

1 Tables

Table 1: Sample filter steps

Panel A: Sample selection criteria		Total (all countries)	
Step	Description	n	Δ
0	Raw data	415,771	
1	Panel years between 2000 and 2018	367,032	-12%
2	Prime age (25 - 54)	210,900	-43%
3	Unemployed or employed with contract type, monthly hours (40 - 320), and wages > 0	158,005	-25%
4	Non missing education or gender	156,164	-1%
5	Hourly wages within the top/bottom 0.005 percentile	155,365	-1%
6	Data set A: At least 3 observations	79,612	-49%
7	Data set B: + always employed	73,651	-7%

Panel B: Data sets by event type		#	%
A	Unmp \rightarrow perm	3,695	5%
A	Unmp \rightarrow temp	1,254	2%
B	Temp \rightarrow perm	9,035	12%
B	Perm \rightarrow temp	6,753	9%

Note: n - is unique observations. Δ - is difference in n from previous step. # - is unique n who experienced at least 1 event. % - is percent who experienced an event.

Table 2: Methodological simulation exercise

	Simulation 1			Simulation 2			Simulation 3		
	FE	FEIS	FE+IF	FE	FEIS	FE+IF	FE	FEIS	FE+IF
Temp	-30.00*** (0.00)	-30.00*** (0.00)		-45.00 (78.66)	-30.00*** (0.00)		-20.00 (52.44)	-5.00 (27.64)	
Event: T \rightarrow P			30.00 (0.00)			60.00 (0.00)			10.00 (0.00)
Event: P \rightarrow T			-30.00 (0.00)			-10.00 (0.00)			-10.00 (0.00)

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Note: In FE + IF, pre and post event coefficients are not shown.

