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WHY DO PEOPLE STILL LIVE IN EAST GERMANY?

Jennifer Hunt

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1050 Massachusetts Avenue  
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**ABSTRACT**

In 1997 GDP per capita in East Germany was 57% of that of West Germany, wage rates were 75% of western levels, and the unemployment rate was at least double the western rate of 7.8%. One would expect that if capital flows and trade in goods failed to bring convergence, labor flows would respond, enhancing overall efficiency. Yet net emigration from East Germany has fallen from high levels in 1989-1990 to close to zero. Using state-level data for all of Germany, available from 1991-1996, I am able to explain the downward trend in east to west migration using wage and unemployment information. Convergence in hourly wages is the most important factor. Analysis of the eastern sample of the German Socio-Economic Panel for 1990-1997 suggests that commuting is unlikely to substitute substantially for emigration. The individual-level data further indicate that emigrants are disproportionately young and skilled, and that individuals suffering a layoff or non-employment spell are also much more likely to emigrate.

Jennifer Hunt

Department of Economics

Yale University

P.O. box 208264- Yale Station

New Haven, CT 06520-8264

and NBER

[jennifer.hunt@yale.edu](mailto:jennifer.hunt@yale.edu)

Table 1: Matrix of changes in commuting and migration status, GSOEP data  
(Number of observations in parentheses.)

| Year 0 status                 | Year 1 status                 |                |                |                     |                 |
|-------------------------------|-------------------------------|----------------|----------------|---------------------|-----------------|
|                               | Non-emigrant.<br>non-commuter | Emigrant       | Commuter       | Reverse<br>commuter |                 |
| Non-emigrant.<br>non-commuter | 96.9%<br>(16359)              | 0.8%<br>(138)  | 2.2%<br>(376)  | 0.05%<br>(8)        | 100%<br>(16881) |
| Emigrant                      | 2.7%<br>(19)                  | 96.6%<br>(682) | 0.3%<br>(2)    | 0.4%<br>(3)         | 100%<br>(706)   |
| Commuter                      | 28.1%<br>(193)                | 4.8%<br>(33)   | 67.1%<br>(461) | 0%<br>(0)           | 100%<br>(687)   |
| Reverse commuter              | 15.0%<br>(3)                  | 15.0%<br>(3)   | 0%<br>(0)      | 70.0%<br>(14)       | 100%<br>(20)    |
|                               | 90.6%<br>(16574)              | 4.7%<br>(856)  | 4.6%<br>(839)  | 0.1%<br>(25)        | 100%<br>(18294) |

Notes:

Data are for easterners age 18–53, for years 1990–1997.

A non-emigrant non-commuter lives and works in the east.

An emigrant lives and works in the west.

A commuter lives in the east and works in the west.

A reverse commuter lives in the west and commutes to the east.

Table 2: Means of Larger GSOEP Sample

|  | All   | Stayers | Commuters | Transfer<br>commuters | Emigrants | Transfer<br>emigrants |
|--|-------|---------|-----------|-----------------------|-----------|-----------------------|
| Sex (female=1)                           | 0.52  | 0.52    | 0.32      | 0.30                  | 0.59      | 0.42                  |
| Spouse                                   | 0.69  | 0.69    | 0.59      | 0.64                  | 0.49      | 0.42                  |
| Spouse*sex                               | 0.37  | 0.37    | 0.17      | 0.13                  | 0.28      | 0.16                  |
| Child 0–11                               | 0.43  | 0.43    | 0.45      | 0.47                  | 0.44      | 0.37                  |
| Child*sex                                | 0.23  | 0.23    | 0.12      | 0.12                  | 0.30      | 0.16                  |
| Age 18–21                                | 0.09  | 0.09    | 0.21      | 0.11                  | 0.23      | 0.21                  |
| Age 22–25                                | 0.09  | 0.09    | 0.11      | 0.12                  | 0.20      | 0.16                  |
| Age 26–35                                | 0.31  | 0.31    | 0.31      | 0.34                  | 0.33      | 0.32                  |
| Age 36–45                                | 0.30  | 0.31    | 0.27      | 0.29                  | 0.18      | 0.21                  |
| Age 46–53                                | 0.20  | 0.20    | 0.11      | 0.15                  | 0.07      | 0.11                  |
| General schooling                        | 0.09  | 0.09    | 0.14      | 0.10                  | 0.16      | 0.11                  |
| University                               | 0.10  | 0.10    | 0.12      | 0.13                  | 0.13      | 0.26                  |
| Vocational training                      | 0.22  | 0.22    | 0.21      | 0.23                  | 0.17      | 0.11                  |
| Apprenticeship                           | 0.58  | 0.59    | 0.53      | 0.54                  | 0.54      | 0.53                  |
| Border with West Berlin<br>1990          | 0.09  | 0.08    | 0.25      | 0.28                  | 0.12      | 0.16                  |
| Border with rest of<br>West Germany 1990 | 0.10  | 0.10    | 0.20      | 0.20                  | 0.05      | 0.21                  |
| Within 50km of West<br>Berlin 1990       | 0.04  | 0.04    | 0.04      | 0.06                  | 0.02      | 0                     |
| Within 50km rest of<br>West Germany 1990 | 0.22  | 0.22    | 0.15      | 0.13                  | 0.17      | 0.11                  |
| Distance 1990 missing                    | 0.07  | 0.07    | 0.04      | 0.05                  | 0.04      | 0.16                  |
| Observations                             | 16892 | 16359   | 275       | 101                   | 138       | 19                    |

Notes:

Sample is that of row 1 of Table 1, plus 11 individuals who were non-commuters, then emigrated but did not indicate their later commuter status. Education refers to the second year of the pair considered. Data are for 1990–1997.

