

Scottish Trends Analysis Paper - September 2019

Scotland's International Ranking in terms of GDP per capita and Material Well-being

Key findings

- **Gross Domestic Product (GDP), Net National Income (NNI) and Gross Domestic Household Income (GDHI), each measured in per capita (i.e. per head of population) terms, are three different ways of approximating a country's 'standard of living';**
- **In 2018, Scotland's GDP per capita was the 16th highest across a selection of 35 OECD countries, eight places lower than cited in the Independence Referendum White Paper, due to a smaller contribution from North Sea output, but still just above the ranking for the UK;**
- **In 2017, Scotland's NNI per capita was the 13th highest across a selection of 34 OECD countries and equal to the ranking for the UK;**
- **In 2017, Scotland's GDHI per capita was the 17th highest across a selection of 33 OECD countries and below the ranking of the UK;**
- **Many of the best performers, in terms of GDP per capita, need careful interpretation. For example, Luxembourg and Ireland experience notable levels of net international financial outflows which means their GDP, in both absolute and relative terms, is well above their NNI and their GDHI;**
- **Moving across the three measures, the ranking of some countries changes notably. For example:**
 - **Ireland** moves from 2nd to 19th;
 - **the USA** moves from 5th to 1st;
 - **Australia** moves from 10th to 3rd;
 - **Germany** moves from 11th to 5th;
 - **France** moves from 18th to 8th.

The latter, GDHI based, rankings appear to be more in keeping with widely shared views of relative standards of living across OECD countries.

- **Although lying mid-table, Scotland can still be viewed as a relatively prosperous OECD nation. This ranking is likely to apply regardless of whether Scotland is part of the UK or independent. However, independence would still pose questions over how to reduce Scotland's relatively large fiscal deficit.**

Introduction

The Scottish Government has not updated its international ranking of Scottish GDP per capita (i.e. per head of population) since March 2016, when it published estimates based on data from 2014 (see <https://beta.gov.scot/publications/scotlands-international-gdp-ranking-2014/>), which also describes the main data sources and methodology used). Data now exists up to 2018 and it is interesting to note what has changed since the last official publication. However, GDP per capita is only one, and not necessarily the best, way of attempting to measure and compare the material well-being of a country. Other valid measures include Net National Income (NNI) per capita and Gross Disposable Household Income (GDHI) per capita.

The changing definitions of these measures is shown below:

- **GDP** - measures the total national income of a country based on the activity of anyone within a country's boundaries; *(Note: in the case of Scotland this includes a geographic share of the North Sea.)*
- **NNI** - Gross National Income (GNI) measures the total national income of a country based on the income earned by a country's residents and businesses both at home and abroad (and thereby excludes any income earned within a country that ends up overseas), while NNI further removes a measure of depreciation;
- **GDHI** - is the amount of money that households have available for spending or saving after they have paid direct and indirect taxes and received any direct benefits, e.g. state pension. It excludes the income retained by corporations and government. As such, it is seen to reflect the "material welfare" of the household sector. *(Note: in this instance there is no need to allocate North Sea income.)*

Each measure is of interest on its own right but all three should be looked at when considering a country's relative international position in terms of the material well-being of its citizens.

Results (see also Tables 1 and 2)

Gross Domestic Product (GDP) per capita

Scotland

Scotland's relative position has deteriorated a little since 2014, dropping one place to 16th, but is still just ahead of the UK (17th). Scotland's increase in GDP per capita since 2014, \$3,800, is well below the average of \$6,300. The main reason for this is the decline in the contribution of the North Sea. Around the time of the Scottish Independence Referendum, the White Paper stated that Scotland was the 8th richest country, using data for 2011. The significant decline since then can again be put down to the fall in North Sea related GDP.

