

Europe and the US: Internal Migration (ctd.)

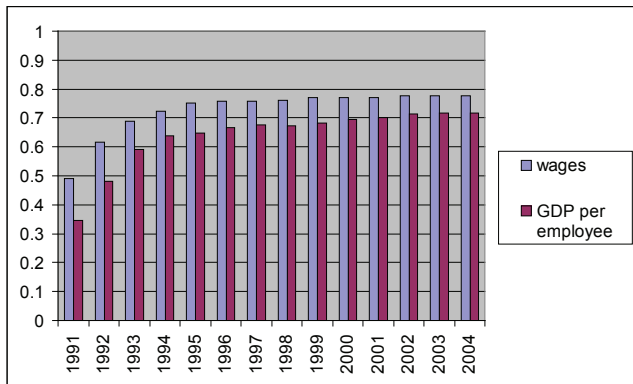
Labor Supply

Alexander Bick

Goethe Universität

Summer Term, 2010

East-West Ratio of Labor Productivity and Wages, 1991-2004



Unemployment Rates in Germany, 1998-2004



Migration in Germany, 1957 to 2000

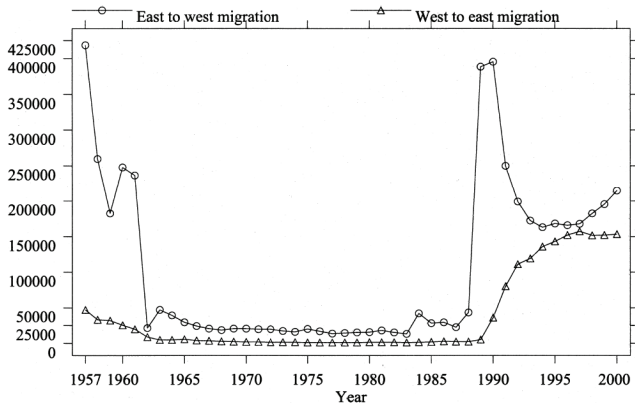


FIGURE 1. German East–West Migration, 1957–2000.

Source: Hunt (2006)

Regression on State-Level Data (Hunt, 2006)

$$\begin{aligned}\log M_{sdt} = & \alpha_{sd} + \beta_0 \log W_{st} + \beta_1 \log W_{dt} + \beta_2 \log U_{st} + \beta_3 \log U_{dt} \\ & + \beta_4 \log S_{st} + \beta_5 \log S_{dt} + \beta_6 EW_{sd} \times t + \beta_7 EW_{sd} \times t^2 \\ & + \beta_8 WE_{sd} \times t + \beta_9 EE_{sd} \times t + \sum_j \gamma_j T_j + \varepsilon_{sdt},\end{aligned}\tag{1}$$

Results from Regression on State-Level Data (Hunt, 2006)

TABLE 2. Determinants of migration 1991–2000: state-level data.

	(1)	(2)	(3)	(4)
EW × (Year-1991)	-0.187 (0.016)	-0.091 (0.025)	-0.084 (0.025)	-0.073 (0.025)
EW × (Year-1991) ²	0.020 (0.002)	0.011 (0.002)	0.010 (0.002)	0.009 (0.002)
WE × (Year-1991)	0.034 (0.008)	0.003 (0.009)	0.004 (0.009)	0.003 (0.009)
EE × (Year-1991)	0.026 (0.008)	0.009 (0.008)	0.011 (0.008)	0.012 (0.008)
Destination hourly wage (log)	-	1.794 (0.209)	1.570 (0.222)	1.378 (0.261)
Source hourly wage (log)	-	-0.846 (0.284)	-0.935 (0.297)	-0.327 (0.354)
Destination unemployment (log)	-	-	-0.190 (0.065)	-0.196 (0.065)
Source unemployment (log)	-	-	-0.026 (0.061)	-0.014 (0.060)
Destination short time (log)	-	-	-	-0.017 (0.011)
Source short time (log)	-	-	-	0.051 (0.012)
Observations		2250		
R ²	0.21	0.25	0.26	0.27
1992 slope of EW quadratic	-0.147 (0.013)	-0.069 (0.021)	-0.063 (0.021)	-0.054 (0.020)
1998 slope of EW quadratic	0.096 (0.009)	0.063 (0.010)	0.061 (0.010)	0.059 (0.010)

Notes: Newey-West standard errors, computed by state pair cluster with a maximum lag of 9, are in parentheses. Estimation of the log of the migration flow is by fixed effects. EW = east-west flow. Covariates include year dummies and a trend interacted with dummies for East → Berlin, Berlin → East, West → Berlin, and Berlin → West.

