210	-2.7589
z15	-0.6346	0.1190	-5.3331	-0.5568	0.1548	-3.5975
z16	-0.6844	0.2083	-3.2847	-0.7391	0.2629	-2.8113
	Decompositions:					
Overall	-0.6081	0.0678		-0.6275	0.0716	
Coefficients	-0.6044	0.0679		-0.6279	0.0718	
Endowments	-0.0037	0.0009		0.0004	0.0011	

Table D2: East-West Wage Convergence. No Human Capital Controls, Restricted Western Coefficients.

	East-West Convergence 1990-91			East-West Convergence 1991-92		
category	Δ differentials	std.error	t-value	Δ differentials	std.error	t-value
z1	0.2844	0.1279	2.2235	0.1183	0.1500	0.7887
z2	0.2516	0.1116	2.2540	0.2317	0.1160	1.9965
z3	0.1962	0.1130	1.7374	0.1418	0.1164	1.2183
z4	0.2117	0.1082	1.9567	0.2478	0.1124	2.2034
z5	0.1832	0.1073	1.7068	0.2497	0.1107	2.2552
z6	0.2766	0.1071	2.5813	0.1871	0.1108	1.6892
z7	0.1932	0.1089	1.7733	0.1950	0.1121	1.7394
z8	0.2206	0.1091	2.0223	0.2183	0.1131	1.9305
z9	0.1851	0.1099	1.6847	0.2841	0.1139	2.4940
z10	0.2257	0.1102	2.0490	0.1989	0.1153	1.7250
z11	0.2510	0.1097	2.2889	0.2530	0.1137	2.2251
z12	0.1491	0.1101	1.3546	0.2322	0.1139	2.0391
z13	0.1320	0.1123	1.1756	0.2532	0.1170	2.1644
z14	0.2309	0.1204	1.9178	0.1321	0.1374	0.9610
z15	0.2037	0.1287	1.5833	0.2486	0.1541	1.6127
z16	0.3236	0.2183	1.4824	0.1265	0.2827	0.4476
	Aggregate:					
Standard Weights	0.2140	0.1003		0.2180	0.1015	
Fixed Endowments	0.2122	0.1005		0.2192	0.1015	

	East-West Convergence 1992-93			East-West Convergence 1990-93		
category	Δ differentials	std.error	t-value	Δ differentials	std.error	t-value
z1	-0.0474	0.2284	-0.2075	0.3553	0.2145	1.6564
z2	-0.0555	0.1316	-0.4216	0.4278	0.1277	3.3499
z3	-0.0556	0.1283	-0.4331	0.2824	0.1252	2.2560
z4	-0.0306	0.1261	-0.2425	0.4288	0.1223	3.5054
z5	0.0149	0.1238	0.1206	0.4478	0.1207	3.7089
z6	-0.0341	0.1246	-0.2737	0.4296	0.1214	3.5379
z7	-0.0074	0.1241	-0.0599	0.3807	0.1213	3.1396
z8	-0.0337	0.1262	-0.2670	0.4052	0.1226	3.3042
z9	-0.0509	0.1260	-0.4037	0.4183	0.1223	3.4195
z10	-0.0256	0.1275	-0.2005	0.3991	0.1229	3.2464
z11	0.0050	0.1264	0.0398	0.5091	0.1228	4.1453
z12	-0.0395	0.1279	-0.3090	0.3418	0.1245	2.7452
z13	-0.0321	0.1308	-0.2456	0.3531	0.1266	2.7883
z14	0.3842	0.1671	2.2990	0.7472	0.1534	4.8701
z15	0.0779	0.1974	0.3945	0.5302	0.1782	2.9746
z16	-0.0547	0.3329	-0.1644	0.3954	0.2803	1.4107
	Aggregate:					
Standard Weights	-0.0194	0.1151		0.4127	0.1140	
Fixed Endowments	-0.0176	0.1152		0.4238	0.1144	

Table D3: East-West Wage Differentials. Including Schooling and Training Controls, Restricted Western Coefficients.

	East-West Differentials 1990			East-West Differentials 1991		
category	differentials	std.error	t-value	differentials	std.error	t-value
	holding schooling and training at respective average values					
z1	-0.7170	0.0945	-7.5837	-0.5391	0.1019	-5.2913
z2	-0.8253	0.0816	-10.1134	-0.6869	0.0792	-8.6706
z3	-0.8014	0.0799	-10.0283	-0.7172	0.0822	-8.7227
z4	-0.8754	0.0795	-11.0046	-0.7698	0.0779	-9.8778
z5	-0.9280	0.0788	-11.7764	-0.8480	0.0782	-10.8466
z6	-1.0217	0.0777	-13.1569	-0.8404	0.0771	-10.9051
z7	-0.9865	0.0811	-12.1624	-0.8958	0.0790	-11.3326
z8	-1.0388	0.0763	-13.6206	-0.8945	0.0797	-11.2196
z9	-1.0583	0.0814	-13.0052	-0.9805	0.0792	-12.3759
z10	-1.0628	0.0792	-13.4228	-0.9339	0.0812	-11.4970
z11	-1.0940	0.0766	-14.2761	-0.9612	0.0799	-12.0316
z12	-1.0530	0.0783	-13.4438	-0.9786	0.0800	-12.2381
z13	-0.9830	0.0832	-11.8211	-0.9376	0.0840	-11.1616
z14	-1.0168	0.0835	-12.1754	-0.8816	0.0911	-9.6754
z15	-1.0270	0.0813	-12.6251	-0.9182	0.1008	-9.1108
z16	-1.0706	0.1086	-9.8590	-0.8324	0.1937	-4.2968
	holding age and training at respective average values					
x1	-0.5484	0.2273	-2.4128	-0.9134	0.3250	-2.8101
x2	-1.0045	0.0756	-13.2936	-0.9164	0.0727	-12.6096
x3	-1.0194	0.0759	-13.4324	-0.8969	0.0712	-12.5906
x4	-1.0333	0.0781	-13.2304	-0.9184	0.0782	-11.7522
	holding age and schooling at respective average values					
x5	-0.9917	0.0872	-11.3679	-0.7717	0.1012	-7.6222
x6	-0.9753	0.0750	-13.0060	-0.8541	0.0702	-12.1721
x7	-1.0629	0.0817	-13.0096	-0.9907	0.0875	-11.3188
x8	-1.0945	0.0821	-13.3387	-1.0599	0.0874	-12.1220
	Decompositions:					
Overall	-0.9844	0.0748		-0.8712	0.0698	
Coefficients	-1.0223	0.0752		-0.8994	0.0699	
Endowments	0.0378	0.0030		0.0282	0.0033	
	East-West Differentials 1992			East-West Differentials 1993		
category	differentials	std.error	t-value	differentials	std.error	t-value
	holding schooling and training at respective average values					
z1	-0.3596	0.1237	-2.9070	-0.4032	0.1874	-2.1515
z2	-0.4000	0.0853	-4.6894	-0.4329	0.0970	-4.4604
z3	-0.5414	0.0858	-6.3063	-0.5734	0.0875	-6.5505
z4	-0.4877	0.0818	-5.9604	-0.4931	0.0862	-5.7190
z5	-0.5805	0.0813	-7.1406	-0.5538	0.0833	-6.6456
z6	-0.6195	0.0819	-7.5618	-0.6429	0.0855	-7.5174
z7	-0.6847	0.0810	-8.4475	-0.6702	0.0830	-8.0751
z8	-0.6626	0.0833	-7.9509	-0.6868	0.0881	-7.7918
z9	-0.6779	0.0824	-8.2270	-0.7230	0.0849	-8.5181
z10	-0.6985	0.0858	-8.1370	-0.6882	0.0856	-8.0359
z11	-0.6654	0.0836	-7.9622	-0.6385	0.0894	-7.1411
z12	-0.7407	0.0837	-8.8498	-0.7202	0.0901	-7.9927
z13	-0.6735	0.0843	-7.9847	-0.6654	0.0889	-7.4822
z14	-0.7341	0.1040	-7.0595	-0.4209	0.1203	-3.4982
z15	-0.6982	0.1195	-5.8422	-0.5628	0.1507	-3.7353
z16	-0.7006	0.2028	-3.4549	-0.7752	0.2506	-3.0936
	holding age and training at respective average values					
x1	-0.6992	0.2399	-2.9149	-0.4985	0.2604	-1.9147
x2	-0.6546	0.0774	-8.4536	-0.6988	0.0809	-8.6339
x3	-0.6726	0.0757	-8.8814	-0.6559	0.0782	-8.3851
x4	-0.6364	0.0819	-7.7716	-0.6273	0.0858	-7.3118
	holding age and schooling at respective average values					
x5	-0.5782	0.1015	-5.6947	-0.6097	0.1119	-5.4492
x6	-0.6136	0.0750	-8.1864	-0.6196	0.0777	-7.9718
x7	-0.6682	0.0902	-7.4087	-0.6138	0.0956	-6.4174
x8	-0.8160	0.0910	-8.9698	-0.7688	0.0941	-8.1696
	Decompositions:					
Overall	-0.6266	0.0746		-0.6260	0.0773	
Coefficients	-0.6595	0.0747		-0.6625	0.0773	
Endowments	0.0330	0.0033		0.0366	0.0033	

Table D4: East-West Wage Convergence. Including Schooling and Training Controls, Restricted Western Coefficients.

