Beyond Thriving Cities and Declining Rural Areas: Mapping Geographic Divides in Germany's Employment Structure, 1993–2019

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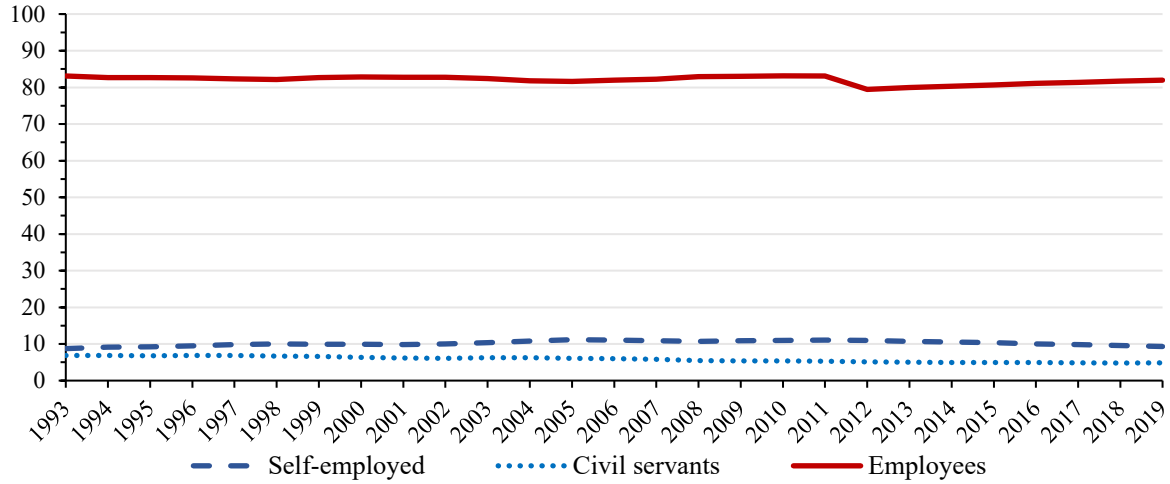
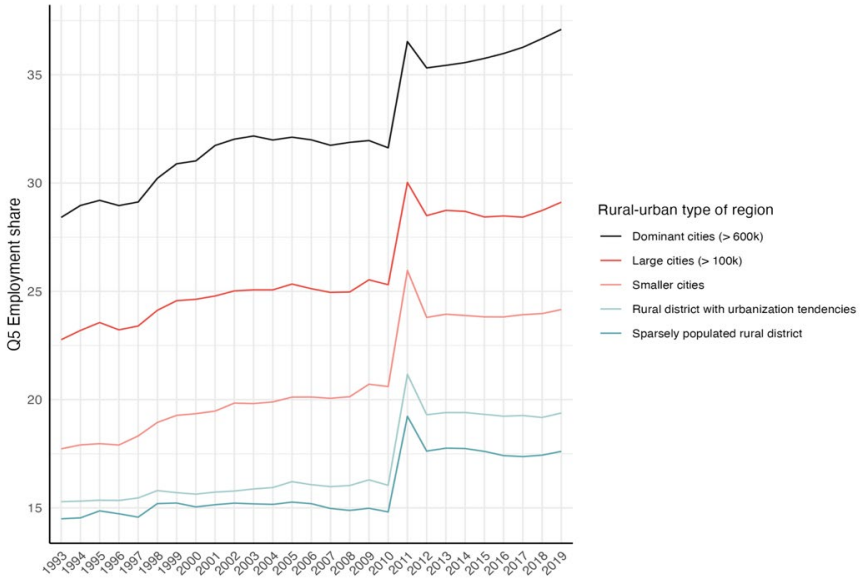
Online Appendix

Fig. A1 Employed persons by occupational status (in % of active labor force), Germany 1993–2019.



Note: Own depiction with data from German Mikrozensus. Total of 100% of the labor force includes trainees (listed separately from 2012) and unpaid family workers. These values have been omitted from the graph for reasons of clarity.

Fig. A2 Employment in top quintile across different types of regions, Germany 1993–2019, using time-consistent occupational coding from SIAB (KldB 2010).



Note: Until 30.11.2011, employment was reported in KldB 1988, after which a transition to a new scheme (KldB 2010) took place. Although the SIAB contains a time-consistent code, where observations are coded back to KldB1988 (or to KldB2010 respectively) this leads to inaccuracies. These inaccuracies are illustrated in the figure above, showing how the evolution of the share of top quintile employment in the different types of urban and rural districts from 1993 to 2019, using the extrapolated occupational codes. As illustrated, the reallocation and restructuring of the individual occupational groups leads to significant changes in the shares of the individual job-quality quintiles. However, it is unclear whether this accurately reflects similarly significant changes in the occupational structure. The data owner claims that the change of the occupation code is associated with a break in the data that goes beyond the mere change the occupational codes, and can be explained by updating effects in the

payroll accounting software in the reporting companies (Frodermann et al. 2021b). We therefore refrained from utilizing the time-consistent codes and instead calculated two separate job rankings as described in the methods section of this paper.