Results from Age-Specific Regression (Hunt, 2006)

TABLE 3. Determinants of migration by age: state-level data.

	All	Age 18–24		Age 25–49		Age 50–64	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EW × (Year-1991)	-0.053 (0.030)	-0.227 (0.026)	0.029 (0.034)	-0.258 (0.021)	-0.074 (0.029)	-0.152 (0.025)	-0.051 (0.040)
EW × (Year-1991) ²	0.007 (0.003)	0.027 (0.003)	0.002 (0.003)	0.029 (0.003)	0.010 (0.003)	0.012 (0.003)	0.001 (0.004)
WE × (Year-1991)	-0.022 (0.013)	0.009 (0.011)	-0.033 (0.014)	0.007 (0.010)	-0.033 (0.012)	0.060 (0.012)	0.019 (0.014)
EE × (Year-1991)	0.011 (0.013)	0.032 (0.013)	0.041 (0.015)	0.025 (0.012)	0.017 (0.014)	0.046 (0.009)	0.017 (0.015)
Destination hourly wage (log)	1.558 (0.272)	-	1.431 (0.339)	-	1.061 (0.286)	-	1.889 (0.406)
Source hourly wage (log)	-0.909 (0.489)	-	-0.803 (0.505)	-	-0.750 (0.480)	-	-0.102 (0.632)
Destination unemployment (log)	-0.174 (0.072)	-	-0.131 (0.093)	-	-0.259 (0.072)	-	-0.097 (0.116)
Source unemployment (log)	0.090 (0.080)	-	-0.057 (0.096)	-	0.151 (0.076)	-	0.279 (0.115)
Destination short time (log)	-0.027 (0.013)	-	-0.028 (0.012)	-	-0.032 (0.012)	-	0.011 (0.021)
Source short time (log)	0.061 (0.018)	-	0.138 (0.018)	-	0.051 (0.018)	-	0.005 (0.026)
Observations	962						
R ²	0.44	0.44	0.55	0.31	0.40	0.33	0.36
1992 slope of EW quadratic	-0.039 (0.025)	-0.174 (0.020)	0.033 (0.028)	-0.201 (0.017)	-0.054 (0.024)	-0.128 (0.020)	-0.049 (0.033)
1998 slope of EW quadratic	0.043 (0.014)	0.146 (0.018)	0.058 (0.017)	0.143 (0.014)	0.070 (0.014)	0.018 (0.019)	-0.036 (0.019)

Notes: Newey-West standard errors, computed by state pair cluster with a maximum lag of 9, are in parentheses. Estimation of the log of the migration flow for the relevant age group is by fixed effects. EW = east-west flow. Covariates include year dummies and a trend interacted with dummies for East → Berlin, Berlin → East, West → Berlin, and Berlin → West.

Results from Regression on Individual Data (Hunt, 2006)

TABLE 7. Larger GSOEP sample—effects of education, gender, age, and distance.

	Transfer commuters			Transfer emigrants		
	(1)	(2)	(3)	(4)	(5)	(6)
Sex (female = 1)	–	–	–	0.43 (–6.6)	0.37 (–4.7)	1.20 (1.1)
Age 18–21	–	–	–	3.60 (4.8)	1.40 (0.9)	8.29 (5.5)
Age 22–25	–	–	–	2.68 (3.7)	1.70 (1.5)	6.56 (5.4)
Age 26–29	–	–	–	2.01 (2.7)	1.27 (0.7)	4.29 (4.2)
Age 30–35	–	–	–	1.93 (2.8)	1.21 (0.6)	1.96 (1.9)
Age 36–45	–	–	–	1.84 (2.8)	1.18 (0.6)	1.49 (1.1)
General schooling	2.05 (4.0)	1.27 (0.8)	2.50 (4.2)	1.52 (1.8)	1.23 (0.6)	1.14 (0.5)
University	1.14 (0.7)	1.22 (0.6)	1.36 (1.3)	1.17 (0.8)	1.11 (0.3)	1.83 (2.3)
Vocational training	0.96 (–0.2)	0.97 (–0.1)	0.84 (–0.8)	1.15 (0.8)	1.07 (0.3)	1.09 (0.4)
Increase in education	4.99 (1.07)	1.83 (1.3)	4.11 (4.4)	3.29 (4.8)	1.62 (1.1)	1.54 (1.2)
West Berlin border 1990	–	–	–	4.79 (10.0)	4.59 (6.6)	1.52 (1.7)
Rest of west border 1990	–	–	–	3.34 (7.3)	3.02 (4.0)	0.71 (–1.1)
Pseudo- R^2		0.03			0.09	
Log likelihood		–3,255			–3,073	
Observations			20,734			

