

Appendix to Public Employment Analysis with OECD Economic Outlook Data

David Pham

January 14, 2016

Contents

1 Annual Data	1
1.1 Linear model output	1
2 Quarterly Data	12
2.1 Linear model output	13

List of Tables

1 Data statistics	1
2 Main variable result	2
3 Robustness of log of adult population	3
4 Effect of income inequality	4
5 Effect of the gini coefficient (Toth 2015)	5
6 Effect of the GDP per capita	6
7 Effect of IMF fiscal transparency index	7
8 Effect of Lassen Fiscal Transparency index	8
9 Effect of Lassen Fiscal Transparency index	9
10 Effect of Government Political Side	10
11 Effect of years left until election	11
12 Data statistics	12
13 Main variable result	13
14 Effect of Lassen Fiscal Score	14
15 Effect of IMF GFS Score	15
16 Effect of Government Political Side	16
17 Effect of Government Political Side	17

1 Annual Data

Description of annual data.

Table 1: Data statistics

Statistic	N	Mean	St. Dev.	Min	Max
Change in Public Employment Rate (CPER)	325	-0.019	0.483	-1.527	2.861
Lagged change in Public Employment Rate	325	-0.002	0.499	-1.817	2.861
Time	325	2,002.098	5.895	1,991	2,011
GDP growth	325	2.353	3.085	-14.814	11.087
Unemployment rate	325	8.319	4.046	2.097	21.391
Government expenditure in % of GDP	325	45.991	7.230	31.138	68.570
Log of adult population in million	325	2.469	1.368	-1.010	5.454
Household net income, in % of GDP	325	55.088	10.332	31.224	75.891

1.1 Linear model output

Table 2: Main variable result

	<i>Dependent variable:</i>
	Difference in public employment rate
GDP growth	−0.062*** (0.010)
Unemployment rate	0.005 (0.007)
Government expenditure in % of GDP	−0.007* (0.004)
Log of adult population in million	−0.037 (0.024)
Household net income, in % of GDP	0.001 (0.003)
Constant	0.783*** (0.285)
Year fixed-effect	Yes
Auto-correlation effect	Yes
Observations	325
R ²	0.480
Adjusted R ²	0.434
Residual Std. Error	0.363 (df = 298)
F Statistic	10.568*** (df = 26; 298)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

Table 3: Robustness of log of adult population

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.069*** (0.011)	−0.069*** (0.011)
Unemployment rate	0.010 (0.007)	0.010 (0.007)
Government expenditure in % of GDP	−0.007* (0.004)	−0.007* (0.004)
Household net income, in % of GDP	−0.002 (0.004)	−0.002 (0.004)
Log of total population in million	−0.017 (0.027)	
Log of adult population in million		−0.018 (0.027)
Constant	0.889*** (0.287)	0.883*** (0.288)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	318	318
R ²	0.475	0.475
Adjusted R ²	0.428	0.428
Residual Std. Error (df = 291)	0.363	0.363
F Statistic (df = 26; 291)	10.115***	10.117***

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 4: Effect of income inequality

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.093*** (0.017)	−0.091*** (0.016)
Unemployment rate	0.035** (0.013)	0.035** (0.013)
Government expenditure in % of GDP	−0.009 (0.008)	−0.007 (0.007)
Log of adult population in million	0.014 (0.049)	0.005 (0.046)
Household net income, in % of GDP	−0.014 (0.011)	−0.013 (0.011)
Gini coefficient	−0.759 (1.515)	
Constant	1.755** (0.831)	1.464** (0.592)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	110	110
R ²	0.686	0.685
Adjusted R ²	0.583	0.586
Residual Std. Error	0.355 (df = 82)	0.353 (df = 83)
F Statistic	6.633*** (df = 27; 82)	6.942*** (df = 26; 83)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 5: Effect of the gini coefficient (Toth 2015)