Table 3: Means of Smaller GSOEP Sample

|  | All   | Stayers | Commuters | Transfer<br>commuters | Emigrants | Transfer<br>emigrants |
|--|-------|---------|-----------|-----------------------|-----------|-----------------------|
| Sex (female=1)                             | 0.52  | 0.53    | 0.30      | 0.31                  | 0.60      | 0.41                  |
| Spouse                                     | 0.69  | 0.69    | 0.59      | 0.63                  | 0.52      | 0.47                  |
| Spouse*sex                                 | 0.37  | 0.38    | 0.15      | 0.13                  | 0.30      | 0.18                  |
| Child age 0–11                             | 0.43  | 0.43    | 0.45      | 0.46                  | 0.47      | 0.35                  |
| Child age 0–11*sex                         | 0.23  | 0.24    | 0.11      | 0.12                  | 0.32      | 0.12                  |
| Age 18–21                                  | 0.09  | 0.09    | 0.20      | 0.10                  | 0.22      | 0.24                  |
| Age 22–25                                  | 0.09  | 0.09    | 0.11      | 0.12                  | 0.18      | 0.12                  |
| Age 26–35                                  | 0.31  | 0.31    | 0.31      | 0.34                  | 0.34      | 0.29                  |
| Age 36–45                                  | 0.31  | 0.31    | 0.26      | 0.27                  | 0.22      | 0.24                  |
| Age 46–53                                  | 0.20  | 0.20    | 0.11      | 0.17                  | 0.05      | 0.12                  |
| General schooling                          | 0.09  | 0.09    | 0.14      | 0.09                  | 0.17      | 0.06                  |
| University                                 | 0.10  | 0.10    | 0.13      | 0.12                  | 0.15      | 0.29                  |
| Vocational training                        | 0.22  | 0.22    | 0.21      | 0.21                  | 0.19      | 0.12                  |
| Apprenticeship                             | 0.59  | 0.59    | 0.52      | 0.57                  | 0.50      | 0.53                  |
| Border West Berlin 1990                    | 0.09  | 0.09    | 0.25      | 0.27                  | 0.12      | 0.18                  |
| Border with rest of<br>West Germany 1990   | 0.10  | 0.10    | 0.20      | 0.21                  | 0.07      | 0.18                  |
| Within 50km West Berlin 1990               | 0.04  | 0.04    | 0.04      | 0.07                  | 0.03      | 0                     |
| Within 50km rest West Germany              | 0.22  | 0.23    | 0.15      | 0.13                  | 0.17      | 0.06                  |
| Location 1990 missing                      | 0.05  | 0.05    | 0.03      | 0.02                  | 0.05      | 0.18                  |
| Not working in 1990                        | 0.09  | 0.10    | 0.09      | 0.06                  | 0.14      | 0                     |
| 1990 information missing                   | 0.08  | 0.08    | 0.12      | 0.12                  | 0.15      | 0.12                  |
| Not working                                | 0.21  | 0.21    | 0.32      | 0                     | 0.35      | 0                     |
| Laid off                                   | 0.10  | 0.09    | 0.33      | 0                     | 0.23      | 0                     |
| On short time                              | 0.03  | 0.03    | 0.05      | 0.01                  | 0.09      | 0.06                  |
| Spouse not working                         | 0.11  | 0.11    | 0.10      | 0.20                  | 0.09      | 0.12                  |
| Spouse on short time                       | 0.03  | 0.03    | 0.02      | 0.02                  | 0.05      | 0                     |
| Spouse laid off                            | 0.07  | 0.07    | 0.07      | 0.04                  | 0.12      | 0                     |
| Colleague emigrated 1989–90                | 0.21  | 0.21    | 0.22      | 0.22                  | 0.21      | 0.12                  |
| Relative emigrated 1989–90                 | 0.18  | 0.18    | 0.18      | 0.16                  | 0.21      | 0.18                  |
| Friend emigrated 1989–90                   | 0.20  | 0.20    | 0.29      | 0.27                  | 0.26      | 0.29                  |
| Household member emigrated in<br>past year | 0.01  | 0.01    | 0.01      | 0.04                  | 0.05      | 0                     |
| City 100–500,000 1990                      | 0.12  | 0.13    | 0.06      | 0.07                  | 0.03      | 0.06                  |
| City over 500,000 1990                     | 0.13  | 0.12    | 0.24      | 0.27                  | 0.24      | 0.41                  |
| Wage /1000                                 | 1.84  | 1.84    | 1.35      | 2.97                  | 1.31      | 2.91                  |
| Observations                               | 15558 | 15092   | 259       | 89                    | 101       | 17                    |

Note: The wage is monthly in 1991 DM, adjusted for the different price level in the east.

Table 4: Larger GSOEP Sample – Effects of Education, Gender, Age and Distance  
(Exponentiated coefficients; t–statistics in parentheses)