2 Graphs

Figure 1: Methodological simulation exercise

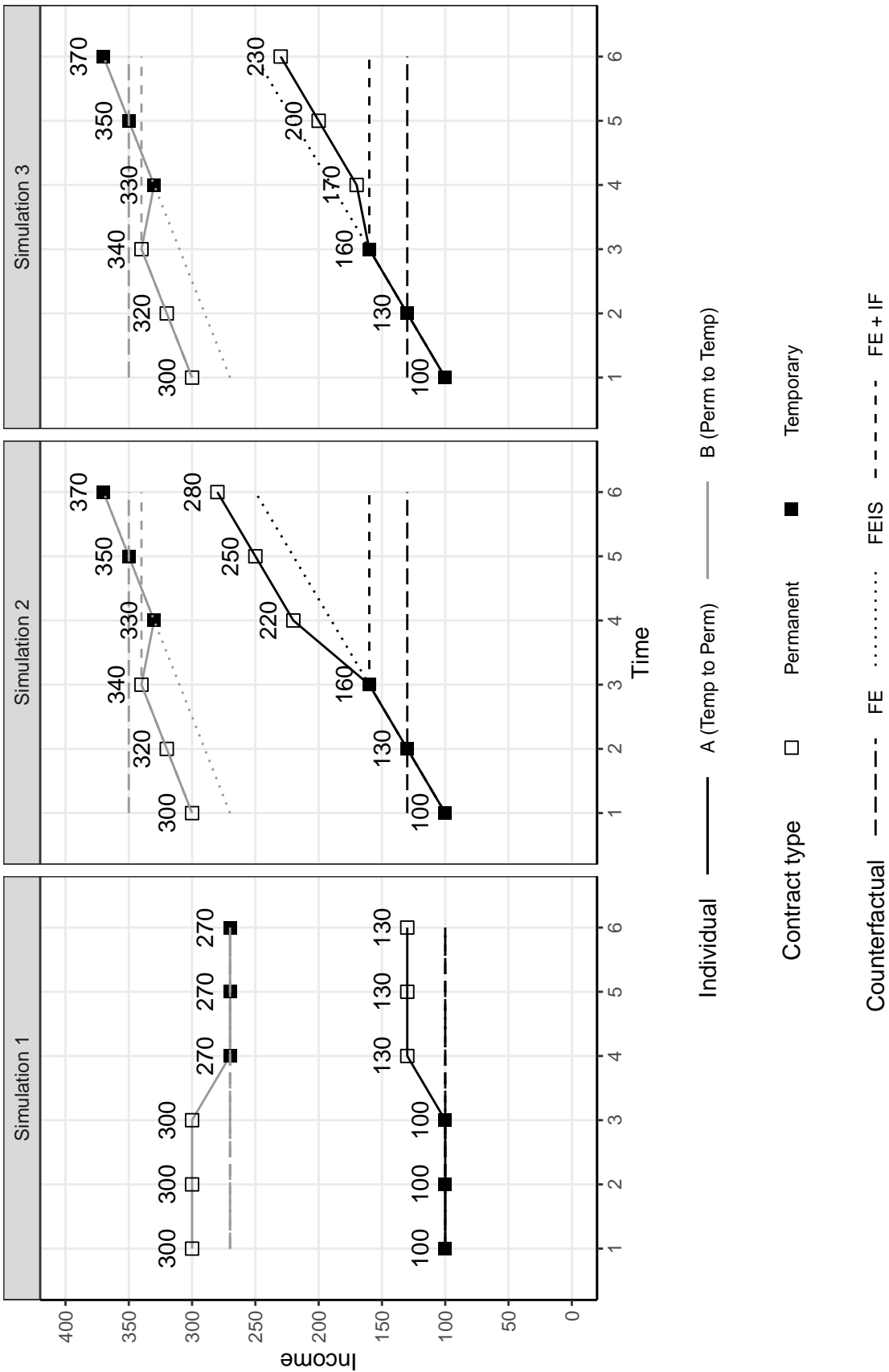


Figure 2: Effect of event on wages at point in time

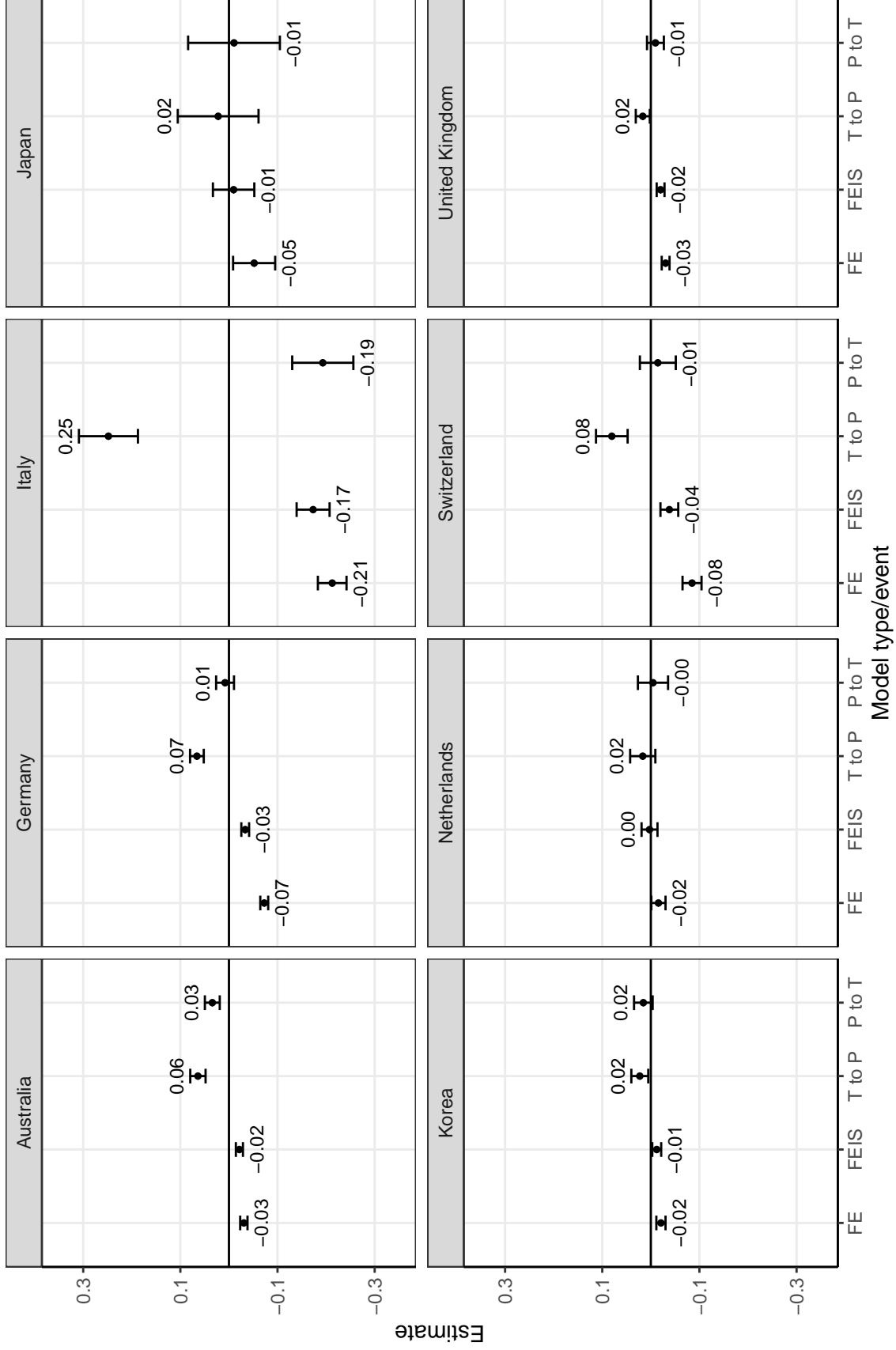