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.079*** (0.013)	−0.079*** (0.013)
Unemployment rate	0.011 (0.009)	0.011 (0.009)
Government expenditure in % of GDP	−0.007 (0.005)	−0.007 (0.005)
Log of adult population in million	−0.041 (0.036)	−0.040 (0.034)
Household net income, in % of GDP	0.001 (0.005)	0.001 (0.005)
Gini coefficient (Toth 2015)	0.033 (0.949)	
Constant	0.737 (0.519)	0.748* (0.409)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	234	234
R ²	0.498	0.498
Adjusted R ²	0.435	0.437
Residual Std. Error	0.383 (df = 207)	0.382 (df = 208)
F Statistic	7.888*** (df = 26; 207)	8.244*** (df = 25; 208)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 6: Effect of the GDP per capita

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.068*** (0.011)	−0.069*** (0.011)
Unemployment rate	0.011 (0.007)	0.010 (0.007)
Government expenditure in % of GDP	−0.007* (0.004)	−0.007* (0.004)
Log of adult population in million	−0.019 (0.027)	−0.018 (0.027)
Household net income, in % of GDP	−0.002 (0.004)	−0.002 (0.004)
GDP per capita, in USD Millions	0.00000 (0.00000)	
Constant	0.823*** (0.313)	0.883*** (0.288)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	318	318
R ²	0.475	0.475
Adjusted R ²	0.426	0.428
Residual Std. Error	0.364 (df = 290)	0.363 (df = 291)
F Statistic	9.726*** (df = 27; 290)	10.117*** (df = 26; 291)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 7: Effect of IMF fiscal transparency index

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.076*** (0.015)	−0.076*** (0.015)
Unemployment rate	0.014 (0.010)	0.013 (0.010)
Government expenditure in % of GDP	−0.008 (0.006)	−0.009 (0.006)
Log of adult population in million	−0.017 (0.036)	−0.018 (0.036)
Household net income, in % of GDP	−0.003 (0.006)	−0.002 (0.006)
IMF GFS Index	−0.002 (0.001)	
Constant	0.696* (0.375)	0.636* (0.373)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	157	157
R ²	0.548	0.544
Adjusted R ²	0.500	0.499
Residual Std. Error	0.360 (df = 141)	0.361 (df = 142)
F Statistic	11.418*** (df = 15; 141)	12.091*** (df = 14; 142)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 8: Effect of Lassen Fiscal Transparency index

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.073** (0.032)	−0.071*** (0.018)
Unemployment rate	0.012 (0.009)	0.012 (0.009)
Government expenditure in % of GDP	−0.013** (0.005)	−0.013** (0.005)
Log of adult population in million	−0.037 (0.045)	−0.036 (0.042)
Household net income, in % of GDP	−0.003 (0.005)	−0.003 (0.005)
Fiscal Transparency	−0.0003 (0.019)	
Effect of Fiscal Transparency on GDP Growth	0.0004 (0.006)	
Constant	1.223*** (0.361)	1.217*** (0.344)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	220	220
R ²	0.509	0.509
Adjusted R ²	0.438	0.443
Residual Std. Error	0.341 (df = 191)	0.339 (df = 193)
F Statistic	7.085*** (df = 28; 191)	7.710*** (df = 26; 193)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 9: Effect of Lassen Fiscal Transparency index

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.085*** (0.025)	−0.069*** (0.011)
Unemployment rate	0.010 (0.007)	0.010 (0.007)
Government expenditure in % of GDP	−0.007* (0.004)	−0.007* (0.004)
Log of adult population in million	−0.016 (0.027)	−0.018 (0.027)
Household net income, in % of GDP	−0.003 (0.004)	−0.002 (0.004)
Fiscal Transparency	−0.001 (0.002)	
Effect of Fiscal Transparency on GDP Growth	0.0003 (0.0004)	
Constant	0.938*** (0.327)	0.883*** (0.288)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	318	318
R ²	0.476	0.475
Adjusted R ²	0.425	0.428
Residual Std. Error	0.364 (df = 289)	0.363 (df = 291)
F Statistic	9.360*** (df = 28; 289)	10.117*** (df = 26; 291)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 10: Effect of Government Political Side