	East-West Convergence 1990-91			East-West Convergence 1991-92		
category	Δ differentials	std.error	t-value	Δ differentials	std.error	t-value
	holding schooling and training at respective average values					
z1	0.1779	0.1444	1.2319	0.1795	0.1638	1.0963
z2	0.1385	0.1269	1.0913	0.2869	0.1281	2.2398
z3	0.0842	0.1279	0.6583	0.1758	0.1282	1.3711
z4	0.1056	0.1243	0.8496	0.2821	0.1251	2.2555
z5	0.0801	0.1235	0.6483	0.2674	0.1235	2.1647
z6	0.1814	0.1233	1.4709	0.2208	0.1234	1.7893
z7	0.0907	0.1247	0.7270	0.2112	0.1247	1.6938
z8	0.1443	0.1248	1.1567	0.2319	0.1253	1.8503
z9	0.0778	0.1255	0.6204	0.3026	0.1261	2.3988
z10	0.1289	0.1257	1.0255	0.2354	0.1272	1.8505
z11	0.1328	0.1255	1.0577	0.2958	0.1261	2.3466
z12	0.0744	0.1259	0.5911	0.2379	0.1267	1.8784
z13	0.0455	0.1278	0.3557	0.2641	0.1293	2.0422
z14	0.1352	0.1341	1.0084	0.1475	0.1462	1.0087
z15	0.1088	0.1412	0.7705	0.2200	0.1612	1.3650
z16	0.2382	0.2209	1.0781	0.1319	0.2796	0.4716
	holding age and training at respective average values					
x1	-0.3650	0.3989	-0.9149	0.2141	0.4061	0.5272
x2	0.0881	0.1200	0.7339	0.2618	0.1190	2.2002
x3	0.1225	0.1186	1.0325	0.2243	0.1167	1.9222
x4	0.1148	0.1239	0.9268	0.2821	0.1246	2.2642
	holding age and schooling at respective average values					
x5	0.2200	0.1451	1.5160	0.1935	0.1525	1.2691
x6	0.1212	0.1180	1.0267	0.2405	0.1160	2.0736
x7	0.0722	0.1315	0.5488	0.3224	0.1353	2.3837
x8	0.0346	0.1310	0.2640	0.2439	0.1350	1.8065
	Aggregate:					
Standard Weights	0.1132	0.1179		0.2446	0.1156	
Fixed Endowments	0.1116	0.1180		0.2450	0.1157	

	East-West Convergence 1992-93			East-West Convergence 1990-93		
category	Δ differentials	std.error	t-value	Δ differentials	std.error	t-value
	holding schooling and training at respective average values					
z1	-0.0436	0.2268	-0.1922	0.3139	0.2133	1.4717
z2	-0.0329	0.1394	-0.2358	0.3924	0.1383	2.8375
z3	-0.0321	0.1353	-0.2369	0.2280	0.1350	1.6886
z4	-0.0054	0.1335	-0.0401	0.3823	0.1328	2.8797
z5	0.0267	0.1316	0.2030	0.3742	0.1315	2.8458
z6	-0.0234	0.1321	-0.1769	0.3789	0.1319	2.8712
z7	0.0144	0.1317	0.1096	0.3163	0.1318	2.4001
z8	-0.0242	0.1335	-0.1815	0.3520	0.1329	2.6484
z9	-0.0452	0.1333	-0.3390	0.3353	0.1326	2.5279
z10	0.0103	0.1346	0.0768	0.3746	0.1331	2.8140
z11	0.0268	0.1337	0.2006	0.4554	0.1332	3.4204
z12	0.0205	0.1357	0.1510	0.3329	0.1350	2.4653
z13	0.0081	0.1382	0.0583	0.3176	0.1368	2.3222
z14	0.3132	0.1692	1.8514	0.5959	0.1588	3.7522
z15	0.1354	0.1965	0.6890	0.4642	0.1805	2.5718
z16	-0.0746	0.3218	-0.2318	0.2955	0.2723	1.0850
	holding age and training at respective average values					
x1	0.2007	0.3579	0.5607	0.0499	0.3496	0.1426
x2	-0.0442	0.1275	-0.3470	0.3057	0.1282	2.3840
x3	0.0167	0.1250	0.1334	0.3635	0.1265	2.8733
x4	0.0091	0.1329	0.0682	0.4060	0.1321	3.0740
	holding age and schooling at respective average values					
x5	-0.0315	0.1624	-0.1942	0.3819	0.1552	2.4603
x6	-0.0060	0.1242	-0.0484	0.3556	0.1259	2.8246
x7	0.0545	0.1438	0.3788	0.4491	0.1401	3.2068
x8	0.0473	0.1427	0.3313	0.3257	0.1386	2.3497
	Aggregate:					
Standard Weights	0.0006	0.1239		0.3585	0.1259	
Fixed Endowments	0.0039	0.1240		0.3680	0.1262	

Table D5: Genuine East-West Convergence 1990-93, Restricted Western Coefficients.

	No human capital controls			Controls for education		
category	Δ differentials	std.error	t-value	Δ differentials	std.error	t-value
z2	0.3112	0.1404	2.2176	0.2841	0.1484	1.9143
z3	0.2739	0.1266	2.1644	0.2519	0.1358	1.8550
z4	0.3450	0.1250	2.7607	0.3083	0.1347	2.2884
z5	0.3827	0.1218	3.1414	0.3216	0.1324	2.4285
z6	0.3308	0.1238	2.6715	0.2852	0.1338	2.1309
z7	0.4050	0.1205	3.3610	0.3515	0.1312	2.6800
z8	0.3793	0.1278	2.9665	0.2997	0.1367	2.1920
z9	0.3739	0.1207	3.0980	0.3158	0.1315	2.4011
z10	0.3960	0.1256	3.1526	0.3701	0.1352	2.7377
z11	0.4477	0.1280	3.4992	0.4242	0.1367	3.1031
z12	0.3977	0.1244	3.1964	0.3738	0.1351	2.7676
z13	0.4290	0.1250	3.4321	0.3876	0.1354	2.8618
z14	0.7237	0.1553	4.6607	0.5621	0.1604	3.5055
z15	0.5242	0.1836	2.8554	0.4540	0.1847	2.4588
z16	0.3479	0.2791	1.2464	0.2518	0.2711	0.9289
	Aggregate:					
	0.4069	0.1146		0.2135	0.1428	

Appendix E Figures.