Figure 3: Effect of event on wages over time

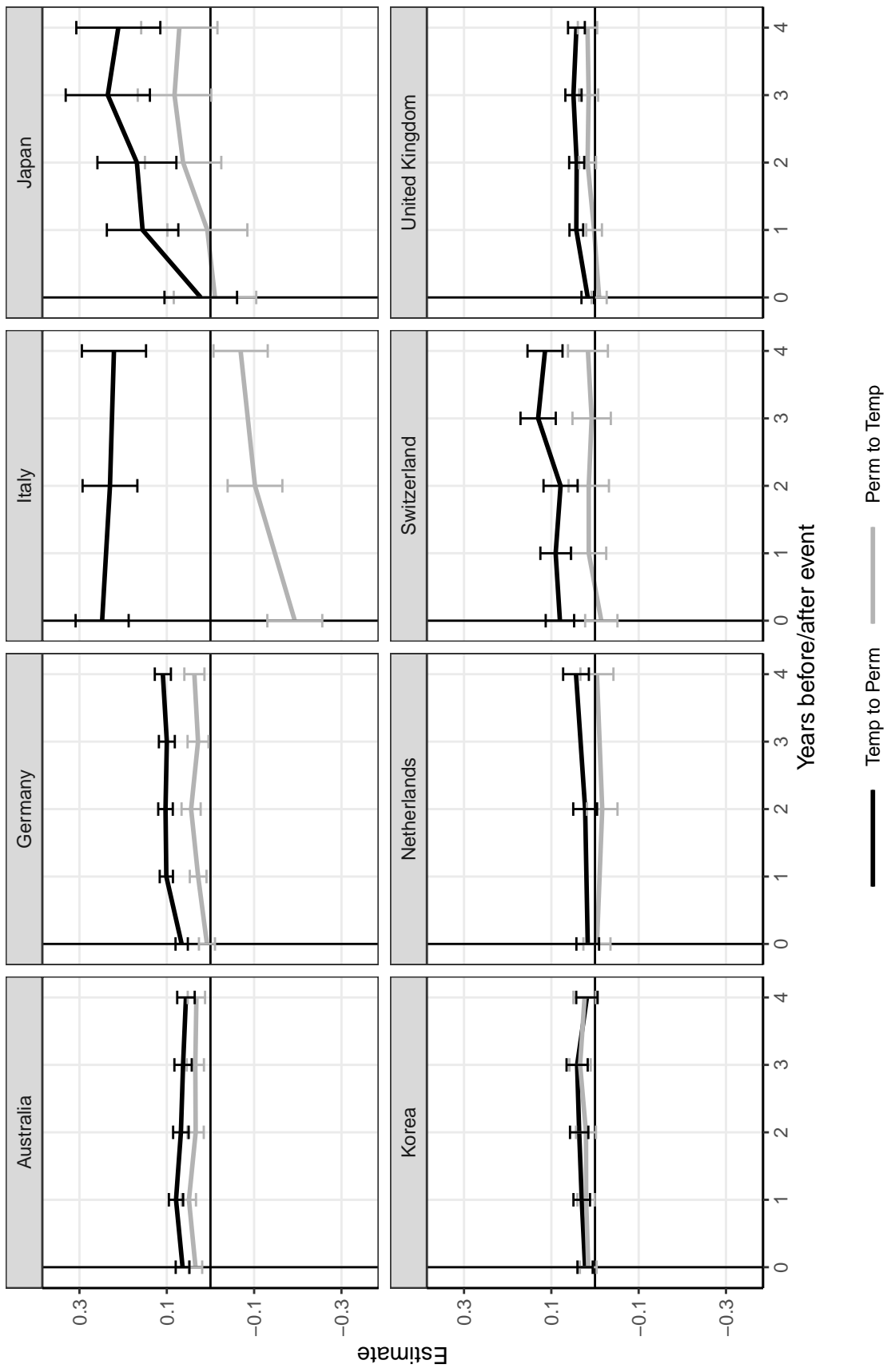


Figure 4: Effect of event on wages at point in time

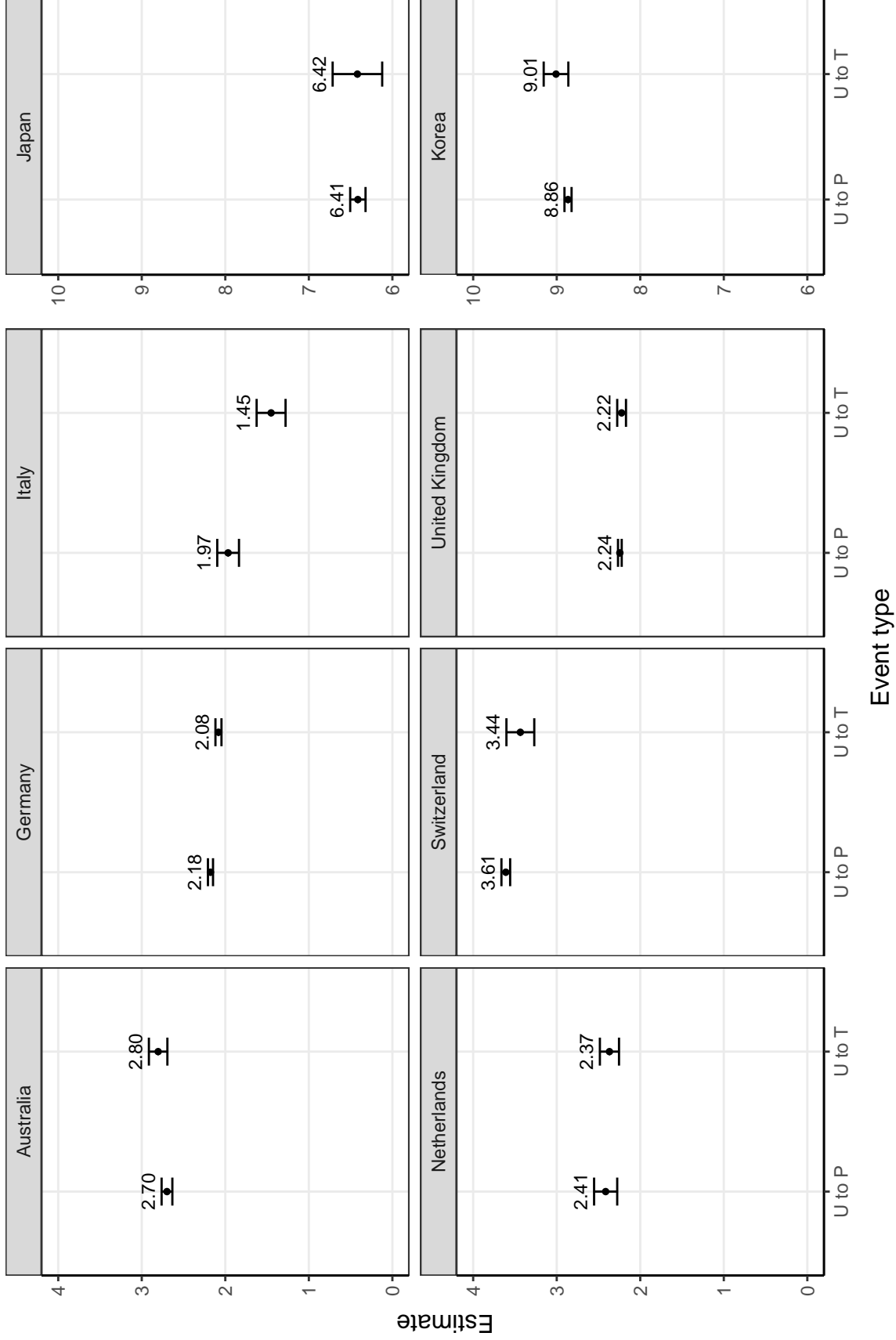
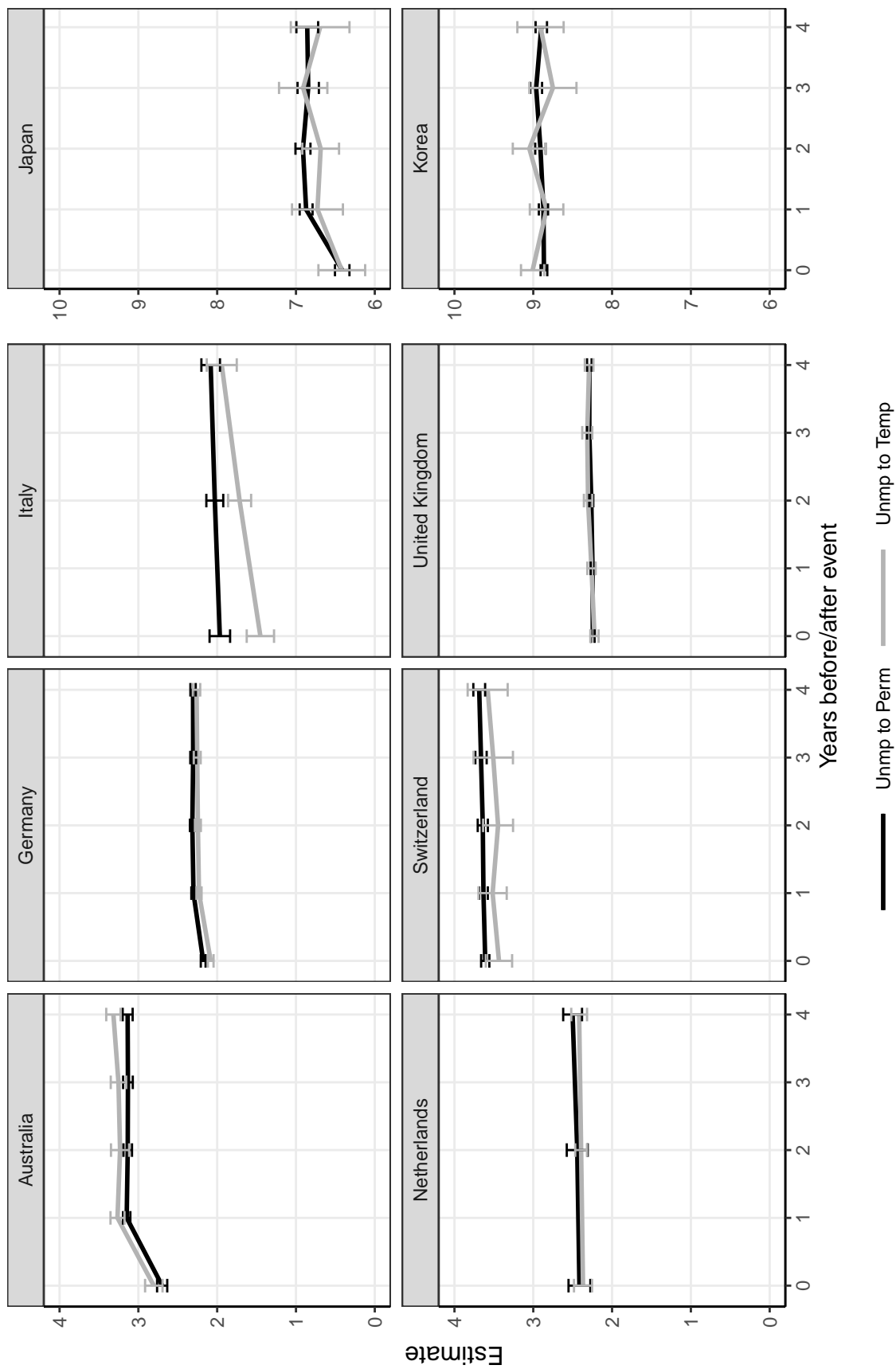