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.041*** (0.014)	−0.035** (0.014)
Unemployment rate	0.008 (0.008)	0.012 (0.007)
Government expenditure in % of GDP	−0.009* (0.005)	−0.010** (0.005)
Log of adult population in million	−0.022 (0.039)	−0.025 (0.039)
Household net income, in % of GDP	−0.002 (0.004)	−0.003 (0.004)
Left government effect	0.094* (0.048)	
Constant	0.853** (0.331)	0.948*** (0.329)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	256	256
R ²	0.454	0.445
Adjusted R ²	0.389	0.382
Residual Std. Error	0.340 (df = 228)	0.342 (df = 229)
F Statistic	7.024*** (df = 27; 228)	7.061*** (df = 26; 229)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 11: Effect of years left until election

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.070*** (0.011)	−0.069*** (0.011)
Unemployment rate	0.010 (0.007)	0.010 (0.007)
Government expenditure in % of GDP	−0.007* (0.004)	−0.007* (0.004)
Log of adult population in million	−0.017 (0.027)	−0.018 (0.027)
Household net income, in % of GDP	−0.002 (0.004)	−0.002 (0.004)
Years left until election	−0.025 (0.017)	
Constant	0.918*** (0.288)	0.883*** (0.288)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Observations	318	318
R ²	0.479	0.475
Adjusted R ²	0.430	0.428
Residual Std. Error	0.362 (df = 290)	0.363 (df = 291)
F Statistic	9.868*** (df = 27; 290)	10.117*** (df = 26; 291)

Note:

*p<0.1; **p<0.05; ***p<0.01

2 Quarterly Data

Description of quarterly data.

Table 12: Data statistics

Statistic	N	Mean	St. Dev.	Min	Max
Difference with previous public employment rate (CPER)	1,476	−0.008	0.187	−1.255	1.434
Lagged of difference in public employment rate	1,476	−0.008	0.188	−1.255	1.434
Year	1,476	2,001.923	6.344	1,990	2,012
Quarter	1,476	2.544	4.834	−41.531	33.204
GDP growth	1,476	7.435	3.471	1.011	20.359
Unemployment rate	1,476	7.423	3.485	1.011	20.359
Lagged unemployment rate	1,476	45.739	7.462	30.894	68.766
Government expenditure in % of GDP (interpolated)	1,476	16.100	1.577	12.586	19.285
Log of adult population (interpolated)	1,476	30,564.060	13,752.170	7,654.995	92,475.070

2.1 Linear model output

Table 13: Main variable result

	<i>Dependent variable:</i>
	Difference in public employment rate
GDP growth	−0.001 (0.001)
Unemployment rate	0.153*** (0.011)
Lagged unemployment rate	−0.156*** (0.011)
Government expenditure in % of GDP (interpolated)	−0.001 (0.001)
Log of adult population (interpolated)	−0.008*** (0.003)
GDP per capita, in USD Millions (interpolated)	−0.00000 (0.00000)
Constant	0.526 (1.660)
Year fixed-effect	Yes
Auto-correlation effect	Yes
Seasonal effect	Yes
Observations	1,476
R ²	0.220
Adjusted R ²	0.214
Residual Std. Error	0.165 (df = 1464)
F Statistic	37.541*** (df = 11; 1464)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