Good performers

The biggest improvement since 2014, in \$ terms, is seen in **Ireland**. Much of this improvement is down to behavioural changes by US companies based there, which had the effect of increasing notional Irish GDP by 35% in 2015. However, such accounting based changes will be largely irrelevant in terms of the living standards of the average Irish household. While it is difficult to adjust for these statistical manipulations, even without their exaggerated effects the Irish economy is still thought to have performed relatively well over this period.

Another relatively good performance came from a fellow Financial Crisis victim, **Iceland**. This appears to have been a more genuine increase, based on rapid growth in tourism since 2011 (although this may be dampened in the near future due to the recent insolvency of a low cost Icelandic airline) and a related surge in investment.

Other big risers, in \$ terms, include: the **USA and Luxembourg**, amongst the wealthier economies (although in both cases this did not translate into an improvement in their overall ranking); and the **Czech Republic and Slovenia** amongst poorer, catch-up, countries.

Poor performers

The poorest performance came from **Norway** (the only country to experience a fall in GDP per capita since 2014), due to the downturn in the oil price over this period. The oil price fall may also have had an effect on **Canada's** poor performance. Other poor performers include the low ranking trio of **Greece, Chile and Mexico**.

Net National Income (NNI) per capita

While GDP per capita is an appropriate measure for most countries it offers a distorted view of national prosperity in some cases. This is particularly true where net international income and investment earnings to and from a country (the Primary Income Balance element of the Current Account) are on a different scale to each other.

Such an imbalance has a large (positive) effect on the GDP measure of countries like **Luxembourg** and **Ireland**. **Scotland** is also (positively) affected, although to a lesser degree than the two previously mentioned examples. (Note, this means that Scotland's, North Sea oil related, fall in GDP p.c. ranking over the period shown will also have been exaggerated, in terms of its impact on domestic prosperity.)

Scotland

Latest analysis by Scottish Government statisticians (see <https://www2.gov.scot/Resource/0054/00544545.pdf>) suggests that, in 2017, Scotland's GNI per capita was equal to 94.5% of Scottish GDP. This is up from a low of 88% around 2007 and also up from around 92% in 2014. For the UK, GNI per capita was around 98% of GDP per capita in 2017. Latest estimates therefore suggest that the Scottish and UK figures are essentially the same. *(Note: it is assumed that this Scottish-UK ratio is unaffected when moving from GNI to NNI.)*

Given the profile of taxpayers across the UK (Scotland has a below population share of top income tax rate payers) this equality is still a slightly surprising outcome. However, figures for some of these comparisons are still at an 'experimental' stage so further refinements may change the picture.

Changes to GDP per capita international rankings

The countries showing significant changes in rankings and/or results are:

- **Ireland**, which moves down 8 places, from 2nd to 10th;
- **Denmark, Germany** and the **UK**, which all move up 4 places.

Gross Disposable Household Income (GDHI) per capita

GDHI is the amount of money that household's have available for spending or saving after they have paid direct and indirect taxes and received any direct benefits. The OECD measure is further 'adjusted' to take into account transfers in kind received by households, such as health or education provided for free or at reduced prices by government. Overall, this means GDHI is quite different in nature from GDP and NNI.

Scotland

Based on the latest data available, for 2017 (see <https://www.ons.gov.uk/economy/regionalaccounts/grossdisposablehouseholdincome/bulletins/regionalgrossdisposablehouseholdincomegdhi/1997to2017>), the Scottish figure was around 7% lower than the UK figure, having recently peaked at around 3% below in 2012. This is more in keeping with the profile of taxpayers across the UK. *(Note: unlike the OECD data the figures used to compare Scottish and UK GDHI are not 'adjusted'. Given the higher government benefits associated with Higher Education and Adult Social Care in Scotland, then moving to this definition could narrow the gap seen in the 'unadjusted' figure.)*

Changes to GDP per capita international rankings

The countries showing significant changes in rankings and/or results are:

- **Ireland**, which moves down 17 places, from 2nd to 19th;
- the **USA**, which moves up 4 places, from 5th to 1st;
- **Australia**, which moves up 7 places, from 10th to 3rd;
- **Germany**, which moves up 6 places, from 11th to 5th;
- **France**, which moves up 10 places, from 18th to 8th.

