

Appendix D: estimation results for separation equations

In this Appendix display and discuss the estimation results corresponding to the separation equations:

An important result of the two reduced form separation equations, as displayed in Table 1, are that the identifying restrictions are jointly highly significant. This suggests, together with the result that the individual coefficients carry the expected signs, that we have chosen good proxy variables for reorganization costs. A second indicator for the validity of our exclusion restriction is the fact that the exclusion restrictions turn out to be both separately (with only two exceptions) and jointly insignificantly different from zero if we insert them into the level equations.¹

Turning to the individual coefficient estimates, we find that exporting firms and firms facing foreign competition are significantly more likely to reorganize workplaces than non-exporters and firms without foreign competitors in the home market. This result seems reasonable since firms that are faced with foreign competition are forced to produce efficiently in order to stay competitive on international markets. Reorganizing workplaces may be one factor within a whole

¹Note that there is no formal test for the validity of the exclusion restrictions in this three equations simultaneous equations setting. What we did here is to separately estimate the productivity equations for each of the workplace reorganization regimes and to include the exclusion restriction in these productivity equations. If they turn out to be insignificant, this indicates — but does not formally prove — that they are truly exogenous to labor productivity.

set of complementary strategies such as investing in ICT in order to improve efficiency and productivity.

Firms with problems in hiring qualified apprentices are less likely to change workplace organization. This is in line with our view that difficulties in finding qualified apprentices is a good indicator for having difficulties in hiring qualified personnel in general which in turn implies difficulties in adjusting the workforce to a new workplace organizational form.

A favorable economic performance in the second-last quarter leads to a decrease in the probability of enhancing group work. The set of input factors does not significantly affect firms' decision to enforce group work but has a highly significant effect on the decision to flatten hierarchies. Unsurprisingly, larger firms tend to flatten hierarchies more often than smaller firms since they have more potential to flatten hierarchies. Sector affiliation does not play a significant role in the decision of reorganizing workplaces. East German firms have a significantly larger probability to reorganize workplaces than their West German competitors. This might be due to the fact that East German firms had to go through strong structural changes after the reunification in 1990 and thus might be generally more flexible than their West German counterparts. On the other hand, a lot of East German firms are still very young and thus might be more open-minded with respect to new organizational forms.

The parameters ρ_1 and ρ_2 measure the correlation between the error terms u_{ioc}

(u_{inoc}) of the two labor productivity equations and the error term ε_i of the separation equation (8). If ρ_1 and ρ_2 are zero, the model reduces to an exogenous switching regression model (?, 1983, pp.283-284). The correlation coefficients are jointly significant in all of the equations, indicating that treating workplace reorganization as truly exogenous for labor productivity is inappropriate. While the correlations between the selection equations and the level equations with workplace reorganization are insignificant, highly significant correlations exist for the selection equations and the productivity equations without workplace reorganization. The negative signs of the correlation coefficients indicate that, consistent with our model, an unanticipated productivity shock leads to a decrease in firms' propensity to reorganize workplaces.

Both the level and the selection equations are precisely measured, as indicated by the highly significant tests for joint significance of the entire parameter vectors.

Table 1: Switching regression estimation results: selection equations

	Group work reinforcement		Flattening of hierarchies	
	Coeff.	Std. err.	Coeff.	Std. err.
$\ln(ICT)$	0.0383	0.0632	0.0301	0.0652
$\ln(K)$	-0.0190	0.0581	0.0054	0.0656
$\ln(L)$	0.0765	0.0763	0.1801***	0.0814
East Germany	0.4726***	0.1916	0.4323	0.1689
Exporting firm	0.3181***	0.1420	0.0628	0.1548
Foreign competition	0.3898***	0.1417	0.4614***	0.1417
Apprenticeship problem	-0.3447***	0.1361	-0.1777	0.1505
Sales balance $_{t-2}$	-3.0770*	2.3208	–	–
Sales balance $_{t-3}$	2.8707	2.4112	–	–
Constant	-0.1106	0.4815	-1.5689***	0.5205
Wald tests for joint significance				
	χ^2	p -value	χ^2	p -value
Factor inputs	2.5596	0.4646	10.9846	0.0118
Sector dummies	9.4173	0.4001	11.9677	0.2152
Sales balances	1.7584	0.4151	–	–
Entire set of identifiers	24.4614	0.0002	14.6839	0.0021
Entire sel. eq.	49.8462	0.0001	52.6885	0.0000
Wald tests for joint significance: entire switching regression model				
Correlation coefficients	27.9659	0.0000	21.4703	0.0000
Entire switching regression	207.2210	0.0000	217.3362	0.0000

Table 1 displays estimation results for the selection equations of the endogenous switching regression model. A total of 411 observations was involved in the estimations.