|                                  | Commuters<br>(1)   | Transfer<br>commuters<br>(2) | Emigrants<br>(3)   | Commuters<br>(4)   | Transfer<br>commuters<br>(5) | Emigrants<br>(6)   |
|----------------------------------|--------------------|------------------------------|--------------------|--------------------|------------------------------|--------------------|
| Sex (female=1)                   | ---                | ---                          | ---                | <b>0.42 (-6.3)</b> | <b>0.38 (-4.1)</b>           | 1.32 (1.6)         |
| Age 18–21                        | ---                | ---                          | ---                | <b>5.23 (6.0)</b>  | 1.88 (1.3)                   | <b>9.35 (5.4)</b>  |
| Age 22–25                        | ---                | ---                          | ---                | <b>2.64 (3.4)</b>  | 2.05 (1.7)                   | <b>7.78 (5.2)</b>  |
| Age 26–35                        | ---                | ---                          | ---                | <b>1.95 (2.9)</b>  | 1.54 (1.4)                   | <b>3.26 (3.2)</b>  |
| Age 36–45                        | ---                | ---                          | ---                | <b>1.74 (2.4)</b>  | 1.27 (0.8)                   | 1.89 (1.6)         |
| General schooling                | <b>1.82 (3.1)</b>  | 1.13 (0.4)                   | <b>2.04 (2.9)</b>  | 1.07 (0.3)         | 1.01 (0.0)                   | 0.99 (-0.0)        |
| University                       | 1.36 (1.5)         | 1.39 (1.0)                   | 1.43 (1.3)         | 1.42 (1.6)         | 1.28 (0.8)                   | <b>1.83 (2.1)</b>  |
| Vocational training              | 1.06 (0.4)         | 1.10 (0.4)                   | 0.80 (-1.0)        | 1.29 (1.5)         | 1.22 (0.7)                   | 1.00 (0.0)         |
| Border with West<br>Berlin 1990  | ---                | ---                          | ---                | <b>4.54 (8.5)</b>  | <b>5.51 (6.2)</b>            | 1.14 (0.5)         |
| Border with rest of<br>west 1990 | ---                | ---                          | ---                | <b>3.24 (6.4)</b>  | <b>3.59 (4.1)</b>            | <b>0.43 (-2.1)</b> |
| Within 50km West<br>Berlin 1990  | ---                | ---                          | ---                | 1.53 (1.4)         | 2.43 (1.7)                   | 0.41 (-1.5)        |
| Within 50km rest of<br>west 1990 | ---                | ---                          | ---                | 0.97 (-0.1)        | 0.95 (-0.1)                  | <b>0.62 (-2.0)</b> |
| 1991                             | <b>0.52 (-3.6)</b> | <b>0.41 (-2.0)</b>           | 1.02 (0.1)         | <b>0.54 (-3.3)</b> | 0.43 (-1.9)                  | 1.06 (0.2)         |
| 1992                             | <b>0.40 (-4.6)</b> | 0.63 (-1.2)                  | 0.64 (-1.6)        | <b>0.41 (-4.3)</b> | 0.65 (-1.1)                  | 0.66 (-1.5)        |
| 1993                             | <b>0.30 (-5.4)</b> | 0.84 (-0.5)                  | <b>0.49 (-2.3)</b> | <b>0.31 (-5.1)</b> | 0.88 (-0.4)                  | <b>0.51 (-2.1)</b> |
| 1994                             | <b>0.29 (-5.4)</b> | 1.20 (0.6)                   | <b>0.36 (-2.9)</b> | <b>0.31 (-5.0)</b> | 1.29 (0.8)                   | <b>0.38 (-2.8)</b> |
| 1995                             | <b>0.23 (-5.6)</b> | 0.48 (-1.7)                  | <b>0.38 (-2.8)</b> | <b>0.25 (-5.2)</b> | 0.53 (-1.5)                  | <b>0.40 (-2.6)</b> |
| 1996                             | <b>0.42 (-4.2)</b> | <b>1.91 (2.2)</b>            | <b>0.35 (-3.0)</b> | <b>0.47 (-3.7)</b> | <b>2.14 (2.5)</b>            | <b>0.38 (-2.7)</b> |
| Pseudo-R2                        |                    | 0.02                         |                    |                    | 0.09                         |                    |
| Log likelihood                   |                    | -2750                        |                    |                    | -2579                        |                    |
| Observations                     |                    | 16873                        |                    |                    | 16873                        |                    |

Notes: Estimation is by multinomial logit (reference group is stayers) with standard errors adjusted for repeated observations on individuals for 1990–1997. Transfer migrants are dropped. The omitted year is 1990, omitted education is apprenticeship, omitted age is 46–53. T–statistics presented are for the untransformed coefficients. Covariates also include dummies for missing distance information.

Table 5: Larger GSOEP Sample – Effects of Interactions of Gender  
(Exponentiated coefficients; t–statistics in parentheses.)

|                                       | Commuters<br>(1)   | Transfer<br>commuters<br>(2) | Emigrants<br>(3)   | Emigrants and<br>transfer emigrants<br>(3') |
|---------------------------------------|--------------------|------------------------------|--------------------|---|
| Sex (female=1)                        | 0.76 (–1.3)        | 1.04 ( 0.1)                  | 1.52 ( 1.6)        | 1.40 ( 1.4)                                 |
| Spouse                                | 1.27 ( 1.0)        | 1.77 ( 1.4)                  | 1.32 ( 0.7)        | 1.16 ( 0.4)                                 |
| Spouse*sex                            | 0.60 (–1.7)        | <b>0.22 (–3.1)</b>           | 0.49 (–1.6)        | 0.53 (–1.6)                                 |
| Child age 0–11                        | 1.25 ( 1.1)        | 1.12 ( 0.4)                  | 0.65 (–1.1)        | 0.70 (–1.0)                                 |
| Child*sex                             | <b>0.52 (–2.1)</b> | 0.79 (–0.5)                  | 1.76 ( 1.3)        | 1.59 (1.2)                                  |
| Age 18–21                             | <b>5.62 ( 5.5)</b> | 1.98 ( 1.2)                  | <b>8.64 ( 4.6)</b> | <b>7.76 ( 4.6)</b>                          |
| Age 22–25                             | <b>3.00 (3.5)</b>  | 2.38 ( 1.9)                  | <b>7.68 ( 4.6)</b> | <b>6.50 ( 4.4)</b>                          |
| Age 26–35                             | <b>2.04 ( 2.8)</b> | 1.64 ( 1.4)                  | <b>3.52 ( 3.0)</b> | <b>3.15 ( 2.9)</b>                          |
| Age 36–45                             | <b>1.72 ( 2.3)</b> | 1.27 ( 0.7)                  | 2.00 ( 1.7)        | 1.84 ( 1.7)                                 |
| General schooling                     | 1.07 ( 0.3)        | 1.05 ( 0.1)                  | 0.99 (–0.0)        | 0.91 (–0.2)                                 |
| University                            | 1.38 ( 1.5)        | 1.20 ( 0.6)                  | <b>1.77 ( 2.0)</b> | <b>2.02 ( 2.8)</b>                          |
| Vocational training                   | 1.30 ( 1.5)        | 1.21 ( 0.7)                  | 1.00 (–0.0)        | 0.97 (–0.1)                                 |
| Border with West Berlin               | <b>4.63 ( 8.5)</b> | <b>5.67 ( 6.3)</b>           | 1.14 ( 0.5)        | 1.23 ( 0.8)                                 |
| Border with rest west                 | <b>3.26 ( 6.4)</b> | <b>3.60 ( 4.1)</b>           | <b>0.43 (–2.1)</b> | 0.64 (–1.4)                                 |
| Within 50km West Berlin               | 1.51 ( 1.3)        | 2.39 ( 1.7)                  | 0.41 (–1.5)        | 0.38 (–1.6)                                 |
| Within 50km rest west                 | 0.98 (–0.1)        | 0.97 (–0.1)                  | <b>0.63 (–2.0)</b> | <b>0.63 (–2.1)</b>                          |
| Spouse+spouse*sex                     | 0.76 (–1.0)        | <b>0.39 (–2.3)</b>           | 0.64 (–1.6)        | 0.61 (–1.8)                                 |
| Child+child*sex                       | 0.65 (–1.6)        | 0.88 (–0.3)                  | 1.15 ( 0.5)        | 1.12 ( 0.4)                                 |
| Spouse+spouse*sex+<br>child+child*sex | <b>0.49 (–2.3)</b> | <b>0.34 (–2.0)</b>           | 0.74 (–1.0)        | 0.69 (–1.3)                                 |
| Pseudo–R2                             |                    | 0.09                         |                    | 0.09  |
| Log likelihood                        |                    | –2564                        |                    | –2654                                       |
| Observations                          |                    | 16873                        |                    | 16892                                       |