Notes: Columns 1–3 and 4–6 present the results of two multinomial logits (the reference group is stayers). Exponentiated coefficients are presented. t -statistics for the untransformed coefficients, adjusted for repeated observations on individuals, are reported in parentheses. Transfer emigrants are dropped. The omitted year is 1990, omitted education is apprenticeship, omitted age is 46–53. Covariates also include a dummy for missing information on 1990 location.

Results from Regression on Individual Data (Hunt, 2006)

TABLE 8. Smaller GSOEP sample—effect of additional variables.

	Transfer			Transfer		
	Commuters	commuters	Emigrants	Commuters	commuters	Emigrants
	(1)	(2)	(3)	(4)	(5)	(6)
Laid off	4.10 (9.7)	1	2.56 (3.6)	4.03 (9.5)	1	2.57 (3.7)
Short time	2.17 (2.3)	0.57 (-0.6)	2.56 (2.4)	2.05 (2.2)	0.60 (-0.5)	2.59 (2.4)
Not working	3.49 (7.7)	1	2.11 (3.2)	2.56 (3.7)	1	2.24 (2.5)
Not working 1990	0.50 (-2.6)	0.47 (-1.6)	0.66 (-1.3)	0.52 (-2.4)	0.60 (-1.0)	0.66 (-1.3)
City 50,000–500,000 1990	0.74 (-1.3)	0.75 (-0.8)	0.29 (-2.4)	0.74 (-1.3)	0.73 (-0.8)	0.29 (-2.4)
City >500,000 1990	1.30 (1.4)	1.98 (2.6)	1.97 (2.5)	1.32 (1.5)	1.67 (1.9)	1.96 (2.5)
Partner	1.11 (0.6)	0.69 (-1.2)	0.73 (-1.1)	1.12 (0.6)	0.61 (-1.6)	0.73 (-1.1)
Partner × partner laid off	1.09 (0.3)	0.66 (-0.8)	1.88 (1.9)	1.07 (0.3)	0.70 (-0.7)	1.88 (1.9)
Partner × partner on short time	0.89 (-0.2)	2.86 (1.5)	1.67 (1.1)	0.88 (-0.3)	3.02 (1.6)	1.67 (1.1)
Partner × partner not working	1.00 (-0.0)	2.53 (3.4)	1.28 (0.7)	1.00 (-0.0)	2.68 (3.5)	1.28 (2.4)
Wage/1000 × working	-	-	-	0.87 (-1.5)	1.28 (4.7)	1.03 (0.3)
Pseudo- R^2		0.13			0.14	
Log likelihood		-2,526			-2,510	
Observations			19,057			

Notes: Columns 1–3 and 4–6 present the results of two multinomial logits (the reference group is stayers). Exponentiated coefficients are presented. t -statistics for the untransformed coefficients, adjusted for repeated observations on individuals, are reported in parentheses. Transfer emigrants are dropped. The omitted year is 1990, omitted education is apprenticeship, omitted age is 46–53. Covariates also include the covariates of Table 7: sex, age dummies, education dummies, location dummies, dummies for missing 1990 information on work status and location, and year dummies. The coefficients on not working and laid off are constrained to be zero for transfer commuters.

Results from Age-Specific Regression (Hunt, 2006)

TABLE 9. Smaller GSOEP sample—determinants of emigration by age.

