# Supplementary information

The tables below provide the data and sources for Figures 1 and 2.

*Table SI1: Coal mining share of employment versus per-capita GDP (PPP), selected countries, 2015 (unless other year stated)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country** | **Per-capita GDP (PPP) / USD** [1] | **Number of coal mining workers** | **Total workforce** [2] | **Coal miners per 1,000 workers** |
| **Australia** | 47,769 | 45,100 [3] | 12,592,000 | 3.6 |
| **China** | 14,328 | 3,875,300 *(2017)* [4] | 787,073,000 | 4.9 |
| **Germany** | 47,255 | 14,792 [5] | 42,781,000 | 0.3 |
| **India** | 6,192 | 353,000 [6] | 503,835,000 | 0.7 |
| **Indonesia** | 11,155 | 121,000 *(2014)* [7] | 122,582,000 | 1.0 |
| **Kazakhstan** | 24,920 | 29,478 [8] | 9,110,000 | 2.6 |
| **Poland** | 26,622 | 98,000 [9] | 18,326,000 | 5.3 |
| **Russia** | 26,208 | 150,000 *(2018)* [10] | 76,289,000 | 2.0 |
| **South Africa** | 13,230 | 97,952 [11] | 21,349,000 | 4.6 |
| **USA** | 56,175 | 69,450 [12] | 160,839,000 | 0.4 |

*Table SI2: Oil's share of central government revenue versus per-capita GDP (PPP), selected countries, 2016*

|  |  |  |
| --- | --- | --- |
|  | **GDP per capita** [1] | **Oil share of revenue** |
| **Algeria** | 15,026 | 34% [13] |
| **Angola** | 6,844 | 47% [14] |
| **Azerbaijan** | 17,439 | 51% [15] |
| **Bolivia** | 7,218 | 16% [16] |
| **Brunei** | 76,884 | 70% [17] |
| **Canada** | 46,437 | 0.4% [18] |
| **Chad** | 2,445 | 24% [19] |
| **Congo** | 6,676 | 59% [20] |
| **Equatorial Guinea** | 38,639 | 72% [21] |
| **Iran** | 18,077 | 34% [22] |
| **Iraq** | 17,944 | 85% [23] |
| **Kuwait** | 71,887 | 65% [24] |
| **Nigeria** | 5,942 | 38% [25] |
| **Norway** | 69,249 | 13% [26] |
| **Oman** | 46,698 | 71% [27] |
| **Russia** | 26,490 | 19% [28] |
| **Saudi Arabia** | 55,158 | 64% [29] |
| **Timor Leste** | 4,187 | 58% [30] |
| **UAE** | 67,871 | 38% [31] |
| **UK** | 42,481 | 0.0% [32] |
| **US** | 57,436 | 0.1% *(federal lands and waters)* [33] |

Sources:

1: (IMF, 2017)

2: (World Bank, 2017)

3: Australian Bureau of Statistics. Labour Force, Australia, Detailed, Quarterly. Table 06: Employed persons by Industry sub-division of main job (ANZSIC) and Sex. “Coal mining”. <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.003Feb%202020?OpenDocument>

4: 11 workers per 10,000 tonnes. Feng, H. (2017). “2.3 million Chinese coal miners will need new jobs by 2020”. *China Dialogue*. 7 August. <https://www.chinadialogue.net/article/show/single/en/9967-2-3-million-Chinese-coal-miners-will-need-new-jobs-by-2-2->

5: (Statistik der Kohlenwirtschaft 2017)

6: Directorate General of Mines Safety (2015). Statistics of Mines in India, Volume-I (Coal), 2015. Statement No.1.1: Trend in Average Daily Employment, p.1. <http://www.dgms.gov.in/writereaddata/UploadFile/Coal_2015.pdf>

7: Directorate General of Mineral And Coal (2015). *Indonesia Mineral and Coal Information 2015*, p.66. <https://www.esdm.go.id/assets/media/content/Statistik_Mineral_Dan_Batubara_2015-ilovepdf-compressed.pdf>

8: 3,640 t/person (opencast). Kalmykov D.E. and Malikova A.D. (2017). *Doomed to Coal: Overview coal mining and coal energy generation in Kazakhstan, status and prospects*. Center for the New Environmentally Friendly Technologies, p.45. <https://bankwatch.org/wp-content/uploads/2018/01/KZ_Coal_ENG.pdf>

9: Szpor, A. and Ziółkowska, K. (2018). *The Transformation of the Polish Coal Sector*. International Institute for Sustainable Development. January. p.3. <https://www.iisd.org/sites/default/files/publications/transformation-polish-coal-sector.pdf>

10: Grachev, S. (2018). “Should we expect a crisis in the Russian coal industry?” *Mining.com*. 23 April 23. <http://www.mining.com/web/expect-crisis-russian-coal-industry/>

11: Statistics South Africa (2017). *Mining industry, 2015*. Report No. 20-01-02 (2015). Table B–Employment as at the end of June in the mining industry, 2012 and 2015, p.8. <http://www.statssa.gov.za/publications/Report-20-01-02/Report-20-01-022015.pdf>