Notes: The first three columns are the results of a multinomial logit (reference group is stayers) with standard errors adjusted for repeated observations on individuals, 1990–1997. Column 3' presents partial results of a second regression which includes transfer migrants. The omitted education is apprenticeship, the omitted age is 46–53. T–statistics presented are for the untransformed coefficients. Covariates also include a dummy for missing distance information and year dummies.

Table 6: Smaller GSOEP Sample – Effect of Additional Variables  
(Exponentiated coefficients; t–statistics in parentheses)

|                                     | Commuters<br>(1)   | Transfer<br>commuters<br>(2) | Emigrants<br>(3)   | Commuters<br>(4)   | Transfer<br>commuters<br>(5) | Emigrants<br>(6)   |
|-------------------------------------|--------------------|------------------------------|--------------------|--------------------|------------------------------|--------------------|
| Spouse                              | 1.13 ( 0.7)        | 0.71 (–1.0)                  | 0.76 (–0.9)        | 1.19 ( 0.9)        | 0.78 (–0.7)                  | 0.79 (–0.7)        |
| Not working 1990                    | 0.57 (–1.9)        | 0.62 (–1.0)                  | 0.78 (–0.7)        | <b>0.56 (–2.0)</b> | 0.60 (–1.0)                  | 0.79 (–0.7)        |
| Not working                         | <b>2.67 ( 5.3)</b> | 2.55 ( 1.6)                  | <b>1.88 ( 2.4)</b> | <b>2.67 ( 5.3)</b> | 1                            | <b>1.88 ( 2.4)</b> |
| Short time                          | 1.85 ( 1.9)        | 0.58 (–0.6)                  | <b>2.45 ( 2.3)</b> | 1.86 ( 1.9)        | 0.61 (–0.5)                  | <b>2.47 ( 2.3)</b> |
| Laid off                            | <b>4.37 ( 9.8)</b> | 1                            | <b>2.44 ( 3.4)</b> | <b>4.37 ( 9.8)</b> | 1                            | <b>2.46 ( 3.4)</b> |
| Spouse not working                  | 1.09 ( 0.4)        | <b>2.60 ( 3.2)</b>           | 1.39 ( 0.9)        | 1.07 ( 0.3)        | <b>2.55 ( 3.1)</b>           | 1.38 ( 0.9)        |
| Spouse short time                   | 1.03 ( 0.1)        | 2.91 ( 1.5)                  | 1.65 ( 1.0)        | 1.00 ( 0.0)        | 2.89 ( 1.5)                  | 1.66 ( 1.0)        |
| Spouse laid off                     | 0.89 (–0.4)        | 0.74 (–0.6)                  | 1.83 ( 1.8)        | 0.91 (–0.3)        | 0.75 (–0.5)                  | 1.87 ( 1.9)        |
| City 50.000–<br>500.000             | 0.62 (–1.7)        | 0.79 (–0.5)                  | <b>0.25 (–2.4)</b> | 0.62 (–1.7)        | 0.78 (–0.5)                  | <b>0.25 (–2.4)</b> |
| City >500.000                       | 1.42 ( 1.7)        | <b>1.98 ( 2.2)</b>           | <b>1.98 ( 2.3)</b> | 1.35 ( 1.5)        | <b>1.98 ( 2.2)</b>           | <b>2.01 ( 2.3)</b> |
| Colleague emigrated<br>1989–90      | --                 | --                           | --                 | 0.89 (–0.6)        | 0.91 (–0.3)                  | 1.06 ( 0.2)        |
| Relative<br>emigrated 1989–90       | --                 | --                           | --                 | 1.17 ( 0.9)        | 0.94 (–0.2)                  | 1.30 ( 1.0)        |
| Friend<br>emigrated 1989–90         | --                 | --                           | --                 | <b>1.59 ( 2.7)</b> | 1.50 ( 1.5)                  | 1.22 ( 0.8)        |
| Household member<br>moved prev year | --                 | --                           | --                 | 0.66 (–0.6)        | <b>4.83 ( 2.9)</b>           | <b>5.47 ( 3.4)</b> |
| Pseudo–R2                           |                    | 0.13                         |                    |                    | 0.13                         |                    |
| Log likelihood                      |                    | –2161                        |                    |                    | –2147                        |                    |
| Observations                        |                    | 15541                        |                    |                    | 15541                        |                    |

Notes: Estimation is by multinomial logit (reference group is stayers) with standard errors adjusted for repeated observations on individuals for 1990–1997. Transfer migrants are dropped. T–statistics presented are for the untransformed coefficients. Covariates also include those of Table 4 columns 4–6: sex, age dummies, education dummies, distance dummies, dummies for missing distance information and missing 1990 information, and year dummies. The coefficients on not working, and laid off are constrained to be zero for transfer commuters.