	Ages 18–25			Ages 26–53		
	Transfer		Emigrants	Transfer		Emigrants
	Commuters	commuters		Commuters	commuters	
	(1)	(2)	(3)	(4)	(5)	(6)
Sex (female = 1)	0.37 (-4.3)	-	1.89 (2.0)	0.34 (-6.8)	0.29 (-4.2)	0.99 (-0.0)
Age 18–21	1.40 (1.2)	-	1.38 (0.9)	-	-	-
Age 26–29	-	-	-	2.06 (2.6)	1.53 (1.1)	5.16 (3.6)
Age 30–35	-	-	-	1.96 (2.8)	1.09 (0.3)	2.38 (1.9)
Age 36–45	-	-	-	1.85 (2.7)	1.02 (0.1)	2.43 (2.0)
General schooling	1.07 (0.2)	-	0.94 (-0.1)	1.86 (1.6)	0.64 (-0.4)	1.91 (1.2)
University	0.53 (-0.8)	-	4.76 (2.1)	1.46 (1.5)	0.73 (-0.9)	1.78 (1.5)
Vocational training	1.49 (1.1)	-	1.93 (1.4)	1.24 (1.1)	0.83 (-0.6)	1.27 (0.8)
Increase in education	4.75 (4.5)	-	1.28 (0.5)	2.84 (2.1)	1.33 (0.3)	4.50 (2.8)
West Berlin border 1990	4.28 (4.3)	-	1.12 (0.2)	4.09 (6.7)	4.71 (6.1)	0.93 (-0.2)
Rest of west border 1990	2.01 (2.2)	-	0.63 (-0.9)	4.11 (6.7)	3.32 (3.3)	0.91 (-0.2)
Laid off	2.83 (3.4)	-	2.27 (1.7)	4.27 (8.3)	1	2.76 (3.3)
Short time	-	-	-	2.23 (2.3)	1	2.94 (2.3)
Not working	2.34 (2.1)	-	2.1 (2.0)	2.99 (3.0)	1	1.85 (1.2)
Not working 1990	0.72 (-0.9)	-	0.50 (-1.3)	0.42 (-2.2)	1.23 (0.4)	0.71 (-0.8)
City 50,000–500,000 1990	0.59 (-1.3)	-	0.33 (-1.5)	0.85 (-0.6)	0.88 (-0.3)	0.28 (-1.7)
City > 500,000 1990	0.80 (-0.6)	-	0.70 (-0.8)	1.67 (2.3)	1.08 (0.3)	3.37 (3.4)
Wage/1000 × working	0.83 (-0.8)	-	1.19 (2.7)	0.91 (-0.9)	1.31 (6.1)	0.88 (-0.8)
Pseudo- R^2		0.11			0.15	
Log likelihood		-606			-1,743	
Observations		3,348			15,684	

Notes: Columns 1–3 and 4–6 present the results of two multinomial logits (the reference group is stayers). For the age group 18–25, transfer commuters are dropped. For further notes, see Table 8.

Work Hours in Europe and the US: The Facts

Labor Supply

Country	Total Hours per Week per Person (age 15-64) in 2004
US	25.1
UK	21.4
Belgium	17.9
Denmark	20.6
Finland	19.7
France	18.0
Germany	18.7
Greece	20.1
Ireland	20.1
Italy	16.7
Netherlands	17.3
Norway	19.9
Portugal	17.0
Spain	18.1
Sweden	19.1

Source: Alesina, Glaeser, Sacerdote (2005)

Work Hours in Europe and the US: A Decomposition

Country	Total Hours per Week per Person
US	25.1
France	18
Germany	18.7
Italy	16.7

Source: Alesina, Glaeser, Sacerdote (2005)

Work Hours in Europe and the US: A Decomposition (cont.)

Country	Total Hours per Week per Person	Employment/Pop 15-64
US	25.1	0.72
France	18	0.64
Germany	18.7	0.66
Italy	16.7	0.57

Source: Alesina, Glaeser, Sacerdote (2005)

Work Hours in Europe and the US: A Decomposition (cont.)

Country	Total Hours per Week per Person	Employment/Pop 15-64	Weeks Worked per Year
US	25.1	0.72	46.2
France	18	0.64	40.5
Germany	18.7	0.66	40.6
Italy	16.7	0.57	41

Source: Alesina, Glaeser, Sacerdote (2005)

Work Hours in Europe and the US: A Decomposition (cont.)

