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Article — Published Version

Ready for take-off? The economic effects of regional airport expansions in Germany

Regional Studies

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Suggested Citation: Breidenbach, Philipp (2020) : Ready for take-off? The economic effects of regional airport expansions in Germany, Regional Studies, ISSN 1360-0591, Routledge, London, Vol. 54, Iss. 8, pp. 1084-1097,
<https://doi.org/10.1080/00343404.2019.1659948>

This Version is available at:

<https://hdl.handle.net/10419/225046>

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Appendix A

Table A.1: Expansion effect estimated with dynamic corrected model

Dep. Variable:			
GDPpe level	(i)	(ii)	(iii)
DiD-estimator	-0.006 (0.005)	-0.003 (0.005)	-0.003 (0.004)
Post-Treat	0.008*** (0.002)	-0.011*** (0.002)	0.003 (0.003)
ln(GDPpe) lagged	0.899*** (0.005)	0.916*** (0.006)	0.761*** (0.008)
ln(employment) lagged	0.109*** (0.01“)	0.023 (0.017)	-0.084*** (0.018)
ln(Population) lagged		0.175*** (0.025)	0.196*** (0.025)
ln(Density) lagged		-0.000 (0.001)	-0.001 (0.001)
Time Dummies	N	N	Y
No. of Regions	271	271	271
No. of Obs.	4352	4288	4288

Note: ***, **, * denote significance at the 1 %-, 5 %- and 10 %-level. Robust standard errors clustered on county-level in parentheses. Estimations based on corrected DiD- Fixed effects (Bruno 2005). Source: BBR (2011).

Table A.2: Temporal and spatial disentangled treatments
(Dependent Variable: Growth of GDP per employed person)

	Figure 2 Disentangled temporal effects		Figure 3 Disentangled spatial effects
ln(GDPpe)	-0.433***	ln(GDPpe)	-0.2944***
lagged	(0.0213)	lagged	(0.0123)
ln(employment)	-0.097	ln(employment)	-0.0787***
lagged	(0.600)	lagged	(0.0225)
ln(Population)	0.674*	ln(Population)	0.1263***
lagged	(0.388)	lagged	(0.0317)
ln(Density)	-0.622	ln(Density)	-0.0014**
lagged	(0.418)	lagged	(0.0006)
treated*1993	0.0019	w*1993	-0.0433
	(0.0063)		(0.0415)
treated *1994	0.0029	w*1994	-0.0509
	(0.0070)		(0.0415)
treated *1995	-0.0039	w*1995	-0.0471
	(0.0072)		(0.0415)
treated *1997	-0.0103	w*1997	-0.0346
	(0.0066)		(0.0415)
treated *1998	-0.0047	w*1998	-0.0253
	(0.0056)		(0.0415)
treated *1999	-0.0056	w*1999	-0.0113
	(0.0075)		(0.0415)
treated *2000	-0.0006	w*2000	-0.0162
	(0.0061)		(0.0415)
treated *2001	-0.0150**	w*2001	-0.1169**
	(0.0062)		(0.0487)
treated *2002	0.0054	w*2002	0.0024
	(0.0088)		(0.0415)
treated *2003	-0.0141***	w*2003	-0.0412
	(0.0053)		(0.0415)
treated *2004	-0.0020	w*2004	0.0356
	(0.0068)		(0.0415)
treated *2005	-0.0025	w*2005	-0.0576
	(0.0047)		(0.0415)
treated *2006	-0.0069	w*2006	-0.0540
	(0.0053)		(0.0415)
treated *2007	-0.0084	w*2007	-0.0330
	(0.0060)		(0.0415)
treated *2008	-0.0026	w*2008	-0.0282
	(0.0051)		(0.0415)
Time Dummies	Y		Y
No. of Groups	263		
No. of Obs.	1052		

Note: ***, **, * denote significance at the 1 %-, 5 %- and 10 %-level. Robust standard errors clustered on county-level in parentheses. Estimations based on DiD-Fixed effects. Source: BBR (2011).

Table A.3: Robustness checks with varying outcomes

Dep. Variable: See column headline)	(i) Dep. Var. GDP growth	(ii) Dep. Var. GDPpc growth	(iii) Dep. Var. Employment growth
DiD-estimator	-0.004 (0.005)	-0.005 (0.005)	-0.002 (0.003)
Post-Treat	0.008*** (0.003)	0.008*** (0.003)	0.005*** (0.001)
ln(GDPpe) lagged	-0.293*** (0.014)	-0.290*** (0.014)	0.002 (0.006)
ln(employment) lagged	-0.202*** (0.025)	-0.220*** (0.025)	-0.122*** (0.010)
ln(Population) lagged	0.219*** (0.039)	0.283*** (0.037)	0.092*** (0.016)
ln(Density) lagged	-0.001* (0.001)	-0.001* (0.001)	0.000 (0.000)
Constant	0.883*** (0.152)	0.627*** (0.148)	0.039 (0.067)
Time Dummies	Y	Y	Y
No. of Groups	271	271	271
No. of Obs.	4288	4288	4288