Figure 5: Graphical effect of event on wages over time



A Appendix: Results sensitivity

Figure A.1: Australia: All temporary (incl. casual) vs. FTC only (as in the paper)

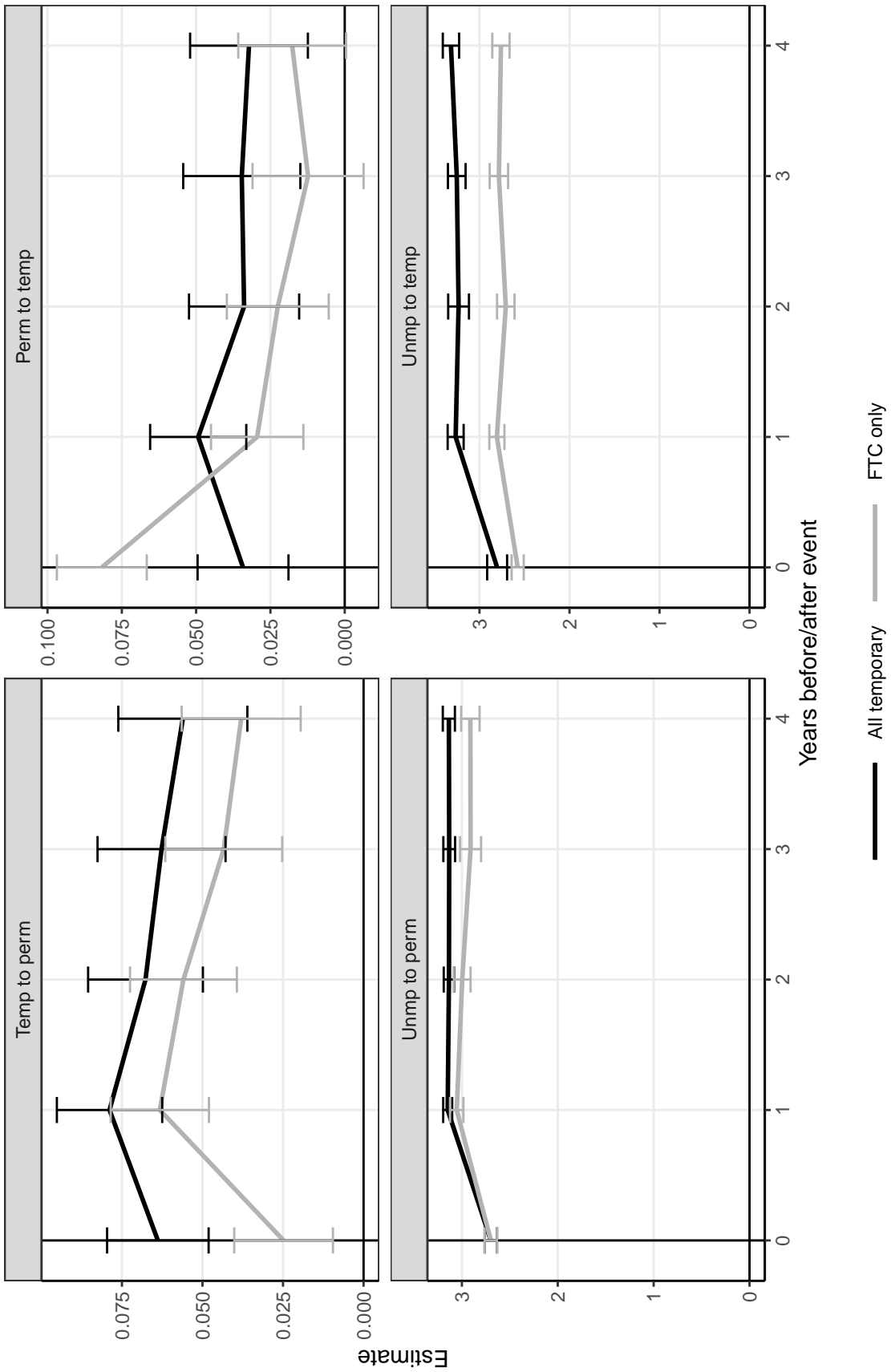


Figure A.2: United Kingdom: All temporary (as in the paper) vs. FTC only

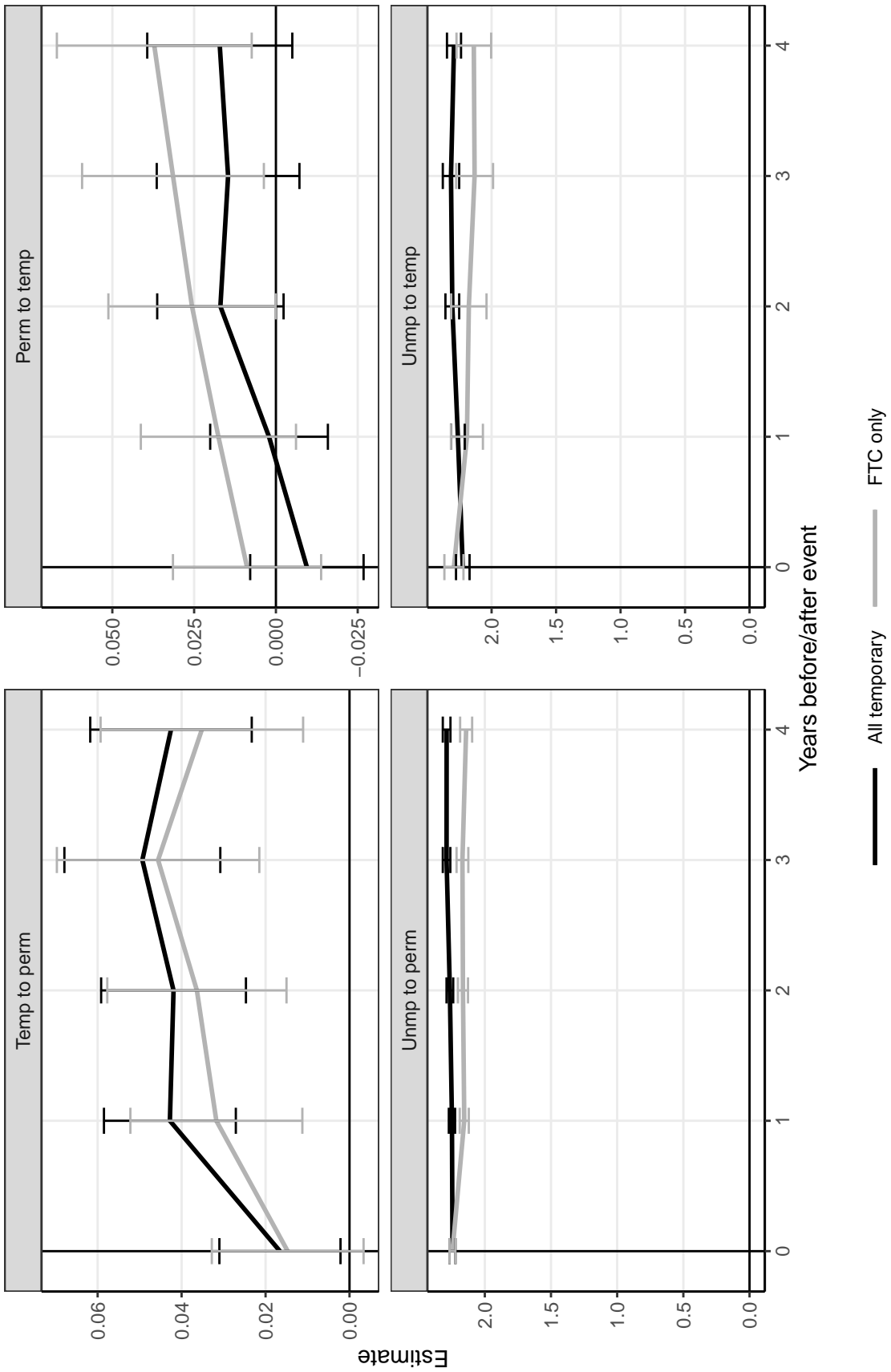


Figure A.3: Netherlands: LSP (as in the paper) vs. LISS

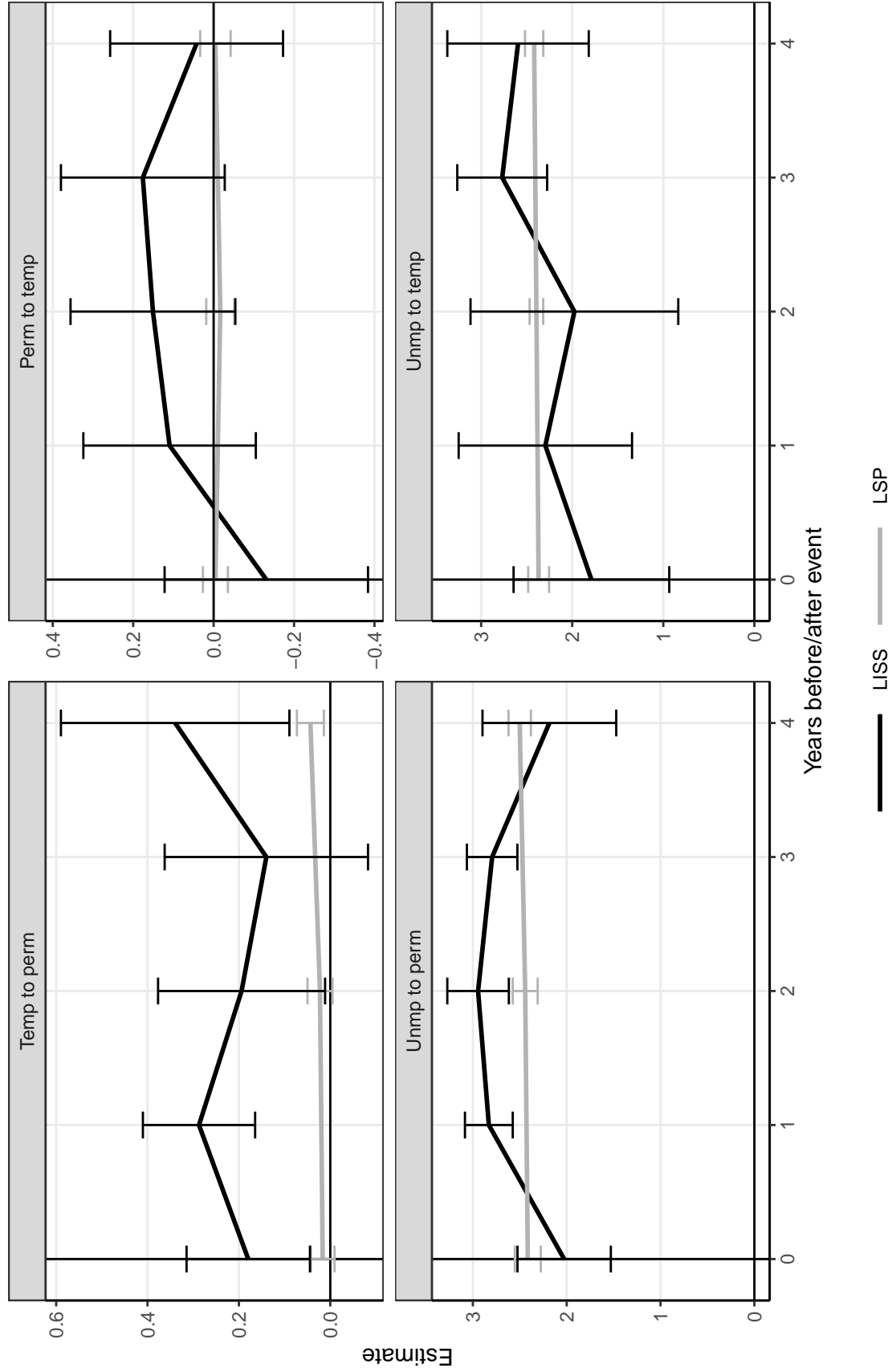
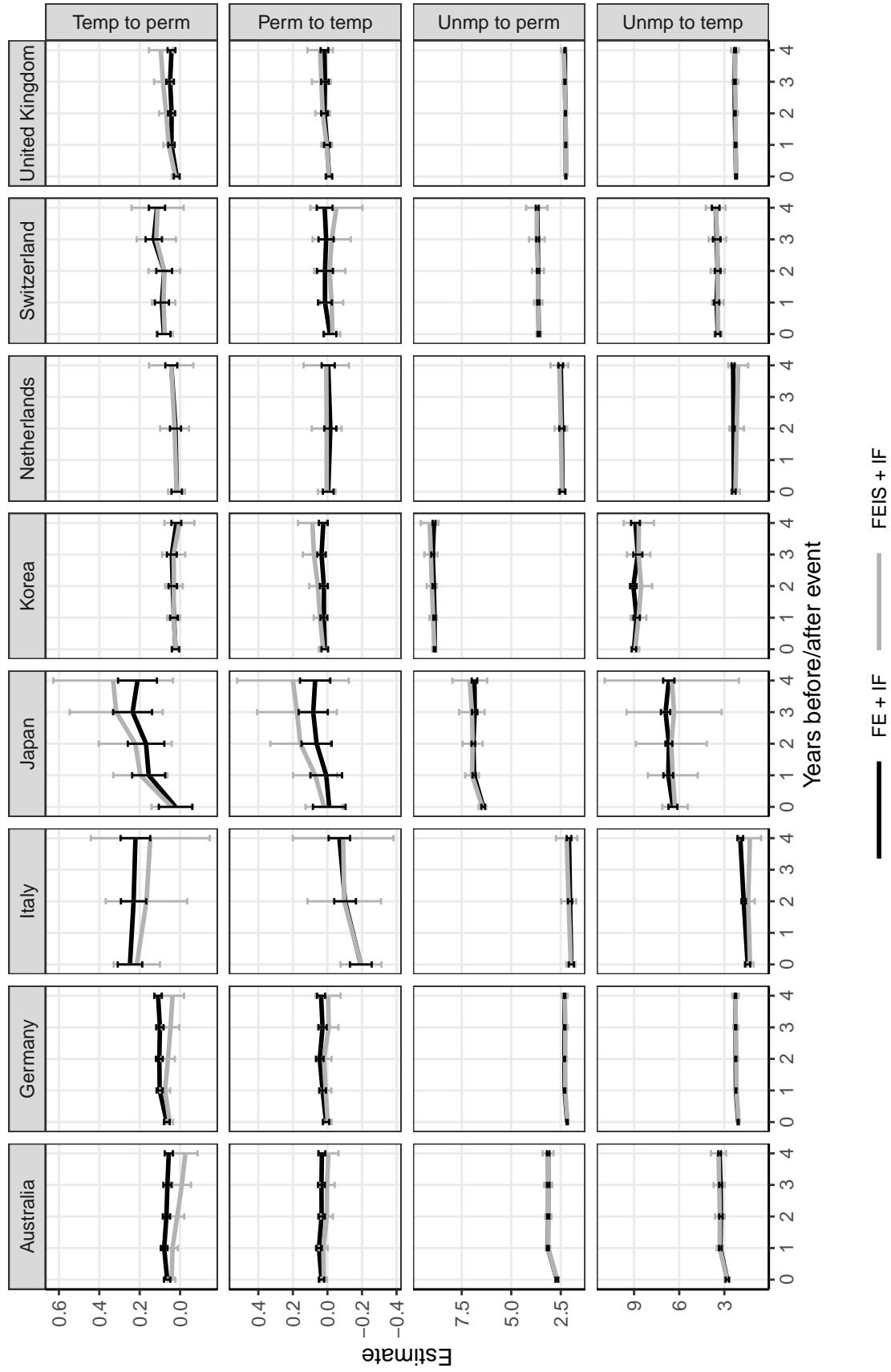