Figure B2: Western Age-Wage Profiles, GSOEP 1990-93. No Human Capital Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

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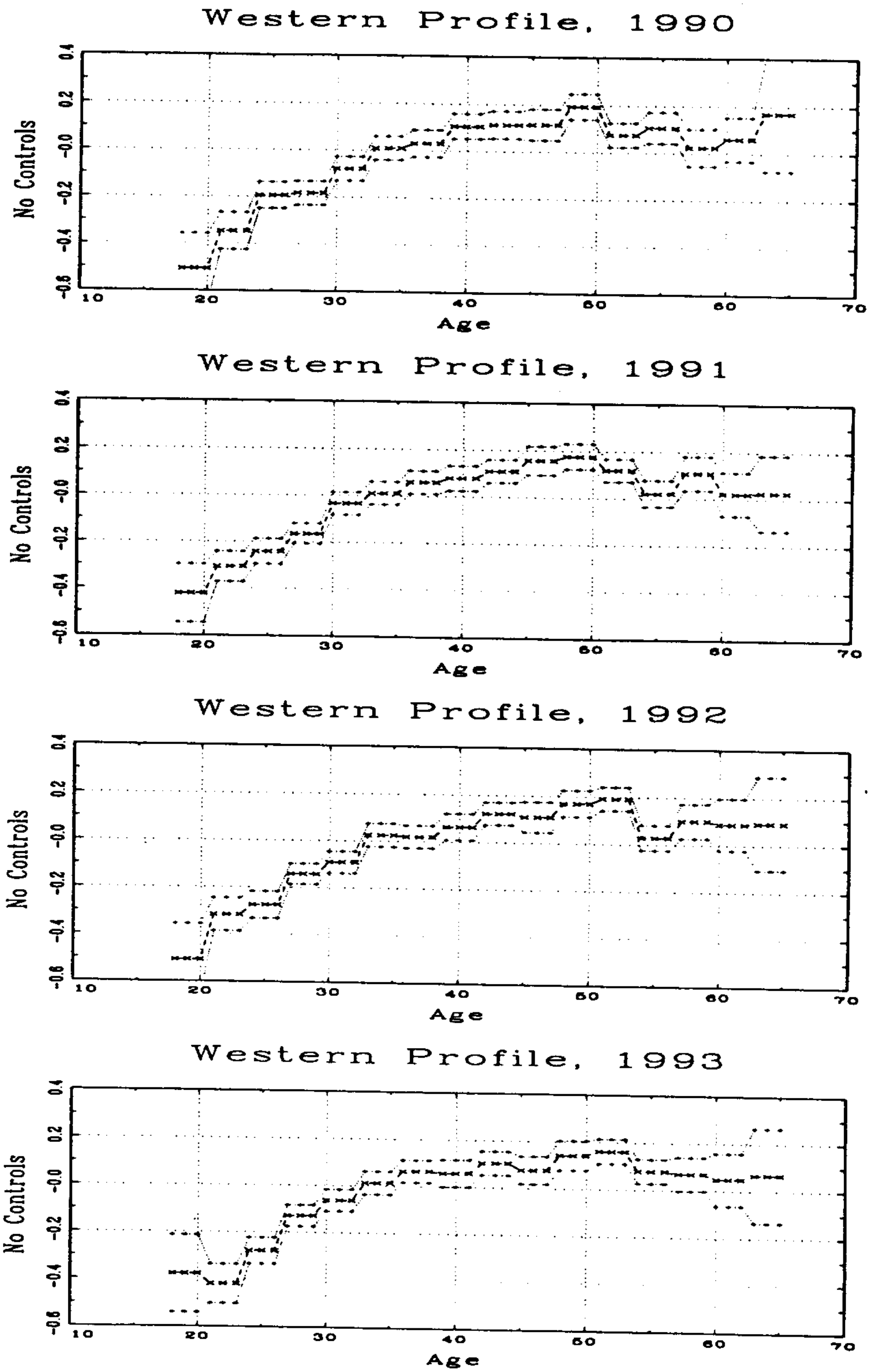
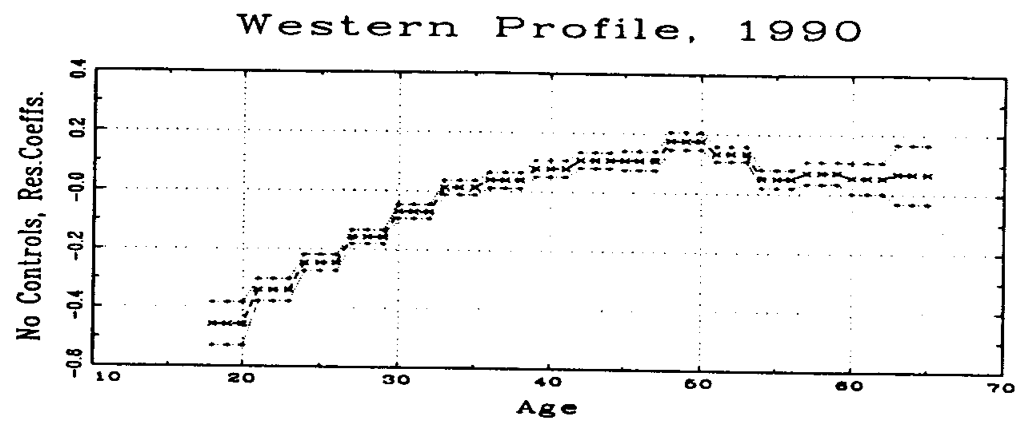
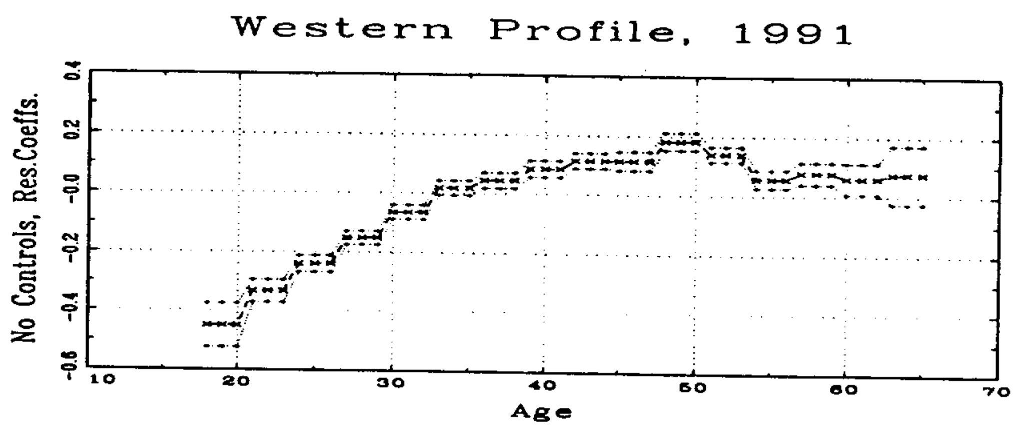
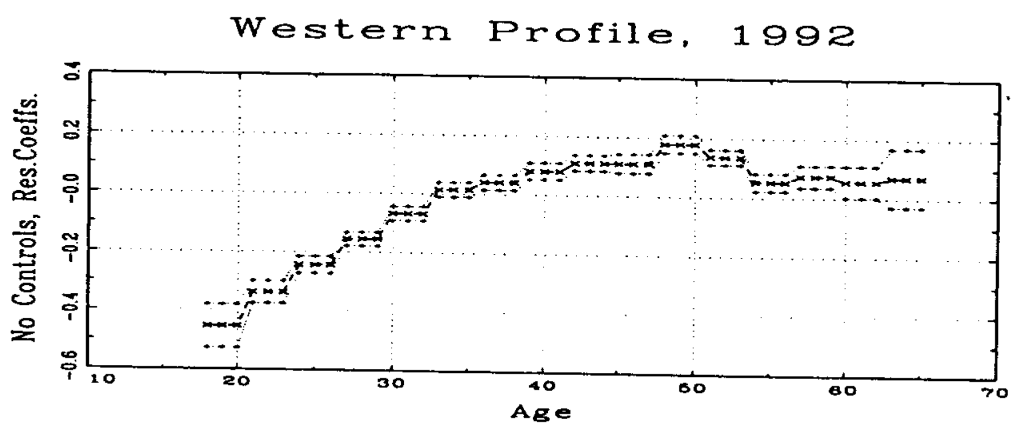


Figure B3: Western Age-Wage Profiles, GSOEP 1990-93. No Human Capital Controls. Restricted, Re-normalized Coefficients (Pooled).