Table 7: Smaller GSOEP Sample – Effect of Wage  
(Exponentiated coefficients; t–statistics in parentheses.)

|                                       | Commuters<br>(1) | Transfer<br>commuters<br>(2) | Emigrants<br>(3) | Emigrants and<br>transfer emigrants<br>(3') |
|---------------------------------------|------------------|------------------------------|------------------|---|
| Wage/1000<br>(no education dummies)   | 0.89<br>(–1.3)   | <b>1.26</b><br><b>(4.5)</b>  | 1.06<br>(0.7)    | <b>1.13</b><br><b>(2.2)</b>                 |
| Pseudo–R2                             |                  | 0.13                         |                  | 0.12  |
| Log likelihood                        |                  | –2155                        |                  | –2239                                       |
| Wage/1000<br>(with education dummies) | 0.82<br>(–1.9)   | <b>1.27</b><br><b>(4.3)</b>  | 0.98<br>(–0.1)   | 1.08<br>(1.1)                               |
| Pseudo–R2                             |                  | 0.13                         |                  | 0.13  |
| Log likelihood                        |                  | –2147                        |                  | –2229                                       |
| Observations                          |                  | 15541                        |                  | 15558                                       |

Notes: The first three columns are the results of two multinomial logits (reference group is stayers) with standard errors adjusted for repeated observations on individuals for 1990–1997. Column 3' presents partial results of two further regressions which include transfer migrants. T–statistics presented are for the untransformed coefficients. Covariates also include all the covariates of Table 6 columns 1–3 (row 2), except the education dummies (row 1). The coefficients on not working and laid off are constrained to be zero for transfer commuters. The wage is monthly in 1991 DM, adjusted to reflect the different price level in the east.

Table 8: Means of Variables by State  
(Standard Deviations in Parentheses)

|                             | West             |                  | East             |                  | Berlin |       |
|-----------------------------|------------------|------------------|------------------|------------------|--------|-------|
|                             | 1991             | 1996             | 1991             | 1996             | 1991   | 1996  |
| Population (100s)           | 61568<br>(54026) | 64172<br>(56091) | 29504<br>(10727) | 28349<br>(10280) | 34337  | 34714 |
| Emigration/<br>population   | 0.017<br>(0.008) | 0.017<br>(0.009) | 0.020<br>(0.002) | 0.014<br>(0.003) | 0.016  | 0.022 |
| Immigration/<br>population  | 0.019<br>(0.006) | 0.017<br>(0.008) | 0.008<br>(0.001) | 0.014<br>(0.005) | 0.016  | 0.017 |
| Distance (average km)       | 440<br>(79)      |                  |                  | 384<br>(51)      |        | 394   |
| States neighbors            | 0.23             |                  |                  | 0.21             |        | 0.07  |
| States superneighbors       | 0.04             |                  |                  | 0.01             |        | 0.07  |
| City state                  | 0.20             |                  |                  | 0                |        | 1     |
| Hourly wage                 | 21.8<br>(1.1)    | 23.4<br>(1.0)    | 13.6<br>(0.5)    | 18.2<br>(0.7)    | 18.6   | 22.8  |
| Weekly wage                 | 859<br>(43)      | 885<br>(37)      | 554<br>(22)      | 722<br>(28)      | 732    | 873   |
| Unemployment/<br>population | 0.029<br>(0.010) | 0.044<br>(0.009) | 0.057<br>(0.006) | 0.077<br>(0.006) | 0.053  | 0.068 |
| Short time/<br>population   | 0.002<br>(0.001) | 0.004<br>(0.002) | 0.104<br>(0.009) | 0.005<br>(0.001) | 0.021  | 0.002 |
| Vacancies/<br>population    | 0.005<br>(0.001) | 0.004<br>(0.001) | 0.002<br>(0.000) | 0.004<br>(0.000) | 0.003  | 0.002 |
| Observations                | 10               |                  | 5                |                  | 1      |       |

Notes:

Population is measured at the beginning of the year, migration flows are totals for the year. Other time-varying variables are yearly averages. Wages are for workers in manufacturing. Unemployment refers to the number of registered unemployed. Two states are superneighbors if they are neighbors and one is a city-state. Distance is the distance between the biggest city in each of the states.

Table 9: State Level Random Effects Analysis of Migration 1991–1996  
(Standard errors in parentheses)