Figure A.4: Methods: FE + IF (as in the paper) vs. FEIS + IF



B Appendix: Results heterogeneity

Figure B.1: Figures 3 and 5, by age category

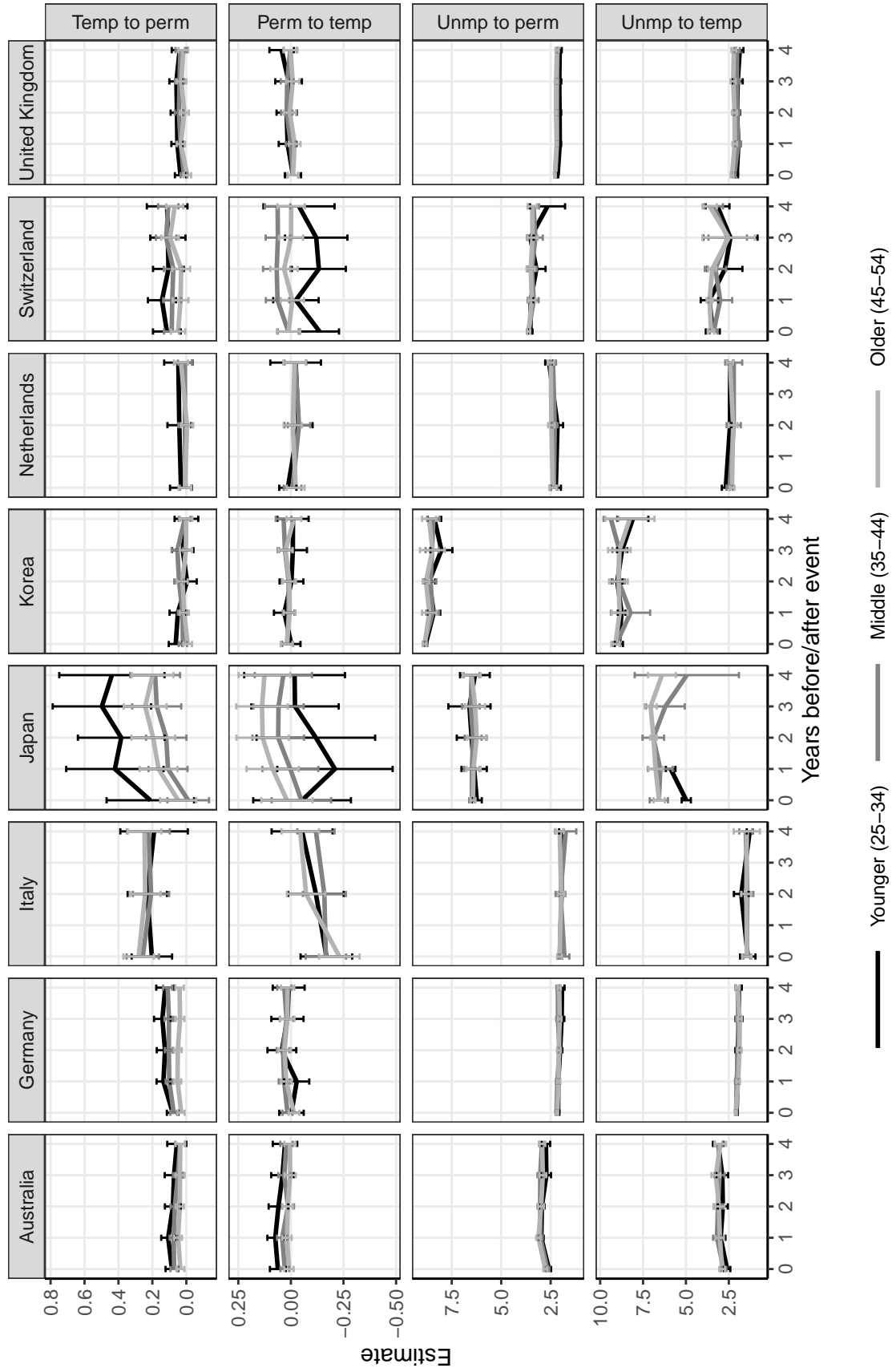


Figure B.2: Figures 3 and 5, by education category

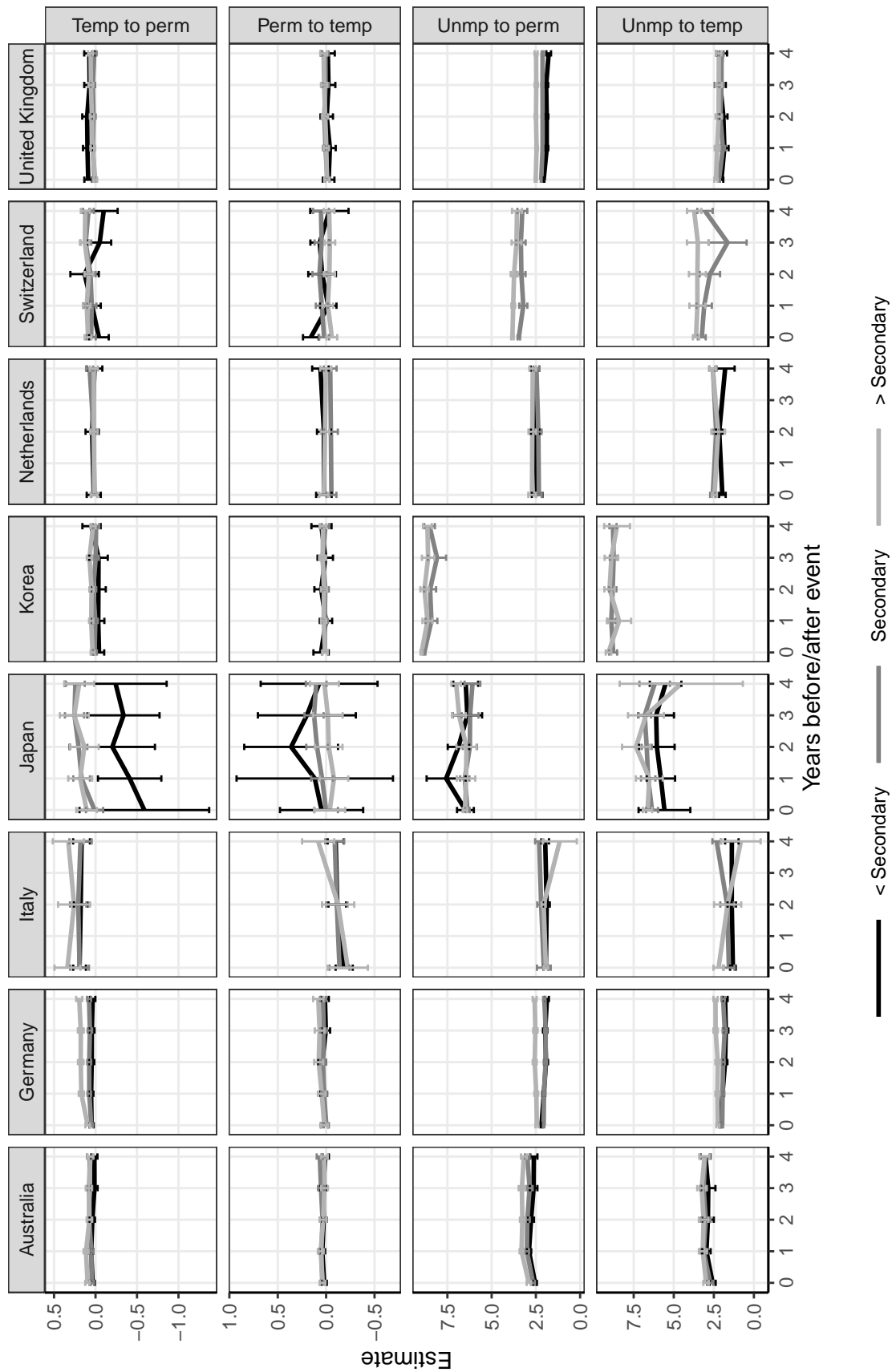
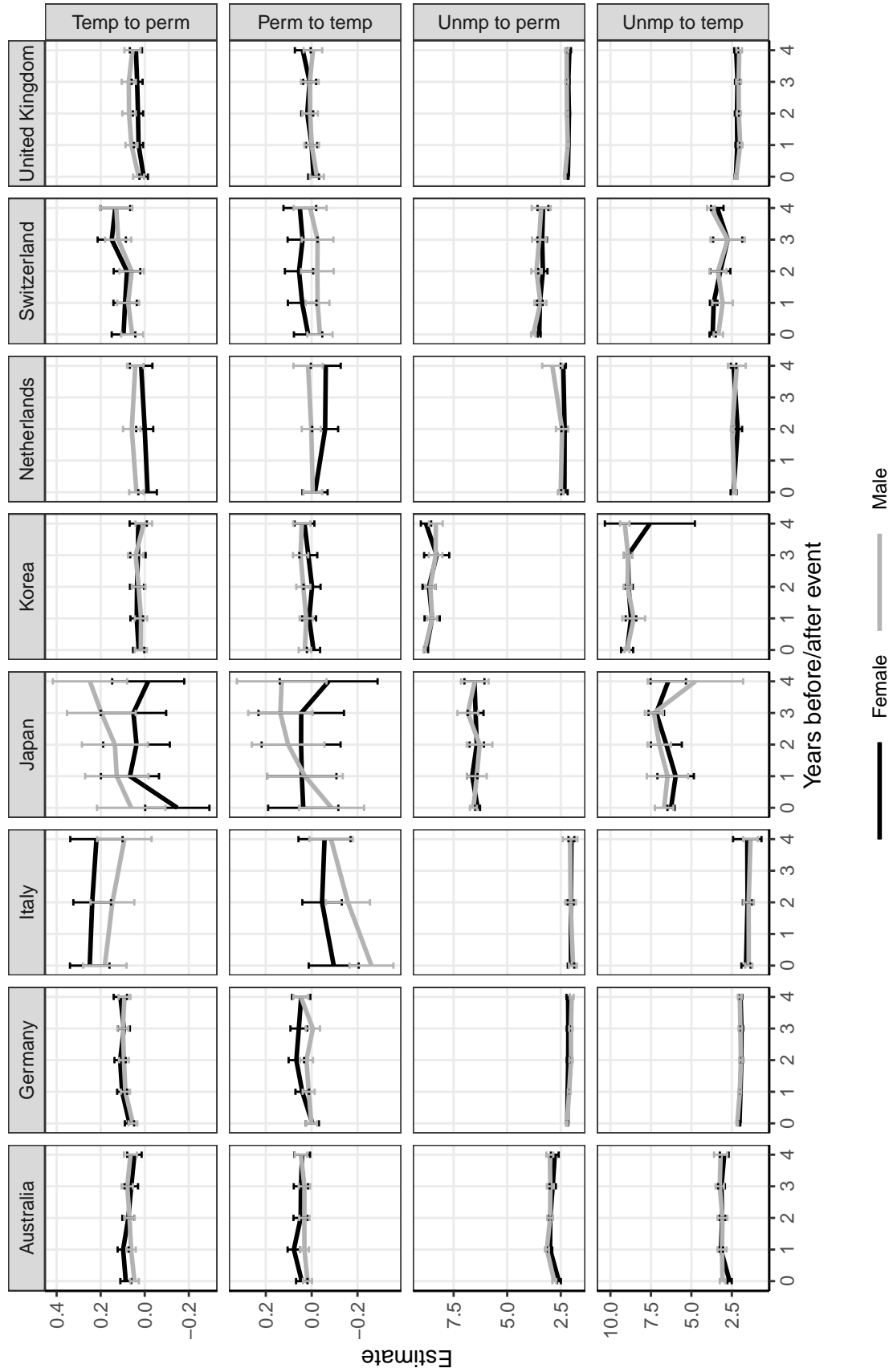