Summary

The variation across the three measures shown in Table 2 highlights why using GDP per capita alone may not be the best way of comparing living standards across countries.

Once a move is made from GDP to NNI then some countries, like Luxembourg and Ireland, levels change notably. However, it is the move from GDP to GDHI that illustrates the most dramatic changes. The GDHI per capita results illustrate better than GDP per capita or NNI per capita, the widespread belief that countries like Germany and France are amongst the top ranking countries in the world in terms of living standards. They also reflects the common sense conclusion that Ireland is not one of the leading nations in this respect.

Furthermore, the GDHI results highlight that many countries are very similar in their material well being. For example, seven countries (France, Belgium, Netherlands, Sweden, Denmark, Finland and Canada, with the UK just below these) come within \$1,000 of each other. Given the inexact nature of such measurements, the countries in this grouping could all be considered to share effectively the same standard of material well-being.

Interpretation

In terms of **the importance of country size**, the results are ambiguous. The top performers are a mixture of very large economies (the USA and Germany) and very small ones (Luxembourg and Iceland and, slightly larger, Ireland and Norway). However, the top ranking small nations positions tend to be based on exceptional circumstances that often exaggerate their 'real' position. Outside of these outliers, the countries that rank relatively high are a mixture of larger (Australia), medium (Netherlands) and smaller (Switzerland and Austria) national economies.

Regardless of which measure of material well-being is used, the results from Table 2 show that Scotland (as a constituent part of the UK) has a good standard of living and one that is close to that of the UK and a number of other EU nations.

There is no reason to believe that Scotland's relatively prosperous position would change significantly, in either direction, were it to be out-with the UK. Despite this finding with regards to the state of the economy post independence, such changed circumstances would still require a fiscal adjustment of some kind. This is because, while tax revenue per capita is of a similar (just a little lower) level to that for the UK, public spending per capita is notably higher (by over 10%). This means that while the UK is currently near fiscal balance (-1% of GDP), Scotland is still notably in deficit (-7% of GDP). By way of comparison, currently only the USA (-4%) has an annual fiscal deficit that is over 3% of GDP. (See <http://scottishtrends.co.uk/wp-content/uploads/2018/08/GrowthCommissionReview-B.pdf> for details on how such an adjustment might be made.)

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Table 1: GDP per capita for OECD countries, 2014 to 2018, US \$ 000's, current prices, current PPP's

Rank	Country	Original 2014	Revised 2014	New 2018	change (rank)	change (\$'s)
1	Luxembourg	98.1	100.9	110.9	n/c	10
2	Ireland	49.4	51.1	83.1	3	32
3	Switzerland	59.6	61.9	68.1	n/c	6.2
4	Norway	65.7	65.9	65.5	-2	-0.4
5	USA	54.3	55.0	62.7	-1	7.7
6	Iceland	44.0	45.7	57.5	7	11.8
7	Netherlands	48.3	49.2	56.3	-1	7.1
8	Austria	47.7	48.8	55.5	-1	6.7
9	Denmark	46.0	47.9	55.1	1	7.2
10	Australia	46.3	47.6	54.1	-1	6.5
11	Germany	46.4	47.2	53.7	-3	6.5
12	Sweden	45.3	46.6	52.8	-1	6.2
13	Belgium	43.7	44.7	50.4	1	5.7
14	Canada	45.1	45.6	48.1	-2	2.5
15	Finland	40.7	41.5	47.9	1	6.4
16	Scotland*	41.2	43.2	47.0	-1	3.8
17	UK	40.2	40.9	45.5	n/c	4.6
18	France	39.3	40.1	45.1	n/c	5
19	Japan	36.6	39.2	42.8	1	3.6
20	Italy	35.5	36.1	41.6	1	5.5
21	New Zealand	37.2	37.1	40.7	-2	3.6
22	Korea	33.4	33.6	40.1	2	6.5
23	Israel	33.7	34.2	39.9	-1	5.7
23	Spain	33.6	33.7	39.9	n/c	6.2
25	Czech Rep	31.2	32.3	39.7	n/c	7.4
26	Slovenia	30.4	30.8	38.1	n/c	7.3
27	Estonia	28.1	28.9	35.5	2	6.6
28	Slovak Rep	28.3	28.9	33.9	n/c	5
29	Portugal	28.8	28.7	33.0	-2	4.3
30	Poland	24.9	25.3	31.0	2	5.7
31	Hungary	25.1	25.5	30.7	n/c	5.2
32	Greece	26.8	26.8	29.6	-2	2.8
33	Turkey	19.6	24.0	28.4	1	4.4
34	Chile	22.0	22.7	25.2	-1	2.5
35	Mexico	18.2	18.2	20.1	n/c	1.9