Country	Total Hours per Week per Person	Employment/Pop 15-64	Weeks Worked per Year	Usual Weekly Hours per Worker
US	25.1	0.72	46.2	39.4
France	18	0.64	40.5	36.2
Germany	18.7	0.66	40.6	36.5
Italy	16.7	0.57	41	37.4

Source: Alesina, Glaeser, Sacerdote (2005)

Time Series of Work Hours in Europe and the US

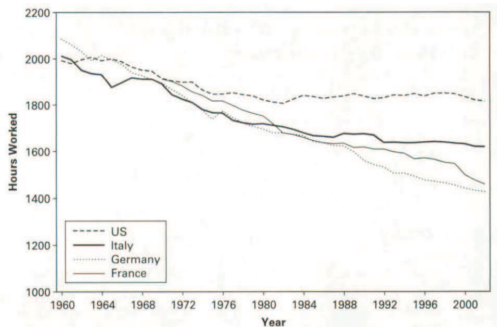


Figure 1.1

Annual Hours Worked over Time

Source: OECD data. Annual hours per employed person. Annual hours are equivalent to $52 \times$ usual weekly hours minus holidays, vacations, sick leave.

Source: Alesina, Glaeser, Sacerdote (2005)

Time Series of Work Hours and GDP in Europe and the US

	GDP per capita		GDP per hour worked		Hours worked per capita	
	1970	2000	1970	2000	1970	2000
EU-15 (US=100)	69	70	65	91	101	77

Source: Blanchard (2004)

Work Hours in Europe and the US: Evidence from Prescott (2004)

Table 1

Output, Labor Supply, and Productivity

In Selected Countries in 1993–96 and 1970–74

Period	Country	Relative to United States (U.S. = 100)		
		Output per Person*	Hours Worked per Person*	Output per Hour Worked
1993–96	Germany	74	75	99
	France	74	68	110
	Italy	57	64	90
	Canada	79	88	89
	United Kingdom	67	88	76
	Japan	78	104	74
	United States	100	100	100
1970–74	Germany	75	105	72
	France	77	105	74
	Italy	53	82	65
	Canada	86	94	91
	United Kingdom	68	110	62
	Japan	62	127	49
	United States	100	100	100

*These data are for persons aged 15–64.

Sources: See Appendix.

Work Hours and Tax Rates Across Countries, 2001

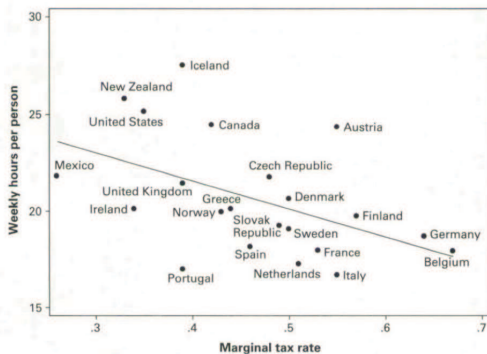


Figure 1.5
Weekly Hours per Person Versus Marginal Tax Rate
Source: OECD.

Source: Alesina, Glaeser, Sacerdote (2005)

Results from Prescott (2004)

Table 2

Actual and Predicted Labor Supply

In Selected Countries in 1993–96 and 1970–74

Period	Country	Labor Supply*		Differences (Predicted Less Actual)	Prediction Factors	
		Actual	Predicted		Tax Rate τ	Consumption/ Output (c/y)
1993–96	Germany	19.3	19.5	.2	.59	.74
	France	17.5	19.5	2.0	.59	.74
	Italy	16.5	18.8	2.3	.64	.69
	Canada	22.9	21.3	-1.6	.52	.77
	United Kingdom	22.8	22.8	0	.44	.83
	Japan	27.0	29.0	2.0	.37	.68
	United States	25.9	24.6	-1.3	.40	.81
1970–74	Germany	24.6	24.6	0	.52	.66
	France	24.4	25.4	1.0	.49	.66
	Italy	19.2	28.3	9.1	.41	.66
	Canada	22.2	25.6	3.4	.44	.72
	United Kingdom	25.9	24.0	-1.9	.45	.77
	Japan	29.8	35.8	6.0	.25	.60
	United States	23.5	26.4	2.9	.40	.74

*Labor supply is measured in hours worked per person aged 15–64 per week.
Sources: See Appendix.