12: Bureau of Labor Statistics (2015). May 2015 National Industry-Specific Occupational Employment and Wage Estimates. NAICS 212100 - Coal Mining. <https://www.bls.gov/oes/2015/may/naics4_212100.htm>

13: IMF (2018). *Algeria: Article IV Consultation*. 13 June. p.3. <https://www.imf.org/en/Publications/CR/Issues/2018/06/13/Algeria-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45986>

14: IMF (2018). *Angola: Article IV Consultation*. 11 June. p.32. https://www.imf.org/en/Publications/CR/Issues/2018/06/11/Angola-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45957

15: IMF (2016). *Republic of Azerbaijan: Article IV Consultation*. 14 September. p.30. <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Republic-of-Azerbaijan-2016-Article-IV-Consultation-Press-Release-Staff-Report-and-44269>

16: IMF (2018). *Bolivia: Article IV Consultation*. 21 December. p.27. <https://www.imf.org/en/Publications/CR/Issues/2018/12/21/Bolivia-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46492>

17: IMF (2017). “IMF Executive Board Concludes 2017 Article IV Consultation with Brunei Darussalam”. Press release, 19 May. <https://www.imf.org/en/News/Articles/2017/05/19/pr17185-imf-executive-board-concludes-2017-article-iv-consultation-with-brunei-darussalam>

18: Oil and gas royalties: $4.4 bn provinces, territories and local government (PTLG); $0.2 bn federal, Total revenue: $510.4 bn PTLG; $710.8 bn federal. Statistics Canada (2017). Consolidated Canadian Government Finance Statistics, 2015. <https://www150.statcan.gc.ca/n1/daily-quotidien/170329/dq170329a-eng.htm>

19: IMF (2016). *Chad: Article IV Consultation*. 17 August. p.25. <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Chad-2016-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-Executive-44190>

20: IMF (2015). *Republic of Congo: Article IV Consultation*. 16 September. p.4. <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Republic-of-Congo-2015-Article-IV-Consultation-Press-Release-and-Staff-Report-43284>

21: IMF (2016). *Republic of Equatorial Guinea: Article IV Consultation*. 15 September. p.4. <https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Republic-of-Equatorial-Guinea-2015-Article-IV-Consultation-Press-Release-Staff-Report-and-43280>

22: IMF (2018). *Islamic Republic of Iran: Article IV Consultation*. 29 March. p.5. <https://www.imf.org/en/Publications/CR/Issues/2018/03/29/Islamic-Republic-of-Iran-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-45767>

23: IMF (2017). *Iraq: Article IV Consultation*. 9 August. p.5. <https://www.imf.org/en/Publications/CR/Issues/2017/08/09/Iraq-2017-Article-IV-Consultation-and-Second-Review-under-the-Three-Year-Stand-by-45174>

24: IMF (2018). *Kuwait: Article IV Consultation*. 26 January. p.5. <https://www.imf.org/en/Publications/CR/Issues/2018/01/29/Kuwait-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45592>

25: IMF (2018). *Nigeria: Article IV Consultation*. 7 March. p.4. <https://www.imf.org/en/Publications/CR/Issues/2018/03/07/Nigeria-2018-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45699>

26: Norwegian Petroleum Directorate (2016). “The government's revenues”. <https://web.archive.org/web/20170730144938/http:/www.norskpetroleum.no/en/economy/governments-revenues/>

27: IMF (2018). “IMF Executive Board Concludes 2018 Article IV Consultation with Oman”. Press release, 6 July. <https://www.imf.org/en/News/Articles/2018/07/06/pr18280-executive-board-concludes-2018-article-iv-consultation-with-oman>

28: IMF (2017). *Russian Federation: Article IV Consultation*. 10 July. p.32. <https://www.imf.org/en/Publications/CR/Issues/2017/07/10/Russian-Federation-2017-Article-IV-Consultation-Press-Release-Staff-Report-45054>

29: IMF (2018). *Saudi Arabia: Article IV Consultation*. 24 August. p.6. <https://www.imf.org/en/Publications/CR/Issues/2018/08/24/Saudi-Arabia-2018-Article-IV-Consultation-Press-Release-and-Staff-Report-46195>

30: IMF (2017). *Democratic Republic of Timor Leste: Article IV Consultation*. 7 December. p.31. <https://www.imf.org/en/Publications/CR/Issues/2017/12/07/Democratic-Republic-of-Timor-Leste-2017-Article-IV-Consultation-Press-Release-and-Staff-45447>

31: IMF (2017). *United Arab Emirates: Article IV Consultation*. 14 July. p.29. <https://www.imf.org/en/Publications/CR/Issues/2017/07/14/United-Arab-Emirates-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-45088>

32: Office for Budget Responsibility (2017). *Economic and Fiscal Outlook*. November. p.111. <https://cdn.obr.uk/Nov2017EFOwebversion-2.pdf>

33: Department of the Interior (2020). Natural resources revenue data. <https://revenuedata.doi.gov/downloads/revenue/>