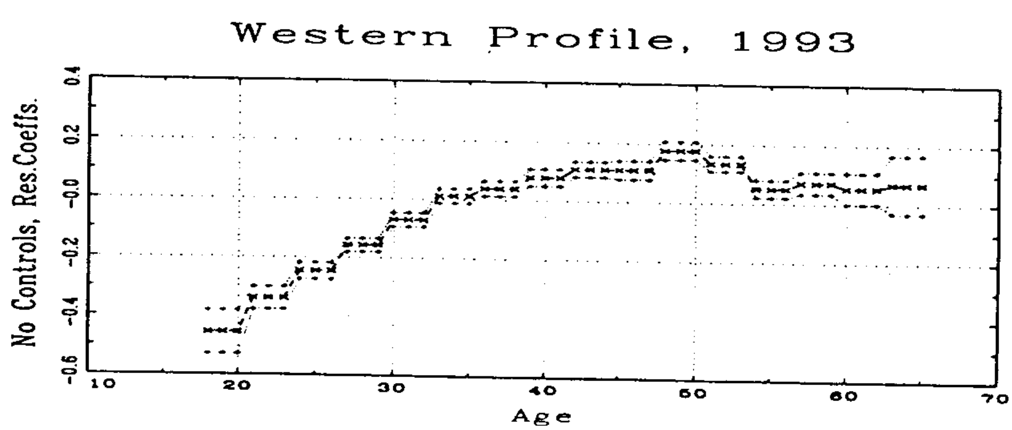


Figure B4: Western Age-Wage Profiles, GSOEP 1990-93. Including Schooling and Training Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

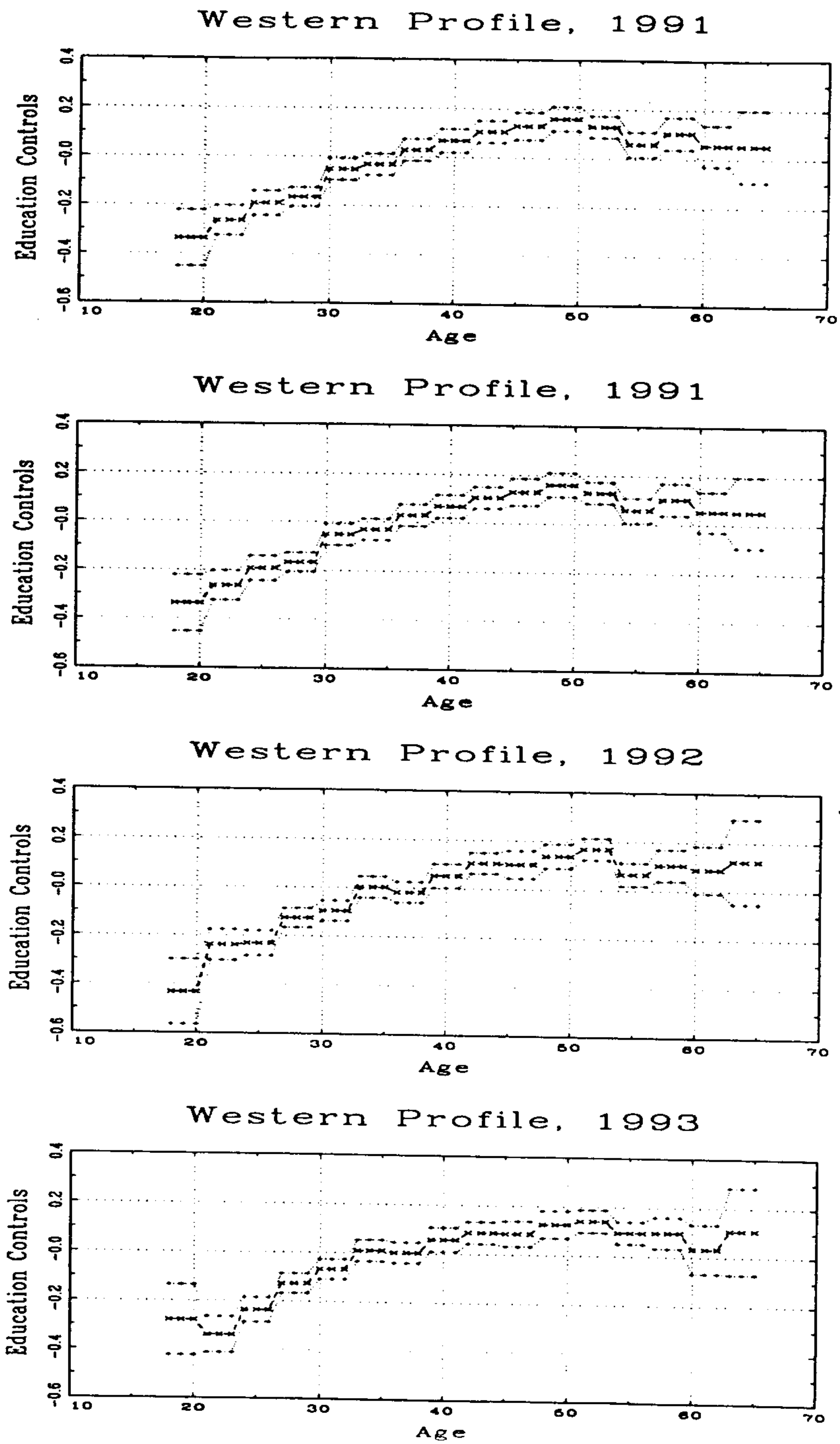
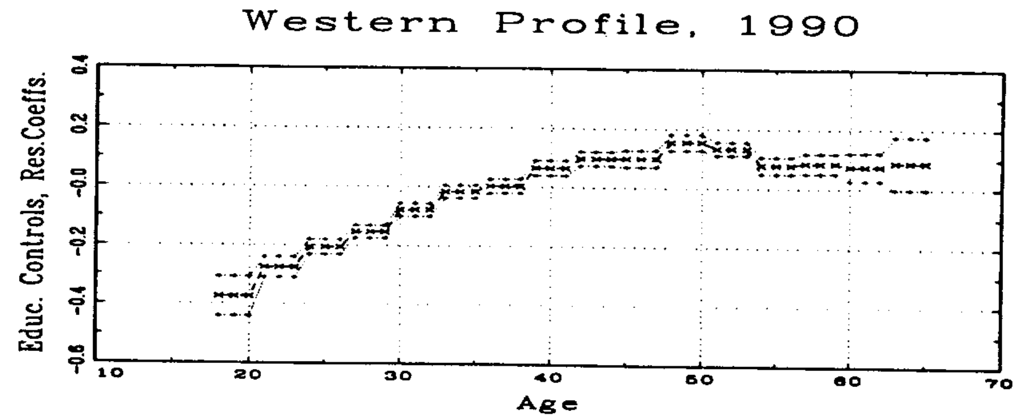
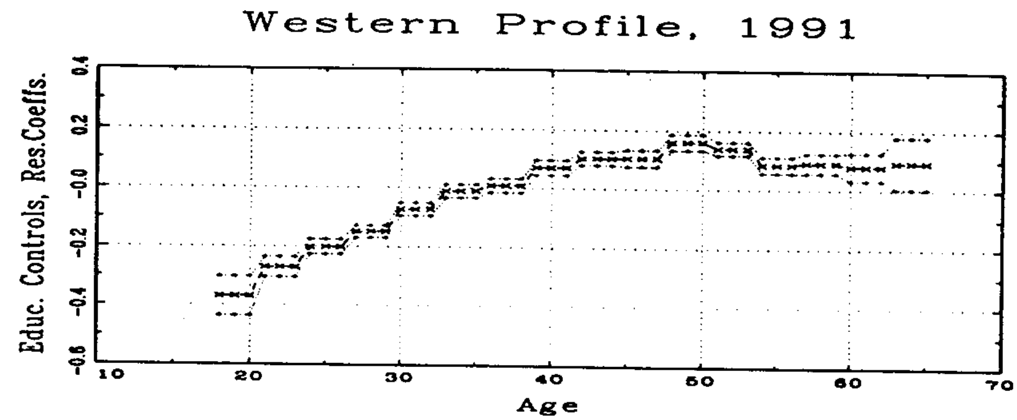
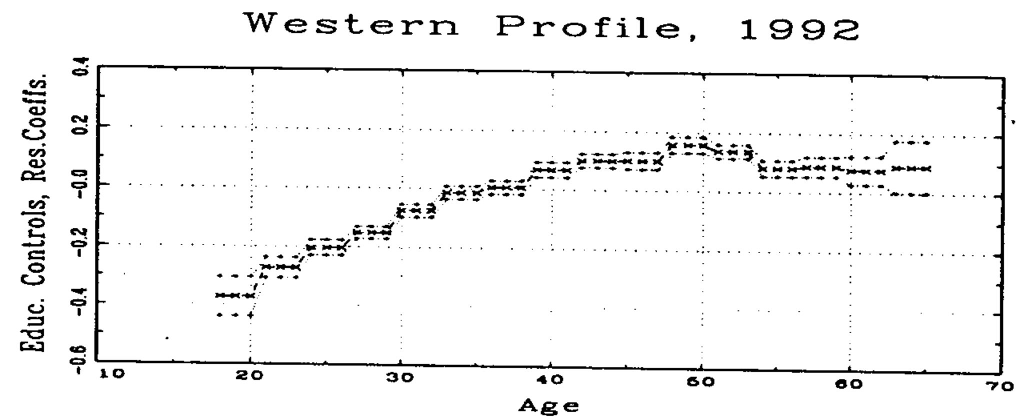