|                                  | (1)                             | (2)                            | (3)                           | (4)                             | (5)                             | (6)                             |
|----------------------------------|---------------------------------|--------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|
| East → West (EW)                 | 0.03<br>(0.09)                  | <b>-0.79</b><br><b>(0.14)</b>  | <b>-0.69</b><br><b>(0.16)</b> | <b>-0.53</b><br><b>(0.16)</b>   | <b>-0.77</b><br><b>(0.15)</b>   | <b>-0.52</b><br><b>(0.16)</b>   |
| EW*(Year-91)                     | <b>-0.055</b><br><b>(0.007)</b> | <b>0.027</b><br><b>(0.013)</b> | 0.019<br>(0.014)              | 0.016<br>(0.014)                | <b>0.033</b><br><b>(0.013)</b>  | 0.018<br>(0.014)                |
| West → East (WE)                 | <b>-0.89</b><br><b>(0.09)</b>   | -0.21<br>(0.14)                | 0.18<br>(0.16)                | 0.02<br>(0.16)                  | <b>-0.13</b><br><b>(0.15)</b>   | 0.06<br>(0.16)                  |
| WE*(Year-91)                     | <b>0.119</b><br><b>(0.007)</b>  | <b>0.051</b><br><b>(0.013)</b> | 0.020<br>(0.014)              | 0.022<br>(0.014)                | <b>0.036</b><br><b>(0.013)</b>  | <b>0.029</b><br><b>(0.014)</b>  |
| East → East (EE)                 | <b>-0.39</b><br><b>(0.13)</b>   | <b>-0.54</b><br><b>(0.20)</b>  | -0.05<br>(0.23)               | -0.05<br>(0.23)                 | <b>-0.45</b><br><b>(0.22)</b>   | 0.00<br>(0.23)                  |
| EE*(Year-91)                     | <b>0.064</b><br><b>(0.009)</b>  | <b>0.078</b><br><b>(0.018)</b> | 0.038<br>(0.020)              | 0.038<br>(0.020)                | <b>0.069</b><br><b>(0.019)</b>  | <b>0.047</b><br><b>(0.020)</b>  |
| Destination<br>hourly wage (log) | --                              | <b>1.61</b><br><b>(0.26)</b>   | <b>1.93</b><br><b>(0.27)</b>  | <b>1.19</b><br><b>(0.31)</b>    | --                              | <b>1.34</b><br><b>(0.31)</b>    |
| Source<br>hourly wage (log)      | --                              | <b>-1.96</b><br><b>(0.26)</b>  | <b>-1.87</b><br><b>(0.27)</b> | <b>-1.17</b><br><b>(0.31)</b>   | --                              | <b>-1.14</b><br><b>(0.31)</b>   |
| Destination<br>weekly wage (log) | --                              | --                             | --                            | --                              | <b>1.01</b><br><b>(0.36)</b>    | --                              |
| Source<br>weekly wage (log)      | --                              | --                             | --                            | --                              | <b>-2.20</b><br><b>(0.36)</b>   | --                              |
| Destination<br>unemployed (log)  | --                              | --                             | <b>-0.30</b><br><b>(0.06)</b> | <b>-0.33</b><br><b>(0.06)</b>   | <b>-0.34</b><br><b>(0.06)</b>   | <b>-0.41</b><br><b>(0.06)</b>   |
| Source<br>unemployed (log)       | --                              | --                             | -0.08<br>(0.06)               | -0.06<br>(0.06)                 | 0.00<br>(0.06)                  | -0.07<br>(0.06)                 |
| Destination<br>short time (log)  | --                              | --                             | --                            | <b>-0.048</b><br><b>(0.010)</b> | <b>-0.036</b><br><b>(0.014)</b> | <b>-0.058</b><br><b>(0.011)</b> |
| Source<br>short time (log)       | --                              | --                             | --                            | <b>0.045</b><br><b>(0.010)</b>  | -0.005<br>(0.015)               | <b>0.043</b><br><b>(0.011)</b>  |
| Destination vacancies<br>(log)   | --                              | --                             | --                            | --                              | --                              | <b>-0.123</b><br><b>(0.033)</b> |
| Source<br>vacancies (log)        | --                              | --                             | --                            | --                              | --                              | -0.022<br>(0.033)               |
| Destination-source<br>wage       | --                              | <b>3.57</b><br><b>(0.36)</b>   | <b>3.80</b><br><b>(0.36)</b>  | <b>2.35</b><br><b>(0.42)</b>    | <b>3.21</b><br><b>(0.49)</b>    | <b>2.48</b><br><b>(0.42)</b>    |
| Destination-source<br>unemployed | --                              | --                             | <b>-0.23</b><br><b>(0.08)</b> | <b>-0.27</b><br><b>(0.08)</b>   | <b>-0.34</b><br><b>(0.08)</b>   | <b>-0.34</b><br><b>(0.09)</b>   |
| Destination-source<br>short time | --                              | --                             | --                            | <b>-0.094</b><br><b>(0.014)</b> | -0.031<br>(0.020)               | <b>-0.102</b><br><b>(0.014)</b> |
| Destination-source<br>vacancies  | --                              | --                             | --                            | --                              | --                              | <b>-0.101</b><br><b>(0.045)</b> |
| R2                               | 0.91                            | 0.90                           | 0.90                          | 0.91                            | 0.91                            | 0.91                            |

Notes: Dependent variable is log of migration. Covariates include destination and source populations, quadratic in distance between states' biggest city, states neighbors, states superneighbors, destination is city state, source is city state, year dummies, dummies for East→Berlin, Berlin→East, West→Berlin and Berlin→West and their interaction with a trend. Wages for Bremen are not available for 1992. There are 1410 observations.

Table 10: State Level Fixed Effects Analysis of Migration 1991–1996  
(Robust standard errors in parentheses)

|                                  | (1)                      | (2)                     | (3)                    | (4)                      | (5)                     | (6)                      |
|----------------------------------|--------------------------|-------------------------|------------------------|--------------------------|-------------------------|--------------------------|
| EW*(Year-91)                     | <b>-0.069</b><br>(0.008) | 0.024<br>(0.015)        | 0.022<br>(0.017)       | 0.018<br>(0.017)         | <b>0.035</b><br>(0.015) | 0.018<br>(0.017)         |
| WE*(Year-91)                     | <b>0.105</b><br>(0.009)  | <b>0.034</b><br>(0.016) | 0.004<br>(0.017)       | 0.007<br>(0.017)         | 0.021<br>(0.016)        | 0.012<br>(0.017)         |
| EE*(Year-91)                     | <b>0.036</b><br>(0.010)  | <b>0.058</b><br>(0.020) | 0.026<br>(0.024)       | 0.024<br>(0.024)         | <b>0.056</b><br>(0.022) | 0.029<br>(0.024)         |
| Destination<br>hourly wage (log) | ---                      | <b>1.68</b><br>(0.32)   | <b>1.93</b><br>(0.32)  | <b>1.37</b><br>(0.36)    | ---                     | <b>1.53</b><br>(0.37)    |
| Source<br>hourly wage (log)      | ---                      | <b>-2.20</b><br>(0.29)  | <b>-2.18</b><br>(0.29) | <b>-1.32</b><br>(0.33)   | ---                     | <b>-1.33</b><br>(0.32)   |
| Destination<br>weekly wage (log) | ---                      | ---                     | ---                    | ---                      | <b>1.24</b><br>(0.41)   | ---                      |
| Source<br>weekly wage (log)      | ---                      | ---                     | ---                    | ---                      | <b>-2.42</b><br>(0.38)  | ---                      |
| Destination<br>unemployed (log)  | ---                      | ---                     | <b>-0.26</b><br>(0.06) | <b>-0.28</b><br>(0.06)   | <b>-0.29</b><br>(0.06)  | <b>-0.34</b><br>(0.06)   |
| Source<br>unemployed (log)       | ---                      | ---                     | -0.02<br>(0.06)        | -0.00<br>(0.06)          | 0.06<br>(0.06)          | 0.00<br>(0.06)           |
| Destination<br>short time (log)  | ---                      | ---                     | ---                    | <b>-0.035</b><br>(0.010) | -0.018<br>(0.015)       | <b>-0.042</b><br>(0.011) |
| Source<br>short time (log)       | ---                      | ---                     | ---                    | <b>0.053</b><br>(0.011)  | -0.002<br>(0.017)       | <b>0.053</b><br>(0.011)  |
| Destination<br>vacancies (log)   | ---                      | ---                     | ---                    | ---                      | ---                     | <b>-0.113</b><br>(0.031) |
| Source<br>vacancies (log)        | ---                      | ---                     | ---                    | ---                      | ---                     | 0.006<br>(0.029)         |
| Destination-source<br>wage       | ---                      | <b>3.87</b><br>(0.43)   | <b>4.11</b><br>(0.42)  | <b>2.69</b><br>(0.49)    | <b>3.66</b><br>(0.53)   | <b>2.86</b><br>(0.49)    |
| Destination-source<br>unemployed | ---                      | ---                     | <b>-0.25</b><br>(0.07) | <b>-0.27</b><br>(0.07)   | <b>-0.35</b><br>(0.08)  | <b>-0.34</b><br>(0.07)   |
| Destination-source<br>short time | ---                      | ---                     | ---                    | <b>-0.088</b><br>(0.014) | -0.016<br>(0.021)       | <b>-0.095</b><br>(0.014) |
| Destination-source<br>vacancies  | ---                      | ---                     | ---                    | ---                      | ---                     | <b>-0.119</b><br>(0.039) |
| R2                               | 0.35                     | 0.41                    | 0.42                   | 0.44                     | 0.45                    | 0.44                     |