Figure B.3: Figures 3 and 5, by gender



C Appendix: Multiple events

As shown in figure C.1, let us imagine employment status for one individual in 6 periods of time looks like this (wages): T (50) \rightarrow P (90) \rightarrow T (110) \rightarrow P (130) \rightarrow T (140) \rightarrow T (150). In this case, we may observe four distinct events T \rightarrow P ($\times 2$), and P \rightarrow T ($\times 2$). In order to model each of the four distinct events, we must transform the data from person, year data into person, event, year data.

The steps are as follows. First, for each individual, filter one row per individual, transition at the year which the transition occurs (t_0). The result is four rows, one for each event. Second, create two variables, one to identify each individual, transition (*transeq*) and a second variable for time (*eventtime*), which is 0. Third, we create a new data frame by selecting only four variables: *pid*, *year*, *transseq* and *eventtime*. For each individual, transition (*transseq*), we append rows for *eventtime* four years before and six years after the transition. Finally, we merge the new data frame with the original data frame and create a new identifier for each individual, transition sequence (*pidseq*).

The result is a new data frame with 24 rows: six observations per transition. The transformed data do not alter the findings obtained by applying FE and FEIS models to untransformed data, as shown in table C.1.

Table C.1: Simulation: Single individual with multiple events

	FE		FEIS		FE + IF		
	Original	Transformed	Original	Transformed	First	First	Multiple
Temp	2.50 ()	2.50*** (0.00)	-12.39 ()	-12.39*** (0.00)			
Event: T \rightarrow P					40.00		30.00 (13.05)
Event: P \rightarrow T						20.00 ()	15.00 (6.53)
Num. obs.	6	24	6	24	6	6	24

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Note: In FE + IF, pre and post event coefficients are not shown.