Fig. A3 Employment across job-quality quintiles in different types of districts, Germany 1993.

Note: This figure shows the proportion of people employed in each job-quality quintile by type of district in 1993. The levels and distribution of the quintiles shown are based on the 1993 occupation-income ranking, using the KldB 1988 occupation code.

Table A1 Correlation of quintile shares 1993 and 2019 across all districts.

Quintile	Regions
Q1	0.66
Q2	0.44
Q3	-0.09
Q4	0.39
Q5	0.74

Table A2 Correlation of quintile shares in 1993 and 2019 across types of rural and urban districts.

Quintile	Dominant cities	Large cities	Smaller cities	Rural districts	Very rural districts
Q1	0.68	0.67	0.54	0.47	0.57
Q2	0.39	0.37	0.19	0.07	0.11
Q3	0.58	-0.32	0.16	-0.06	-0.21
Q4	0.65	-0.10	0.41	0.29	0.45
Q5	0.93	0.72	0.72	0.28	-0.10

Table A3 Comparing the effect of urban-rural, North-South and East-West divides on top quintile employment in Germany, regression with interaction effects.

	Change 1993–2019 in top quintile employment	Share 2019 in top quintile employment
	(3)	(4)
Rural districts (binary)	-0.84*	-5.21***
	(0.45)	(0.79)
Eastern districts	-1.51*	2.34*
	(0.81)	(1.40)
Southern districts	2.44***	3.95***
	(0.43)	(0.74)
Rural x East	-1.89*	-2.35
	(0.98)	(1.69)
Rural x South	-0.36	-0.95
	(0.69)	(1.19)
Constant	3.04***	18.79***
	(0.25)	(0.44)
Observations	330	330
R^2	0.36	0.33
Adjusted R^2	0.35	0.32
Residual Std. Error	2.67 (df = 324)	4.62 (df = 324)
F Statistic	37.11*** (df = 5; 324)	32.64*** (df = 5; 324)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A4 Ten regions with highest growth in top quintile employment, 1993–2019.

District	Q5 employment change (in pp.)	Rural-Urban Type
Eichstätt	16.91	Rural regions
Böblingen	13.97	Smaller cities
Heilbronn	12.53	Smaller cities
Hochtaunuskreis	11.96	Smaller cities
Darmstadt, Stadt	11.70	Large cities
Erlangen-Höchstadt	10.86	Smaller cities
Wolfsburg, Stadt	10.33	Large cities
München	10.24	Smaller cities
Miesbach	10.10	Rural regions
Ulm, Stadt	10.01	Large cities

Table A5 Ten regions with highest decline in top quintile employment, 1993–2019.

District	Q5 employment change (in pp.)	Rural-Urban Type
Saalekreis	–5.34	Rural regions
Greiz/Gera	–5.33	Smaller cities
Elbe-Elster	–5.26	Very rural regions
Unstrut-Hainich-Kreis	–4.33	Very rural regions
Erfurt, Stadt	–4.04	Large cities
Potsdam-Mittelmark/Brandenburg	–4.04	Rural regions
Sächsische Schweiz-Osterzgebirge	–3.79	Rural regions
Saale-Holzland-Kreis	–3.26	Rural regions
Uckermark	–3.09	Very rural regions
Spree-Neiße/Cottbus	–3.09	Rural regions

Table A6 Ten regions with highest share of top quintile employment, 2019.

District	Q5 employment share in %	Rural-Urban Type
Erlangen, Stadt	39.75	Large cities
Ingolstadt, Stadt	38.01	Large cities
München	37.88	Smaller cities
Stuttgart, Stadt	36.17	Dominant cities
München, Stadt	35.76	Dominant cities
Böblingen	34.27	Smaller cities
Darmstadt, Stadt	34.27	Large cities
Frankfurt am Main, Stadt	34.26	Dominant cities
Hochtaunuskreis	33.96	Smaller cities
Main-Taunus-Kreis	32.60	Smaller cities

Table A7 Ten regions with lowest share of top quintile employment, 2019.

District	Q5 employment share in %	Rural-Urban Type
Nordfriesland	6.85	Very rural regions
Ludwigshafen/Frankenthal/Speyer	8.76	Smaller cities
Cloppenburg	8.83	Rural regions
Elbe-Elster	9.12	Very rural regions
Ammerland	9.29	Smaller cities
Heidekreis	9.32	Very rural regions
Mansfeld-Südharz	9.69	Very rural regions
Eichsfeld	9.90	Rural regions
Bottrop, Stadt	10.02	Large cities
Cuxhaven	10.08	Very rural regions