Notes: Dependent variable is log of migration. Covariates include year dummies and a trend interacted with dummies for East→Berlin, Berlin→East, West→Berlin and Berlin→West. Wages for Bremen are not available for 1992. There are 1410 observations.

Appendix Table 1: Smaller GSOEP Sample – Effects of Age, Education, Time and Distance  
(Exponentiated coefficients, t–statistics in parentheses.)

|                          | Commuters<br>(1)   | Transfer<br>commuters<br>(2) | Emigrants<br>(3)    | Emigrants and<br>transfer emigrants<br>(3') |
|--------------------------|--------------------|------------------------------|---------------------|---|
| Sex                      | <b>0.39</b> (–6.8) | <b>0.41</b> (–3.6)           | 1.37 ( 1.5)         | 1.22 ( 1.0)                                 |
| Age 18–21                | <b>4.76</b> ( 5.5) | 1.62 ( 0.9)                  | <b>11.22</b> ( 4.3) | <b>10.66</b> ( 4.9)                         |
| Age 22–25                | <b>2.58</b> ( 3.3) | 1.92 ( 1.5)                  | <b>9.59</b> ( 4.4)  | <b>7.49</b> ( 4.5)                          |
| Age 26–35                | <b>1.86</b> ( 2.7) | 1.38 ( 1.0)                  | <b>4.46</b> ( 3.1)  | <b>3.56</b> ( 3.1)                          |
| Age 36–45                | <b>1.65</b> ( 2.2) | 1.05 ( 0.2)                  | <b>2.96</b> ( 2.2)  | <b>2.42</b> ( 2.1)                          |
| General schooling        | 1.14 ( 0.5)        | 0.86 (–0.3)                  | 1.20 ( 0.5)         | 0.97 (–0.1)                                 |
| University               | 1.51 ( 1.9)        | 1.21 ( 0.5)                  | <b>2.19</b> ( 2.4)  | <b>2.53</b> ( 3.3)                          |
| Vocational training      | 1.29 ( 1.4)        | 1.09 ( 0.3)                  | 1.20 ( 0.6)         | 1.14 ( 0.5)                                 |
| Border with West Berlin  | <b>4.41</b> ( 8.1) | <b>5.23</b> ( 5.7)           | 1.24 ( 0.7)         | 1.31 ( 0.9)                                 |
| Border with rest of west | <b>3.21</b> ( 6.1) | <b>3.80</b> ( 4.1)           | 0.62 (–1.2)         | 0.80 (–0.6)                                 |
| Within 50km West Berlin  | 1.35 ( 0.9)        | <b>2.78</b> ( 2.0)           | 0.60 (–0.8)         | 0.54 (–1.0)                                 |
| Within 50km rest of west | 0.99 (–0.1)        | 0.99 (–0.0)                  | 0.65 (–1.5)         | 0.61 (–1.8)                                 |
| 1991                     | <b>0.56</b> (–3.1) | 0.43 (–1.8)                  | 1.46 ( 1.3)         | 1.61 ( 1.7)                                 |
| 1992                     | <b>0.44</b> (–3.9) | 0.77 (–0.7)                  | 0.80 (–0.7)         | 0.76 (–0.8)                                 |
| 1993                     | <b>0.32</b> (–4.9) | 1.07 ( 0.2)                  | 0.70 (–1.0)         | 0.84 (–0.5)                                 |
| 1994                     | <b>0.32</b> (–4.7) | 1.22 ( 0.5)                  | 0.59 (–1.4)         | 0.96 (–0.1)                                 |
| 1995                     | <b>0.26</b> (–4.9) | 0.56 (–1.3)                  | 0.61 (–1.2)         | 0.64 (–1.2)                                 |
| 1996                     | <b>0.47</b> (–3.5) | <b>2.42</b> (2.7)            | 0.45 (–1.8)         | 0.49 (–1.7)                                 |
| Log likelihood           |                    | –2264                        |                     | –2345                                       |
| Pseudo–R2                |                    | 0.08                         |                     | 0.08  |
| Observations             |                    | 15541                        |                     | 15558                                       |

Notes: The first three columns are the results of a multinomial logit (reference group is stayers) with standard errors adjusted for repeated observations on individuals, 1990–1997. Column 3' presents partial results of a second regression which includes transfer migrants. The omitted year is 1990, omitted education is apprenticeship, omitted age is 46–53. T–statistics presented are for the untransformed coefficients. Covariates also include a dummy for missing distance information.