Figure C.1: Simulation: Single individual with multiple events

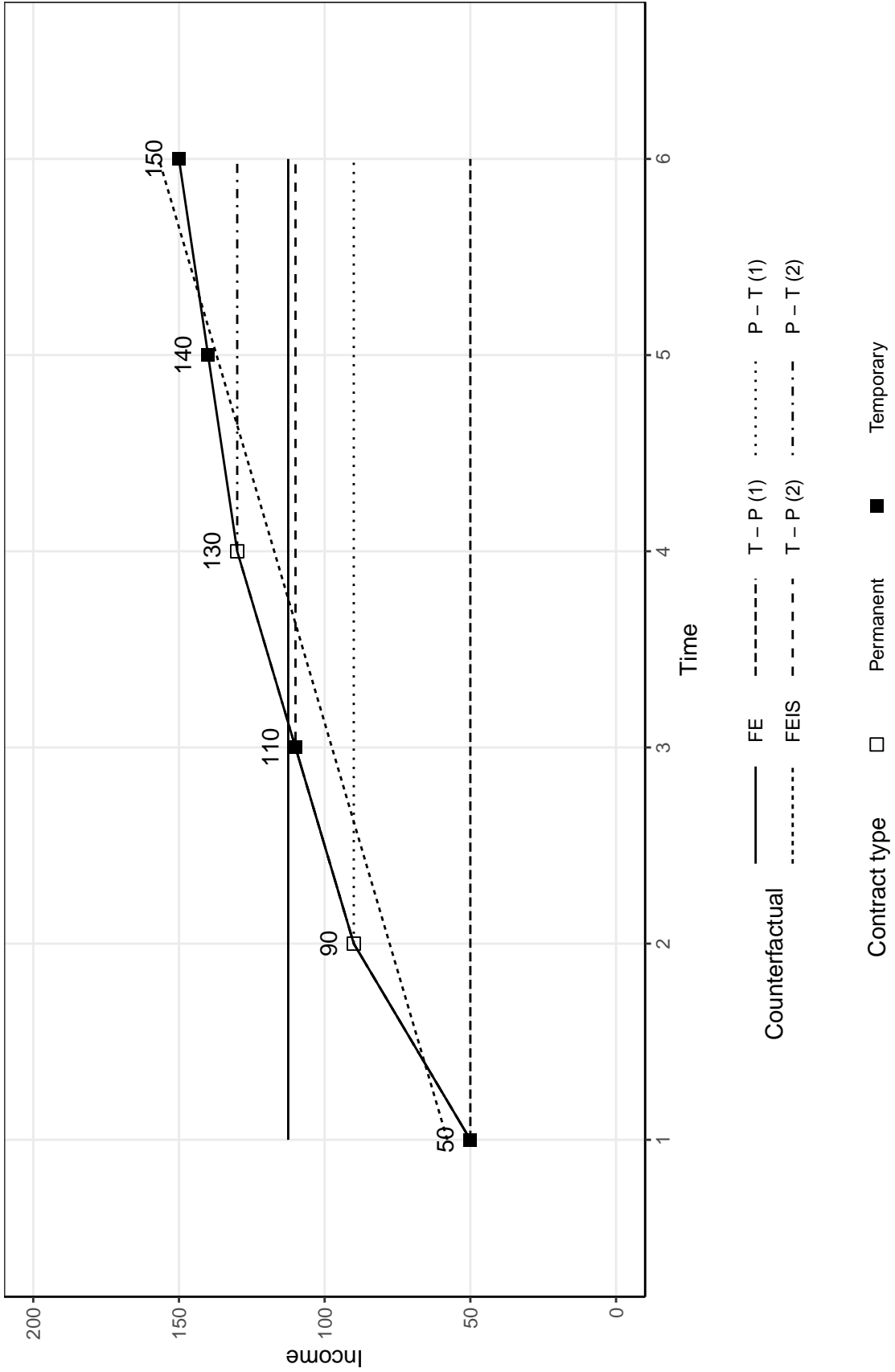


Figure C.2: Compare single vs. multiple events

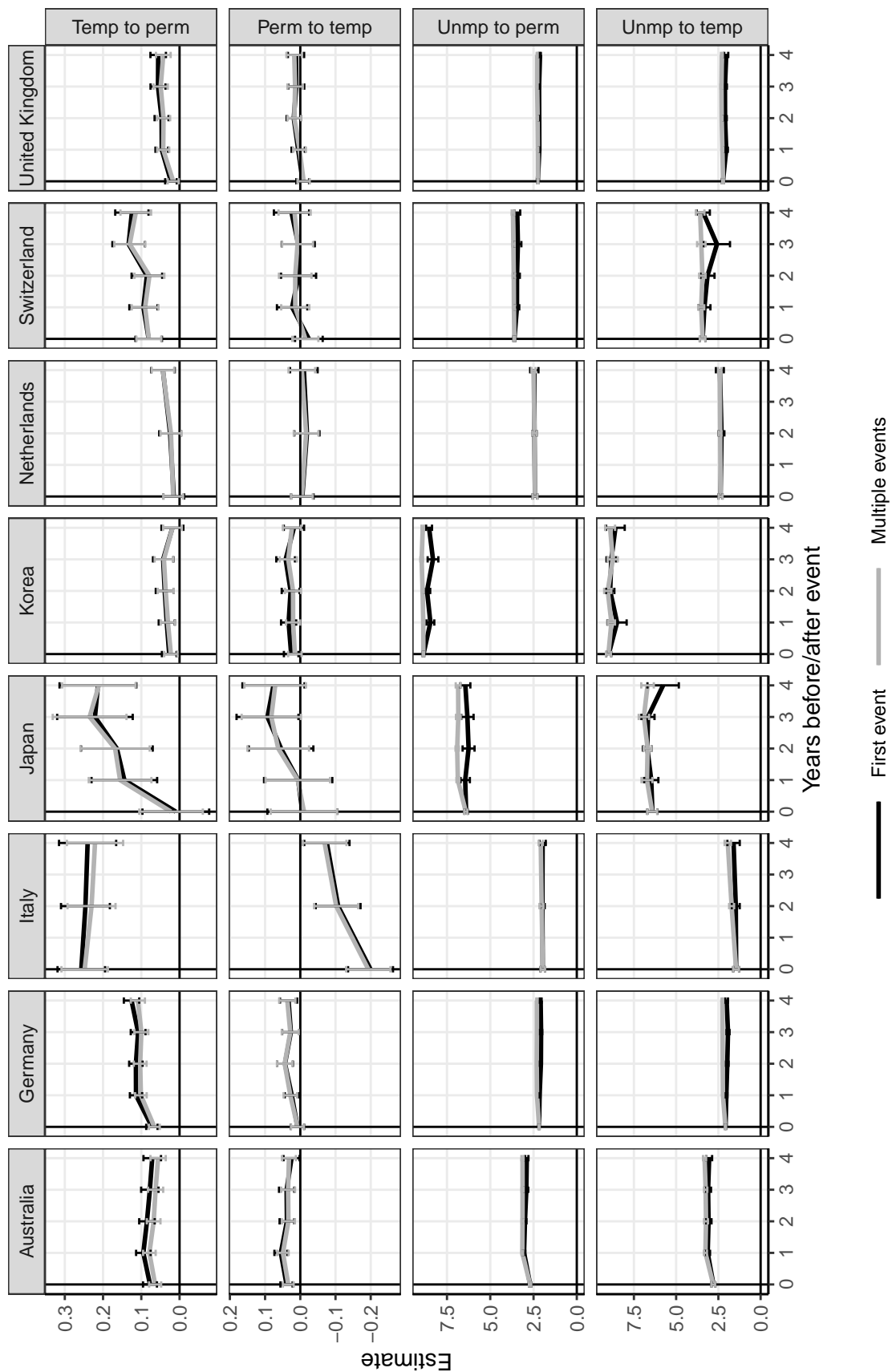
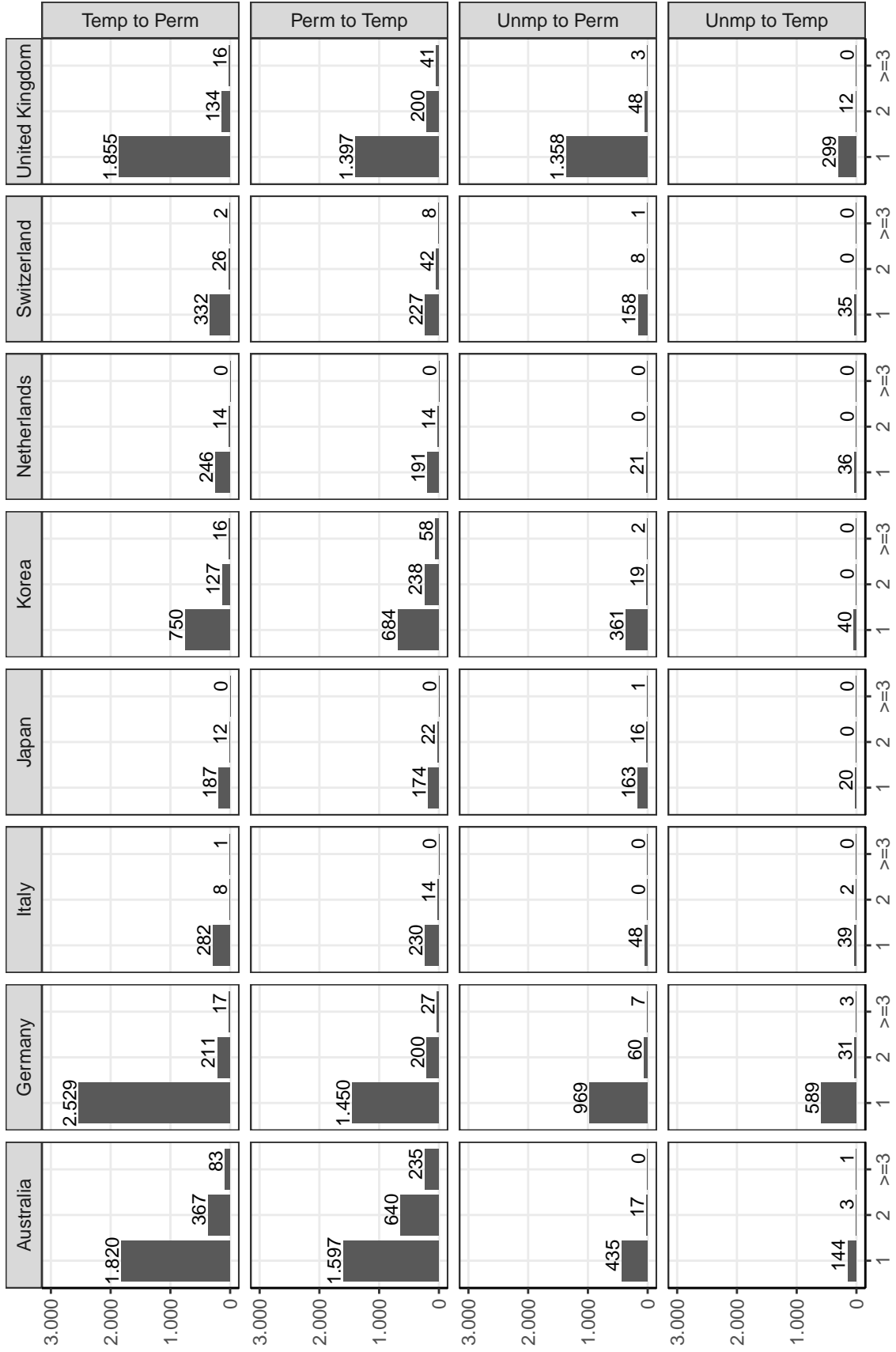


Figure C.3: How many individuals experience multiple events?



D Appendix: Sample selection

In this appendix, we provide more detail about the sample selection criteria. Table 1 in the paper details the sample selection criteria, which reduces the sample size by over 50% in a given country. Table D.1 splits table 1 for country. Table D.2 specifies why the number of transitions from unemployment to temporary or permanent employment are so small. The answer is that only about half of individuals who experience unemployment, exit unemployment, and only about a quarter of those who exit are observable as employed within 5 years after the transition (i.e. 3 periods of observation). More generally, despite sample selection criteria, sample A and B provide similar estimates in a given country, year of average income (LN), unemployment rate, and temporary employment rate as the World Bank or OECD. Therefore, the sample are representative of the broader population in a given country.

Table D.1: Sample filter steps from table 1, by country

Panel A: Sample selection criteria																			
Step	Description	Total (all countries)		Australia		Germany		Italy		Japan		Korea		Netherlands		Switzerland		United Kingdom	
		n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ
0	Raw data	415,771		31,951		91,693		100,847		10,499		24,491		14,458		34,469		107,363	
1	Panel years between 2000 and 2018	367,032	-12%	31,951	0%	83,722	-9%	68,012	-33%	10,499	0%	23,515	-4%	14,458	0%	34,469	0%	100,406	-6%
2	Prime age (25 - 54)	210,900	-43%	19,431	-39%	52,198	-38%	33,724	-50%	6,315	-40%	16,089	-32%	9,693	-33%	17,205	-50%	56,245	-44%
3	Unemployed or employed with contract type, monthly hours (40 – 320), and wages > 0	158,005	-25%	15,881	-18%	38,538	-26%	25,547	-24%	5,422	-14%	10,980	-32%	7,461	-23%	9,251	-46%	44,925	-20%
4	Non missing education or gender	156,164	-1%	15,875	0%	37,635	-2%	25,547	0%	5,396	0%	10,978	0%	7,449	0%	9,251	0%	44,033	-2%
5	Hourly wages within the top/bottom 0.005 percentile	155,365	-1%	15,817	0%	37,454	0%	25,336	-1%	5,376	0%	10,943	0%	7,404	-1%	9,168	-1%	43,867	0%
6	Data set A: At least 3 observations	79,612	-49%	10,598	-33%	20,972	-44%	3,678	-85%	3,643	-32%	7,311	-33%	2,418	-67%	5,303	-42%	25,689	-41%
7	Data set B: + always employed	73,651	-7%	10,072	-5%	18,302	-13%	3,449	-6%	3,541	-3%	7,103	-3%	2,320	-4%	5,153	-3%	23,711	-8%
Panel B: Data sets by event type (if treated, must be employed after treatment)																			
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
A	Unmp → perm	3,695	5%	452	4%	1,036	5%	48	1%	180	5%	382	5%	21	1%	167	3%	1,409	5%
A	Unmp → temp	1,254	2%	148	1%	623	3%	41	1%	20	1%	40	1%	36	1%	35	1%	311	1%
B	Temp → perm	9,035	12%	2,270	23%	2,757	15%	291	8%	199	6%	893	13%	260	11%	360	7%	2,005	8%
B	Perm → temp	6,753	9%	1,992	20%	1,559	9%	237	7%	185	5%	822	12%	198	9%	250	5%	1,510	6%

Note: n - is unique observations. Δ - is difference in n from previous step. # - is unique n who experienced at least 1 event. % - is percent who experienced an event.