Figure B5: Western Age-Wage Profiles, GSOEP 1990-93. Including Schooling and Training Controls. Restricted, Re-normalized Coefficients (Pooled).







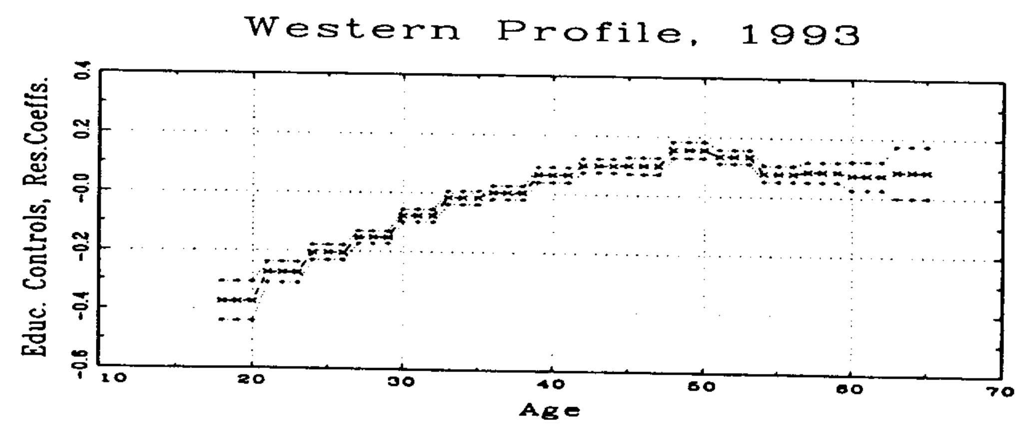
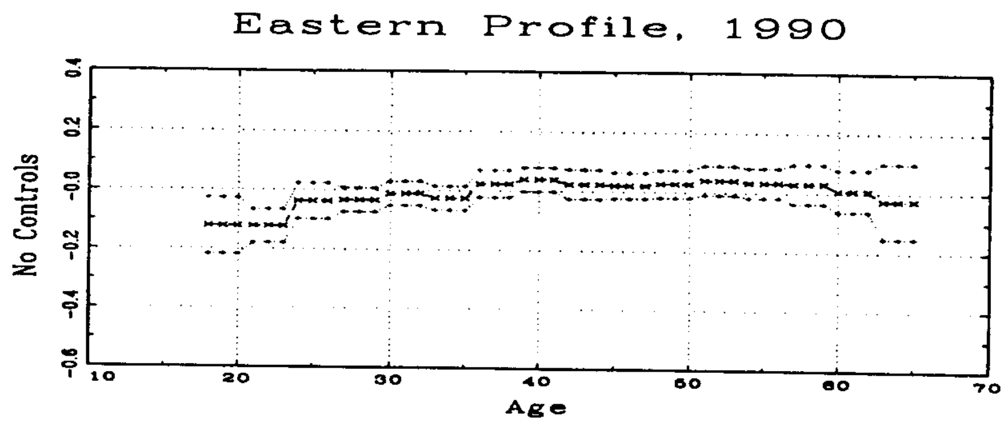
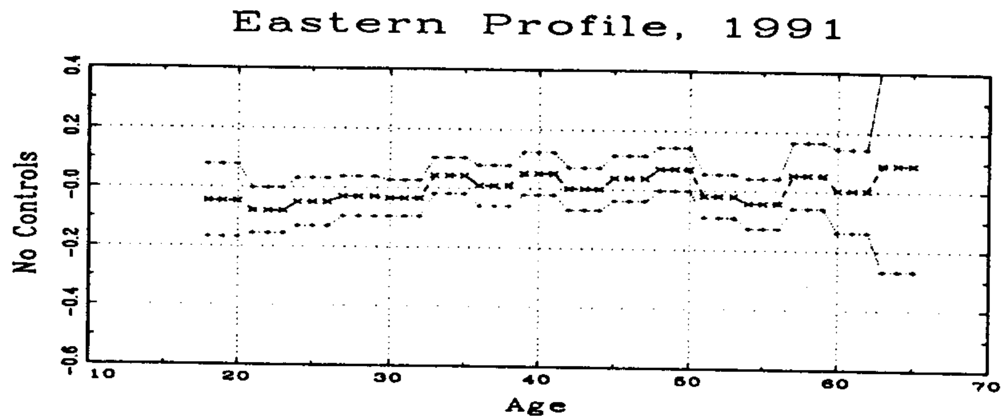
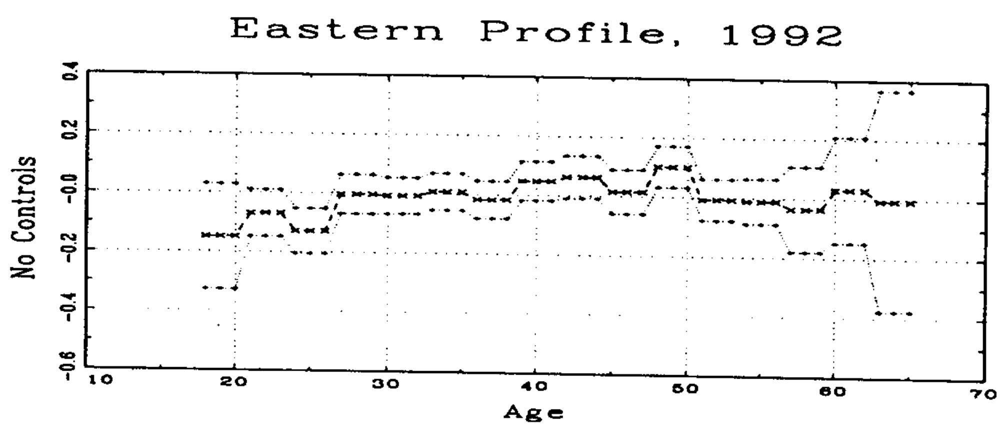


Figure C1: Eastern Age-Wage Profiles GSOEP 1990-93. No Human Capital Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).







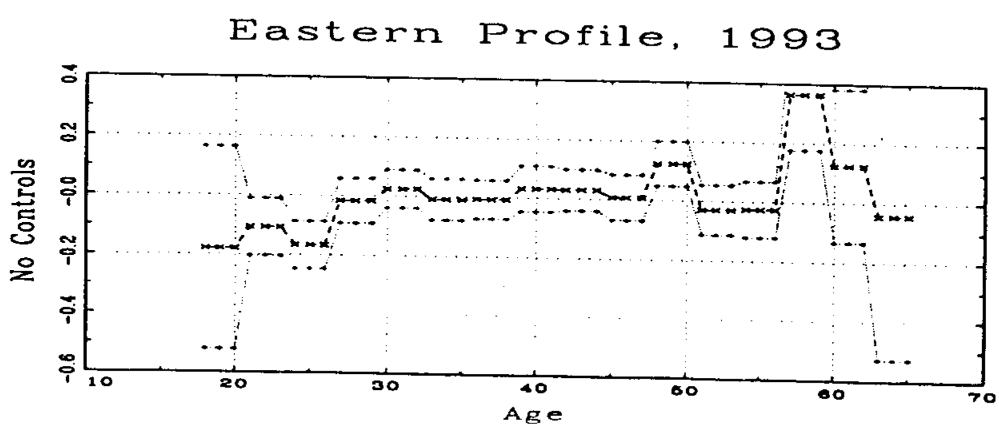


Figure C2: Eastern Age-Wage Profiles GSOEP 1990-93. Including Schooling and Training Controls. Unrestricted, Re-normalized Coefficients (Year-by-Year).