Appendix Table 2: Means of State and Regional Samples  
(Standard deviations in parentheses.)

|                                    | States         | Regions        |
|------------------------------------|----------------|----------------|
| Migration flow (log)               | 7.61<br>(1.38) | 4.13<br>(1.38) |
| East <-> West                      | 0.21           | 0.17           |
| East -> East                       | 0.09           | 0.05           |
| East <-> Berlin                    | 0.02           | 0.002          |
| West <-> Berlin                    | 0.04           | 0.008          |
| Distance (km)                      | 421<br>(196)   | 320<br>(155)   |
| Population (log)                   | 15.1<br>(0.8)  | 13.4<br>(0.6)  |
| States/regions neighbors           | 0.22           | 0.05           |
| States superneighbors              | 0.03           | 0              |
| City state                         | 0.18           | 0              |
| Hourly wage (log)                  | 3.01<br>(0.17) | --             |
| Weekly wage (log)                  | 6.67<br>(0.14) | --             |
| Unemployed (log of number)         | 12.0<br>(0.7)  | --             |
| Short time workers (log of number) | 9.9<br>(1.2)   | --             |
| Vacancies (log of number)          | 9.4<br>(1.0)   | --             |
| Observations                       | 1410           | 27936          |

Notes for states:

There are 16 states. East and West Berlin are one state. Wage data for Bremen in 1992 are not available. Wages are in 1991 DM, adjusted in the east to take into account the price level difference. Two states are superneighbors if they are neighbors and one is a city-state. Distance is the distance between the largest cities in each state of the pair.

Notes for regions:

There are 97 regions. East and West Berlin are in the same region. The value of migration for the 102 observations where migration is zero is set to 0.5.

Appendix Table 3: Region Level Panel Analysis 1991–1993  
(Standard Errors in Parentheses.)

|                    | Random Effects<br>(1)           | Fixed Effects<br>(2)            |
|--------------------|---------------------------------|---------------------------------|
| East → West (EW)   | <b>0.466</b><br><b>(0.019)</b>  | --                              |
| EW*(Year-91)       | <b>-0.140</b><br><b>(0.008)</b> | <b>-0.165</b><br><b>(0.008)</b> |
| West → East (WE)   | <b>-0.741</b><br><b>(0.019)</b> | --                              |
| WE*(Year-91)       | <b>0.209</b><br><b>(0.008)</b>  | <b>0.185</b><br><b>(0.008)</b>  |
| East → East (EE)   | <b>-0.064</b><br><b>(0.032)</b> | --                              |
| EE*(Year-91)       | 0.018<br>(0.013)                | <b>-0.031</b><br><b>(0.013)</b> |
| East → Berlin (EB) | 0.069<br>(0.139)                | --                              |
| EB*(Year-91)       | -0.041<br>(0.058)               | -0.076<br>(0.058)               |
| Berlin → East (BE) | <b>-0.458</b><br><b>(0.139)</b> | --                              |
| BE*(Year-91)       | 0.131<br>(0.058)                | 0.097<br>(0.058)                |
| West → Berlin (WB) | 0.396<br>(0.078)                | --                              |
| WB*(Year-91)       | 0.014<br>(0.032)                | 0.005<br>(0.032)                |
| Berlin → West (BW) | 0.591<br>(0.078)                | --                              |
| BW*(Year-91)       | -0.028<br>(0.032)               | -0.038<br>(0.032)               |
| R2                 | 0.77                            | 0.08                            |
| Observations       | 27936                           |                                 |

Notes: Dependent variable is log of migration. Both regressions include year dummies. Column 1 also includes source and destination populations, a dummy for regions being neighbors, a quartic in the distance between regions, and a dummy for four source regions which host camps for ethnic German immigrants. The value of migration for the 102 observations where migration is zero is set to 0.5.

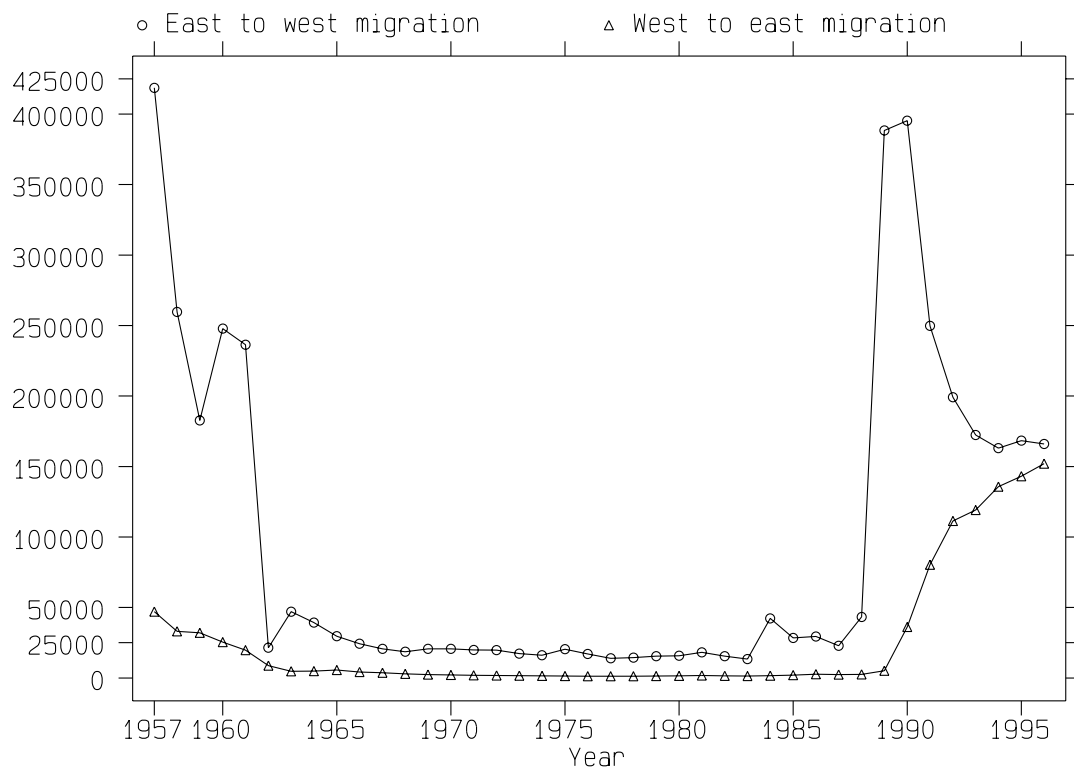


Figure 1: German East-West Migration 1957-1996