Table D.2: Why are the number of unemployment exits so small?

Panel A: Sample selection criteria			Total (all countries)		Australia		Germany		Italy		Japan		Korea		Netherlands		Switzerland		United Kingdom	
Step	Description		n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ	n	Δ
1	Total unemployment events (From data set A)		14,472		1,917		5,562		335		386		980		184		531		4,577	
2	Must exit unemployment		6,486	-55%	1,060	-45%	2,079	-63%	145	-57%	235	-39%	478	-51%	90	-51%	256	-52%	2,143	-53%
3	Employed at least 1 period after exit (within 5 years)		4,861	-25%	592	-44%	1,608	-23%	86	-41%	198	-16%	419	-12%	56	-38%	199	-22%	1,703	-21%
Panel B: Exit to employment, by contract type																				
			#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
4	Unmp \rightarrow perm		3,695	76%	452	76%	1,036	64%	48	56%	180	91%	382	91%	21	38%	167	84%	1,409	83%
4	Unmp \rightarrow temp		1,254	26%	148	25%	623	39%	41	48%	20	10%	40	10%	36	64%	35	18%	311	18%

Notes: n - is unique observations. Δ - is difference in n from previous step. # - is number of transitions. % - is percent of total transitions from step 3. % is more than 100% because some individuals experience both a transition from Unmp to Perm and Unmp to Temp.

Figure D.1: Compare annual average income (LN) from sample to OECD

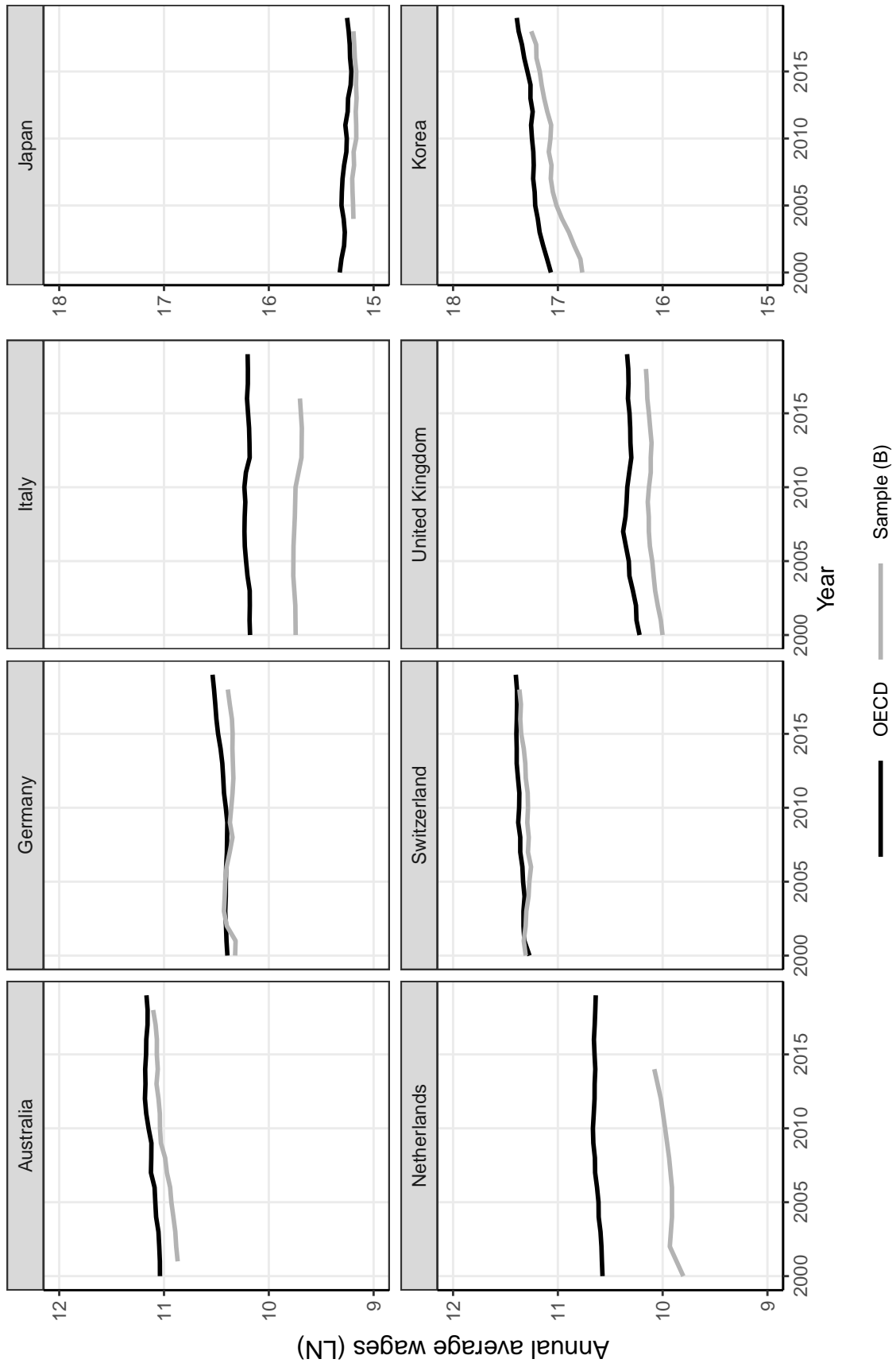


Figure D.2: Compare unemployment rate from sample to World Bank

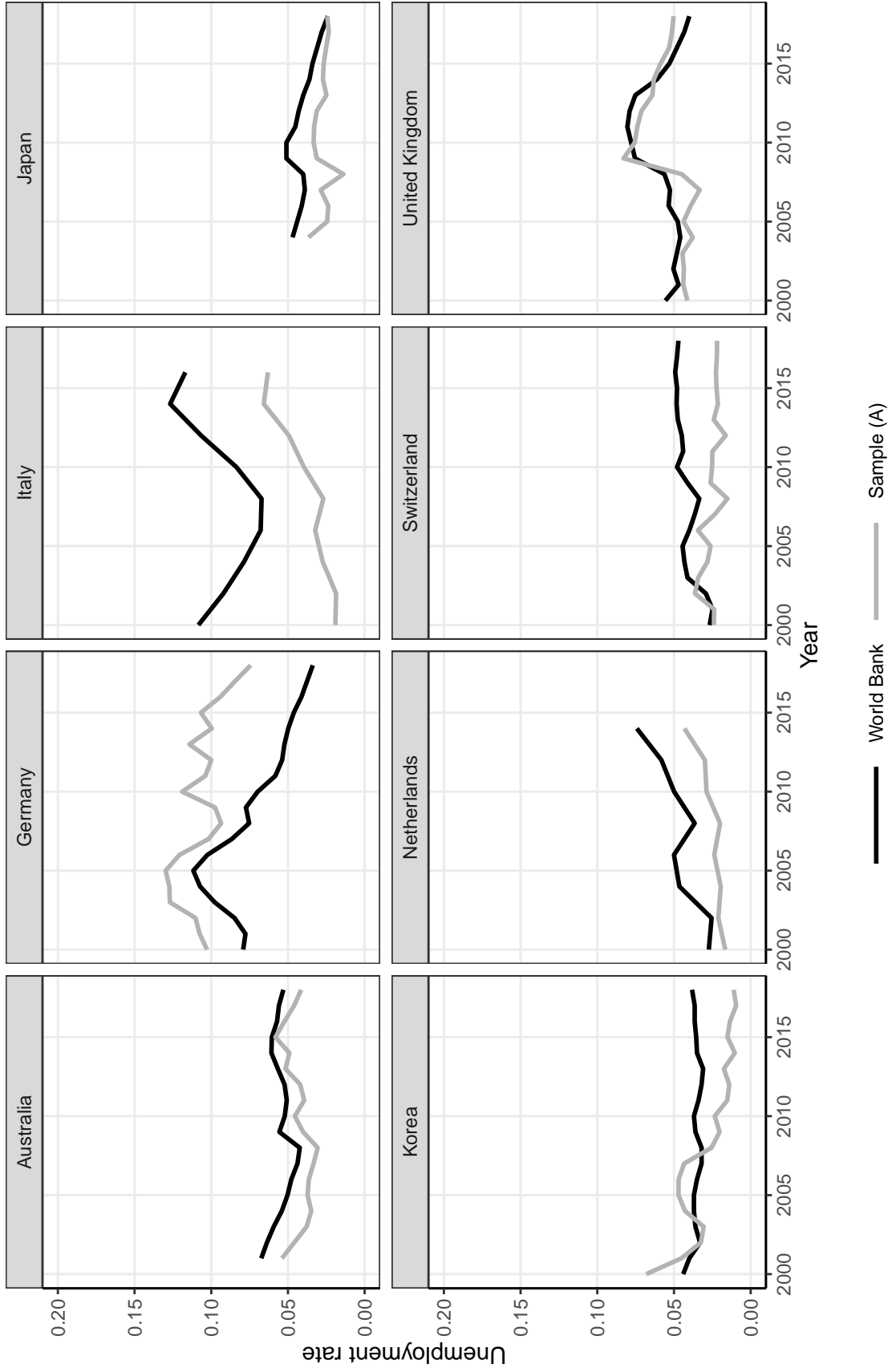


Figure D.3: Compare temporary employment rate from sample to OECD