Sources: Scottish Government, 'Scotland's international GDP ranking 2014'; OECD database (accessed 23/09/19); and QNAS 2019.

Note: the best performances, in terms of \$ 000's changes, are shown in blue, while the poorest performances are shown in red.

* Results for Scotland include a geographic share of offshore (North Sea) oil and gas output.

Table 2: Comparison of GDP (2018), NNI (2017) and GDHI (2017) for OECD countries, in per capita terms, US \$ 000's, current prices, current PPP's

Country	GDP Rank	GDP p.c.	NNI Rank	NNI p.c.	GDHI Rank	GDHI p.c.
Luxembourg	1	110.9	1	62.7	2	44.4
Ireland	2	83.1	10	42.4	19	28
Switzerland	3	68.1	3	51.4*	4	39.4*
Norway	4	65.5	2	53.7	6	37.6
USA	5	62.7	4	51.4	1	50.2
Iceland	6	57.5	n/a	n/a	n/a	n/a
Netherlands	7	56.3	6	45.9	10	33.7
Austria	8	55.5	8	44.1	7	36.2
Denmark	9	55.1	5	46.6	12	33.2
Australia	10	54.1	11	41.3	3	39.9
Germany	11	53.7	7	44.5	5	39
Sweden	12	52.8	9	43.8	11	33.3
Belgium	13	50.4	12	40.7	8	33.9
Canada	14	48.1	13	38.6	14	32.9
Finland	15	47.9	16	37.9	13	33
Scotland*	16	47.0	13	38.6	17	29.7
UK	17	45.5	13	38.6	15	32
France	18	45.1	17	37.2	8	33.9
Japan	19	42.8	18	34.1	16	31
Italy	20	41.6	19	34	17	29.7
New Zealand	21	40.7	21	32.9	21	25.8*
Korea	22	40.1	23	31.4	24	24.1
Israel	23	39.9	20	33.5	n/a	n/a
Spain	23	39.9	22	32.2	20	26.1
Czech Rep	25	39.7	25	28	22	24.4
Slovenia	26	38.1	24	28.4	23	24.2
Estonia	27	35.5	26	27.7	27	21.8
Slovak Rep	28	33.9	28	25.4	26	22.5
Portugal	29	33.0	27	26.2	25	23.9
Poland	30	31.0	29	24.9	28	21.3
Hungary	31	30.7	32	23	31	19.2
Greece	32	29.6	30	24	29	19.9
Turkey	33	28.4	33	22.1*	30	19.3*
Chile	34	25.2	31	23.2	32	17.1
Mexico	35	20.1	34	15.8	32	16.3

Sources: OECD database (accessed 23/09/19); QNAS 2019; ONS, 'Regional gross disposable household income, UK: 1997 to 2017'

* Denotes that data refers to 2016 (Switzerland) or 2015 (New Zealand, Turkey) rather than 2017.