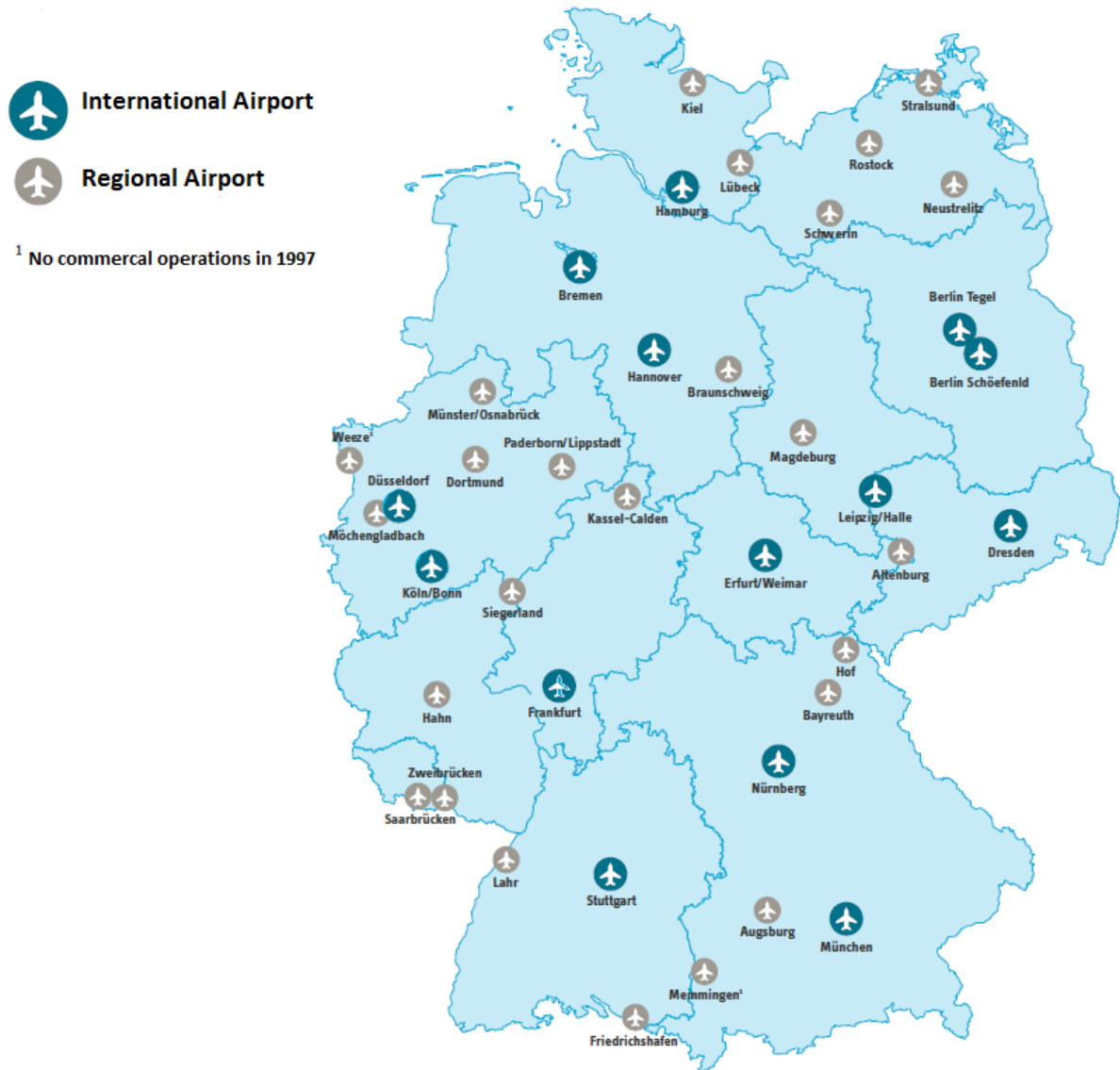
Note: ***, **, * denote significance at the 1 %-, 5 %- and 10 %-level. Robust standard errors clustered on county-level in parentheses. Estimations based on DiD-Fixed effects. Source: BBR (2011).

Table A.4: Expansion effects with varied treatment buffers
(Dependent Variable: Growth of GDP per employed person)

	(i)	(ii)
	30 km buffer	Excluded ring from 15-30 km
DiD-estimator	-0.005* (0.003)	-0.005 (0.003)
Post-Treat	0.005* (0.003)	0.012*** (0.003)
ln(GDPpe) lagged	-0.295*** (0.012)	-0.004 (0.005)
ln(employment) lagged	-0.080*** (0.022)	-0.150*** (0.013)
ln(Population) lagged	0.127*** (0.031)	0.054 (0.033)
ln(Density) lagged	-0.001** (0.001)	0.087** (0.035)
Constant	0.849*** (0.135)	0.814*** (0.200)
Time Dummies	Y	Y
No. of Groups	271	154
No. of Obs.	4288	2426

Note: ***, **, * denote significance at the 1 %-, 5 %- and 10 %-level. Robust standard errors clustered on county-level in parentheses. Estimations based on DiD-Fixed effects. Column(i) is based on a larger buffer of 30 km, defined in the same manner as described in section 3. This accounts for potential larger spillovers. Column(ii) follows the idea that some economic spillover are at work in the ring between 15 and 30 km around the regional airport. As they may not be very strong it might be wrong to include them in the control treated group, but as they exist in any way, it would be wrong to include them in the control group. Both ideas behind do not seem to play a role, as positive spillover effects are not detected by this definitions. Source: BBR (2011).

Figure A.1: Airport and the respective buffer regions



Regional Airports

- Altenburg
- Augsburg
- Bayreuth
- Braunschweig-Wolfsburg
- Dortmund
- Erfurt-Weimar
- Frankfurt-Hahn
- Friedrichshafen
- Hof
- Karlsruhe
- Kassel-Calden
- Kiel
- Lübeck

- Magdeburg
- Mönchengladbach
- Münster
- Neubrandenburg
- Paderborn
- Rostock
- Saarbrücken
- Schwerin
- Siegerland
- Stralsund-Barth
- Zweibrücken

International Airports

- Berlin-Schönefeld
- Berlin-Tegel
- Bremen
- Dresden
- Düsseldorf
- Frankfurt am Main
- Hamburg
- Hannover
- Köln/Bonn
- Leipzig/Halle
- München
- Nürnberg
- Stuttgart