Table 14: Effect of Lassen Fiscal Score

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.001 (0.003)	−0.002 (0.001)
Unemployment rate	0.151*** (0.016)	0.150*** (0.016)
Lagged unemployment rate	−0.157*** (0.016)	−0.157*** (0.016)
Government expenditure in % of GDP (interpolated)	−0.0003 (0.001)	−0.00001 (0.001)
Log of adult population (interpolated)	0.001 (0.007)	−0.006 (0.004)
GDP per capita, in USD Millions (interpolated)	−0.00000 (0.00000)	−0.00000 (0.00000)
Fiscal Transparency	−0.005 (0.005)	
Effect of fiscal transparency on GDP growth	−0.0003 (0.001)	
Constant	0.124 (3.593)	0.298 (3.574)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Seasonal effect	Yes	Yes
Observations	990	990
R ²	0.185	0.184
Adjusted R ²	0.175	0.174
Residual Std. Error	0.159 (df = 976)	0.159 (df = 978)
F Statistic	17.085*** (df = 13; 976)	19.991*** (df = 11; 978)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 15: Effect of IMF GFS Score

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.0003 (0.004)	−0.001 (0.001)
Unemployment rate	0.164*** (0.012)	0.162*** (0.012)
Lagged unemployment rate	−0.166*** (0.012)	−0.165*** (0.012)
Government expenditure in % of GDP (interpolated)	−0.001 (0.001)	−0.001 (0.001)
Log of adult population (interpolated)	−0.007** (0.003)	−0.007** (0.003)
GDP per capita, in USD Millions (interpolated)	−0.00000 (0.00000)	−0.00000 (0.00000)
Fiscal Transparency	0.0003 (0.0004)	
Effect of fiscal transparency on GDP growth	−0.00001 (0.0001)	
Constant	0.700 (1.671)	0.713 (1.670)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Seasonal effect	Yes	Yes
Observations	1,434	1,434
R ²	0.222	0.222
Adjusted R ²	0.215	0.216
Residual Std. Error	0.162 (df = 1420)	0.161 (df = 1422)
F Statistic	31.224*** (df = 13; 1420)	36.875*** (df = 11; 1422)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 16: Effect of Government Political Side

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.002 (0.001)	−0.002 (0.001)
Unemployment rate	0.151*** (0.012)	0.151*** (0.012)
Lagged unemployment rate	−0.154*** (0.012)	−0.154*** (0.012)
Government expenditure in % of GDP (interpolated)	−0.001 (0.001)	−0.001 (0.001)
Log of adult population (interpolated)	−0.006** (0.003)	−0.006** (0.003)
GDP per capita, in USD Millions (interpolated)	−0.00000 (0.00000)	−0.00000 (0.00000)
Left Side Government	0.001 (0.005)	
Constant	0.429 (1.849)	0.578 (1.777)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Seasonal effect	Yes	Yes
Observations	1,390	1,390
R ²	0.222	0.222
Adjusted R ²	0.216	0.216
Residual Std. Error	0.166 (df = 1377)	0.166 (df = 1378)
F Statistic	32.803*** (df = 12; 1377)	35.801*** (df = 11; 1378)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 17: Effect of Government Political Side

	<i>Dependent variable:</i>	
	Difference in public employment rate	
	(1)	(2)
GDP growth	−0.002* (0.001)	−0.002 (0.001)
Unemployment rate	0.151*** (0.012)	0.151*** (0.012)
Lagged unemployment rate	−0.154*** (0.012)	−0.154*** (0.012)
Government expenditure in % of GDP (interpolated)	−0.001 (0.001)	−0.001 (0.001)
Log of adult population (interpolated)	−0.006** (0.003)	−0.006** (0.003)
GDP per capita, in USD Millions (interpolated)	−0.00000 (0.00000)	−0.00000 (0.00000)
Years until next election	−0.007* (0.004)	
Constant	0.671 (1.776)	0.578 (1.777)
Year fixed-effect	Yes	Yes
Auto-correlation effect	Yes	Yes
Seasonal effect	Yes	Yes
Observations	1,390	1,390
R ²	0.224	0.222
Adjusted R ²	0.218	0.216
Residual Std. Error	0.166 (df = 1377)	0.166 (df = 1378)
F Statistic	33.188*** (df = 12; 1377)	35.801*** (df = 11; 1378)

Note:

*p<0.1; **p<0.05; ***p<0.01