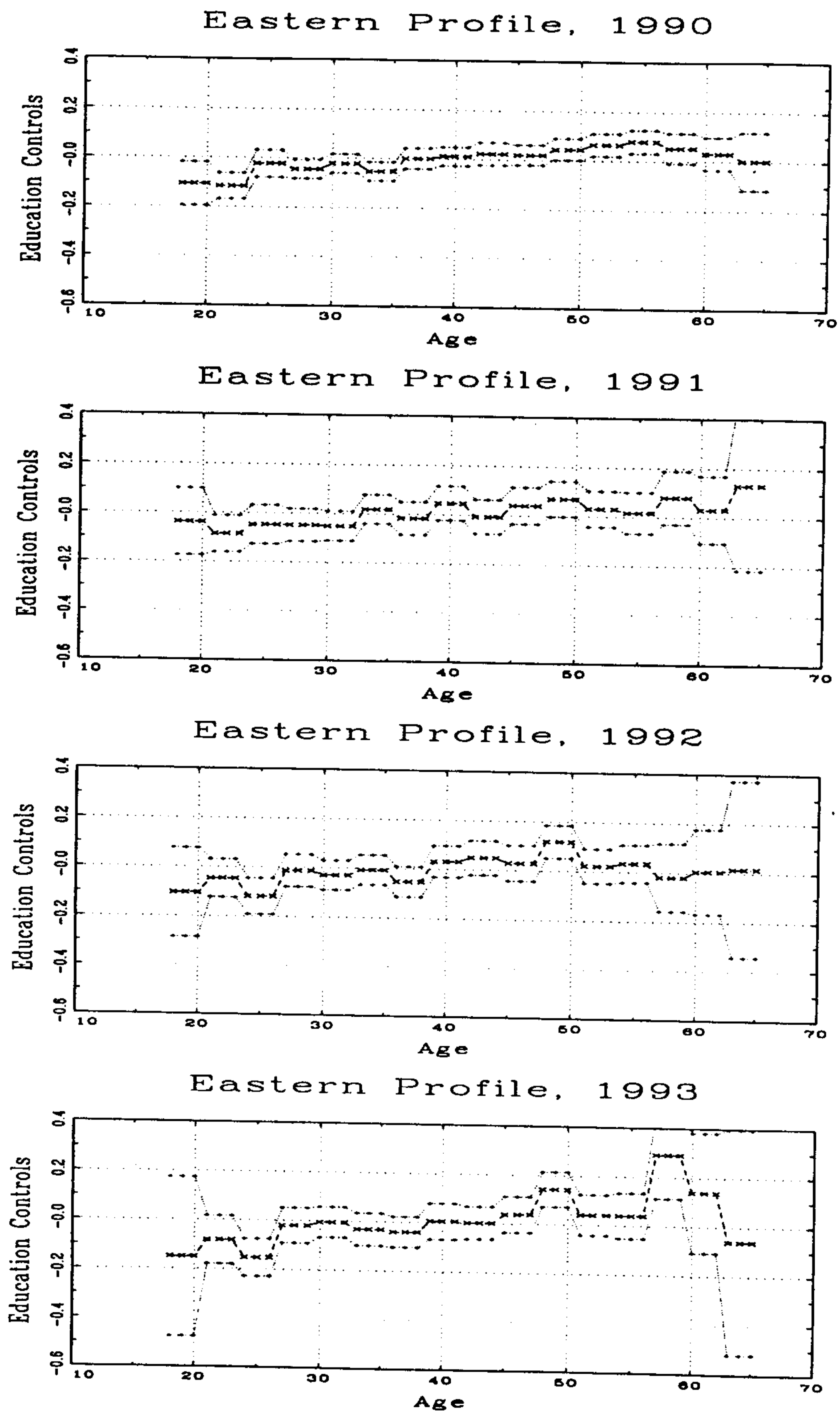
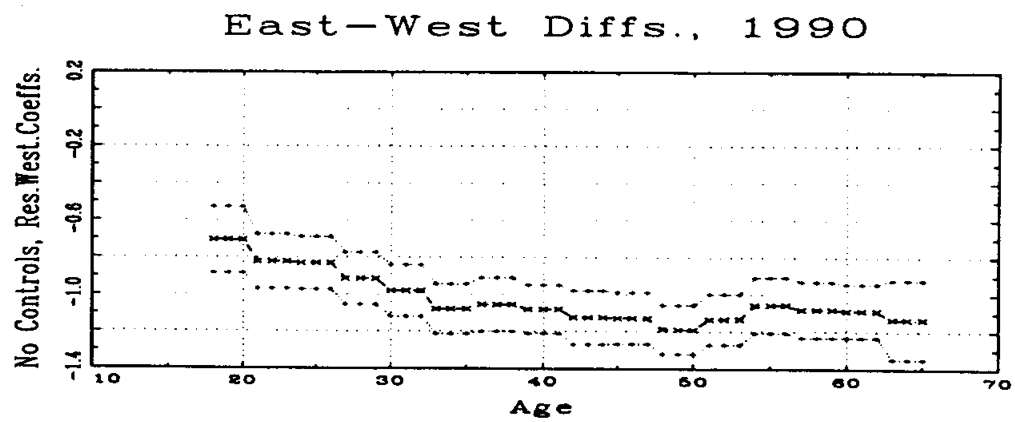
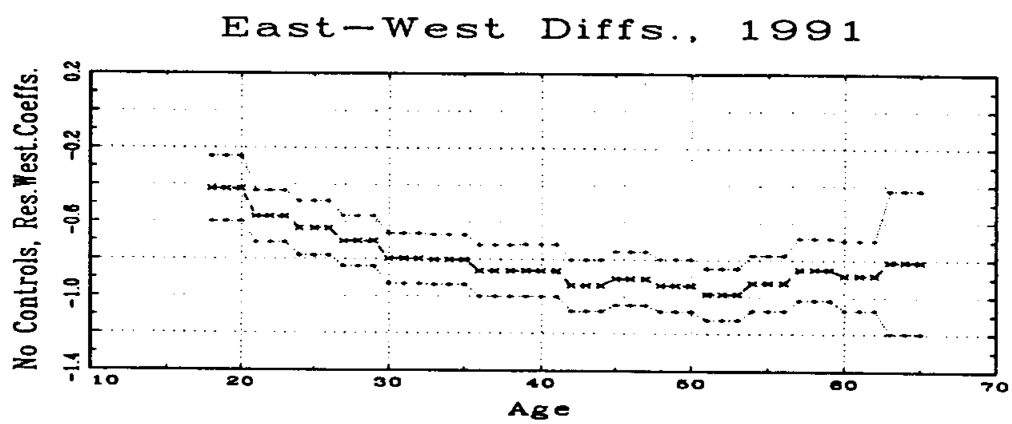
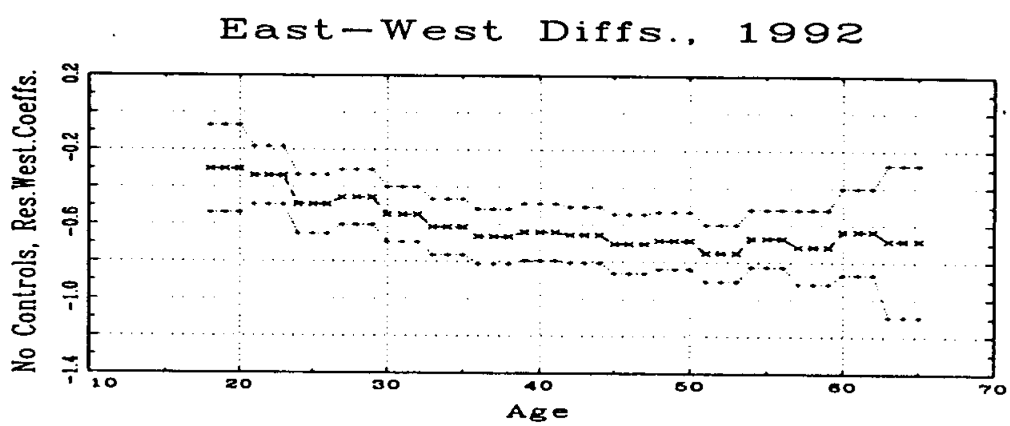


Figure D1: East-West Wage Differentials. No Human Capital Controls. Restricted Western Coefficients.







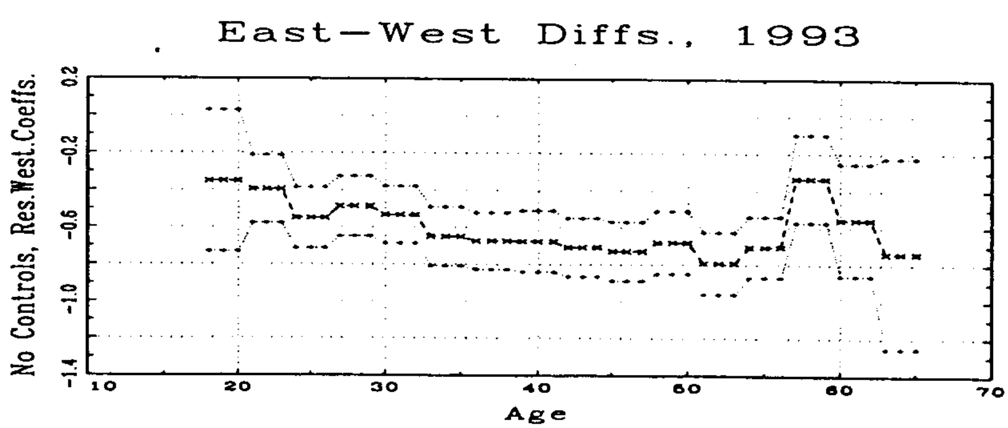
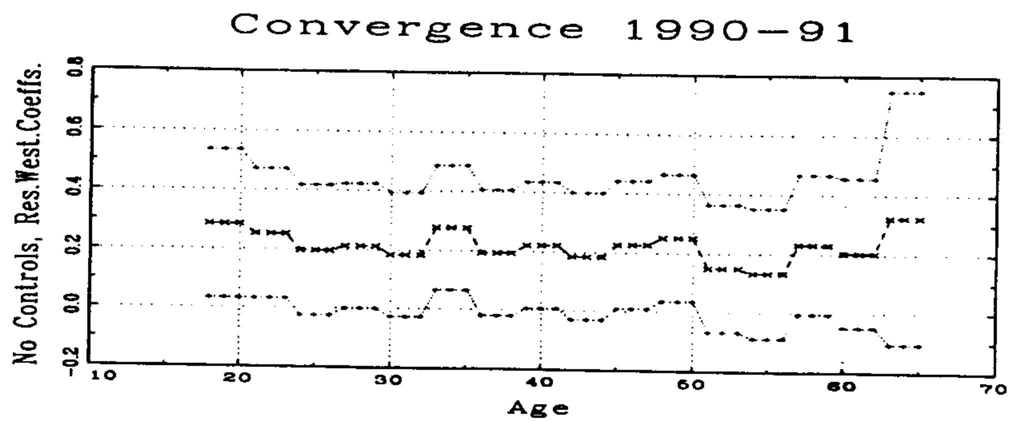
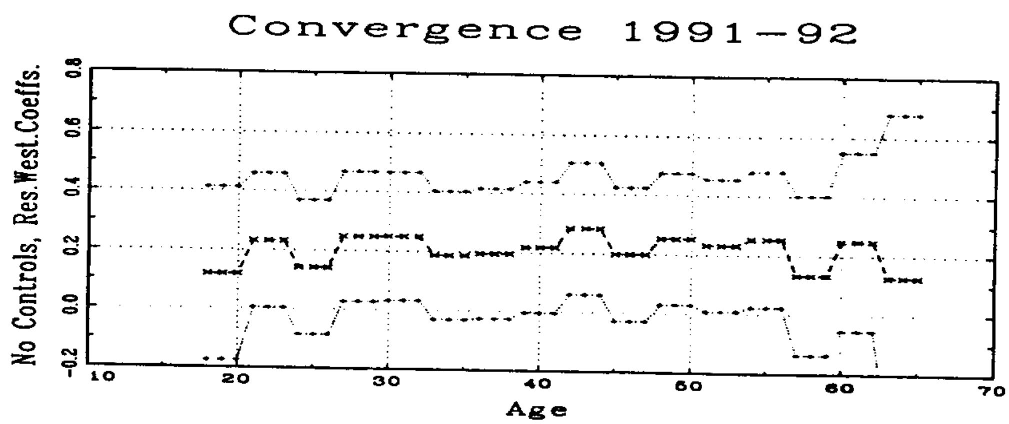


Figure D2: East-West Wage Convergence. No Human Capital Controls. Restricted Western Coefficients.





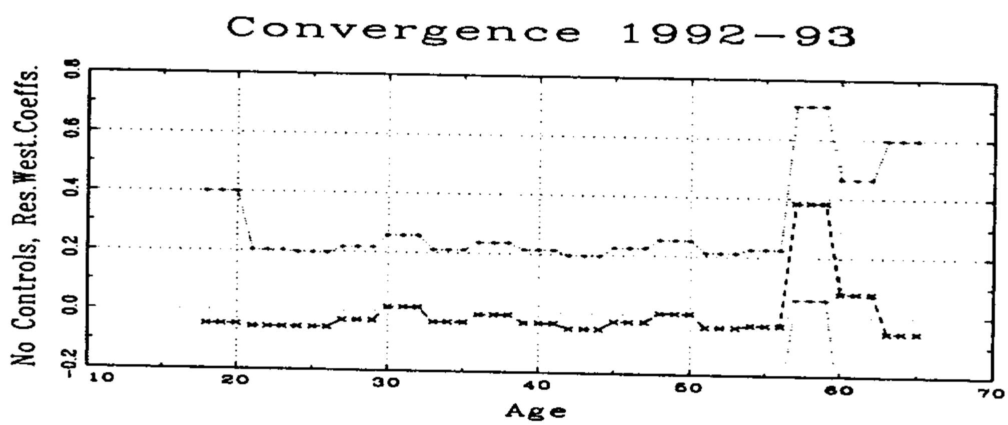
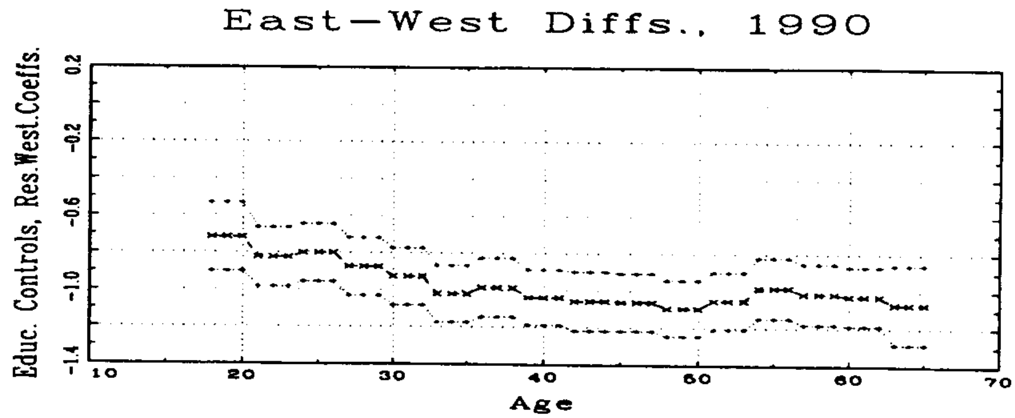
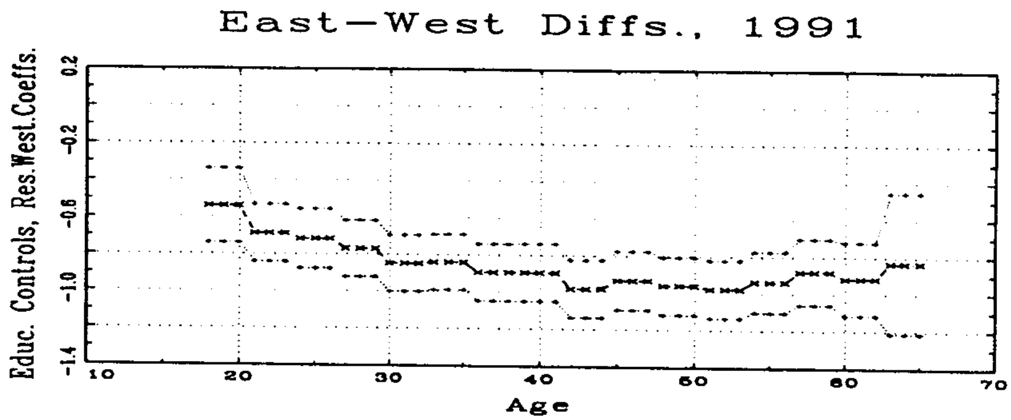
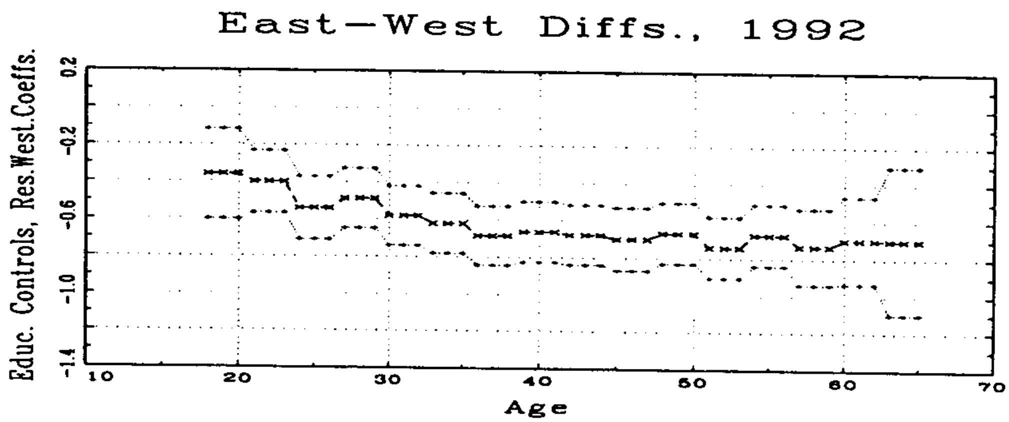


Figure D3: East-West Wage Differentials. Including Schooling and Training Controls. Restricted Western Coefficients.







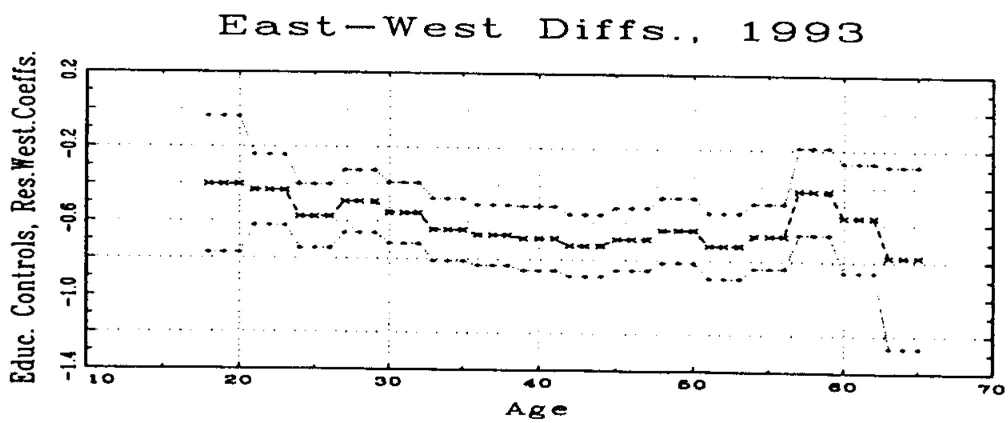


Figure D4: East-West Wage Convergence. Including Schooling and Training Controls. Restricted Western Coefficients.

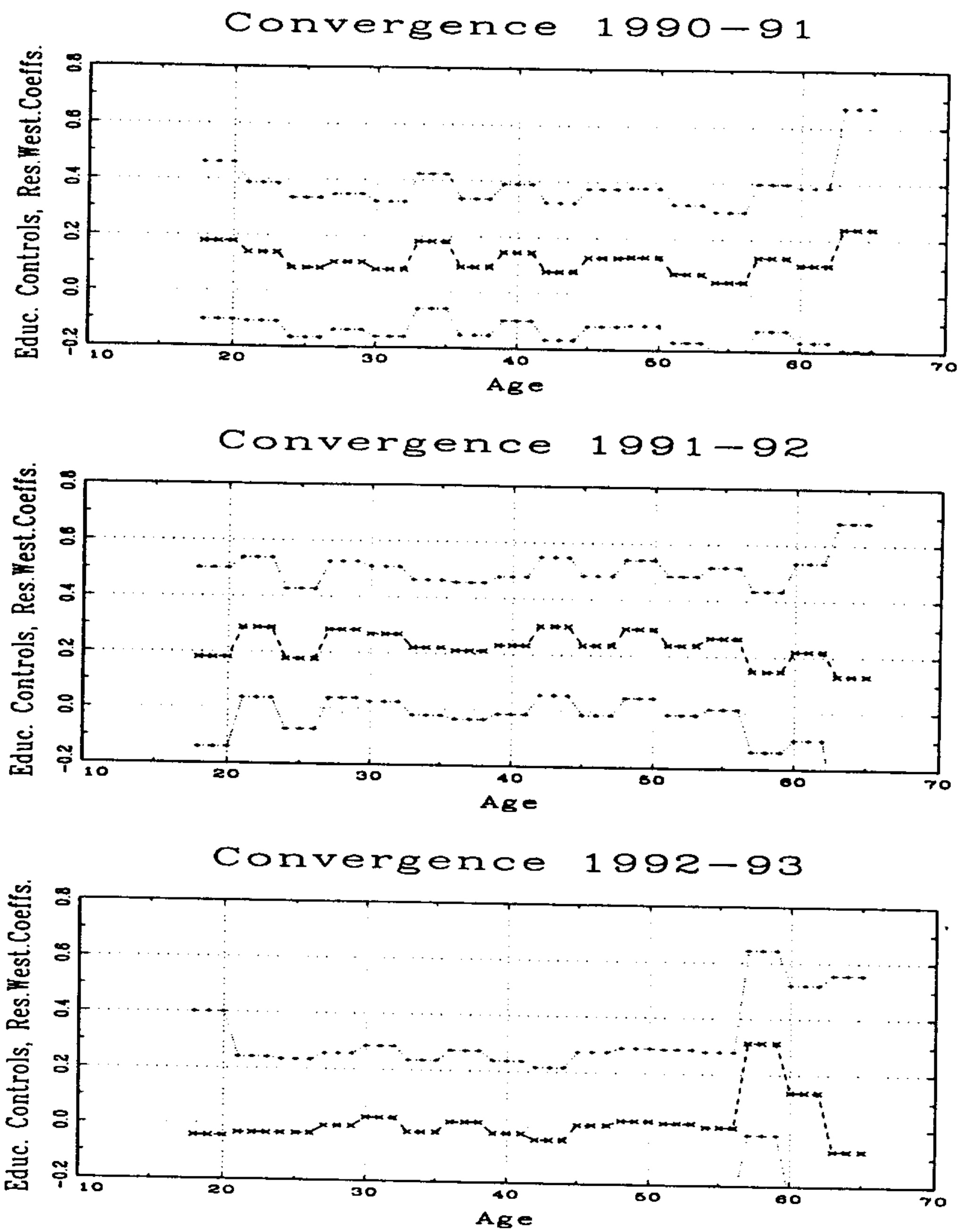


Figure D5: Genuine East-West Wage Convergence 1990-93. Restricted Western Coefficients.