12.06.2018

Dear Dame Susan

Please find attached my comments on your latest report and forecasts.

It is obvious that a lot of hard work has gone into the report and I believe that the chapters on the various financial forecasts are very good.

However, I believe that your forecasts of Scottish economic output are too pessimistic, for the reasons explained in the attachment. I am also disappointed with Chapter 2: Economy, partly because I have serious reservations about your specific modelling approach.

With best wishes
Tony Mackay
Economist

Scottish Fiscal Commission

Scotland's Economic and Fiscal Forecasts May 2018

Comments by Tony Mackay, economist

1. The Scottish Fiscal Commission (SFC) published their latest forecasts for the Scottish economy at the end of May. The 220 page report has a summary and five chapters:
   - Introduction
   - Economy
   - Tax
   - Social Security
   - Borrowings.

2. The following are my initial comments on Chapter 2: Economy. I have read it and the Summary in detail, but only skimmed through the other chapters, which are very detailed and seem very thorough.

3. I am an economist who has worked on the Scottish economy for over 40 years. I ran an economic consultancy Mackay Consultants for over 30 years. We had three offices in Scotland – in Inverness, Aberdeen and Stirling – and various overseas offices.

4. Our company produced monthly and annual reports on the Scottish economy, as well as other reports on **Prospects for Scotland's Energy Industries** and **Prospects for the Scottish Economy.** The most recent editions of the latter reports were published in 2017.

5. Before setting up the consultancy business I spent twelve years on the economics staff of Aberdeen University and in recent years have been a visiting professor of economics at various universities in Scotland and overseas.

6. Mackay Consultants published annual forecasts of the Scottish economy in our annual **Prospects** report for many years. In addition to the aggregate forecasts of GDP/GVA each report gave disaggregated forecasts for 25 individual industries and each of the 32 local authority areas in the country. The reports were widely used by many businesses, public sector bodies and others.

7. Independent analysis showed that Mackay Consultants had the best GDP forecasting record of all the bodies producing forecasts of the Scottish economy in every one of the last five years. We believe that was because of the detailed research we did on each industry and area, and the quality of our economic analysis.

8. I sent the Scottish Fiscal Commission comments on the first forecasts they published in December 2017 but only received a very brief reply. I was disappointed with those initial forecasts, the modelling approach and some of the economic analysis, particularly on the

oil and gas industry. I have similar concerns about the Commission's latest forecasts and report, so have repeated some of those comments and criticisms briefly again below.

9. Our modelling and forecasting approach is a standard demand/output one used by the UK Office for National Statistics (ONS) and many other bodies such as the World Bank and International Monetary Fund. In contrast, the Scottish Fiscal Commission have chosen to use a very different approach which might be described as supply or income led.

10. The SFC model concentrates on three Ps, to use their jargon in the report – **population**, **productivity** and **participation** rates in the labour market. I have serious reservations about this approach, some of which are mentioned below.

11. Nevertheless, it might be argued that if the SFC forecasts prove to be accurate then their use of this model can be justified. However, it will be some time before the accuracy of their forecasts can be assessed.

12. The Commission published two occasional papers explaining their forecasting approach: "Current Approach to Forecasting" (September 2017); and "Forecasting the long-run potential of the Scottish economy." (March 2018). The latter makes a very important distinction between potential output and actual (or forecast) output, and puts a high priority on estimating the output gap between them.

13. The first paper states that "the Commission's economic forecast will focus on GDP disaggregated by the components of expenditure: household consumption; government spending and; trade, and also the labour market. We do not plan to produce separate forecasts of: • different industries – for example manufacturing or construction • individual regions of Scotland • incomes of different types of households – e.g. by type/level of income • the UK as a whole."

14. The second paper includes **Figure 3.1: Schematic representation of forecast of potential output,** which unfortunately I have not been able to copy but comprises:

- **population**

x

- **labour market** (labour supply/ trend unemployment/average hours worked

=

- **total potential hours worked**

x

- **productivity** (output per hour worked)

=

- **potential output**

15. I have reservations about the applicability of this model. However, I recognise that the Commission's main purpose is to produce fiscal forecasts, including most importantly those for income tax revenues, and that the above variables are very important for those.

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16. The Commission's forecasts are the most pessimistic of those on the Scottish economy and are also much lower than those for the UK economy. There is no explanation in the 220 page report why the Commission is more pessimistic about the Scottish economy than other bodies including myself.

17. The table below summarises the latest forecasts for annual % GDP growth in Scotland and in the UK as a whole. Actual growth in 2017, according to the latest official statistics, was 0.8% in Scotland and 1.8% in the UK.

	2018	2019
Scotland		
Scottish Fiscal Commission	0.7	0.9
Mackay Consultants	1.0	1.2
Fraser of Allander Institute	1.2	1.4
EY Scottish ITEM Club	1.4	1.6
PwC	1.0	1.2
UK		
OBR	1.5	1.3
Average independent	1.5	1.4

18. There seems little disagreement that the Scottish economy will continue to underperform the UK economy in 2018, with the exception of the EY Scottish ITEM Club whose recent forecasts for the Scottish economy have proved to be very inaccurate and overoptimistic.

19. However, the SFC's 2018 forecast is clearly the most pessimistic. It is also lower than the 2017 official estimate of 0.8%. Their 2019 forecast of 0.9% is a little higher but still the lowest of those shown.

20. The SFC report also gives their forecasts for the next four years, up to 2023. They show 0.9% growth in each year, which implies no improvement in the growth rate during that period.

21. As I was writing these comments (June 11) the results of two surveys were published and both gave an encouraging picture of recent developments in the Scottish economy. Too much weight should not be given to such surveys but nevertheless they give support to my view that the Commission's forecasts are too pessimistic.

22. Firstly, the number of foreign investment projects in Scotland rose by 7% in the past year, according to business consultancy EY. They found that Scotland retained its position as the second most attractive part of the UK for foreign direct investment (FDI), after London.

The report covers 2017, which is the third consecutive year in which Scottish FDI has set a new high. It identified 116 projects, up from 108 in 2016.

23. Secondly, according to the latest Royal Bank of Scotland PMI (purchasing managers' index) output across the Scottish private sector economy increased during May at the fastest pace since July 2017. Business activity growth was underpinned by the sharpest expansion in order book volumes for 46 months. Subsequently, firms hired additional staff at a quicker rate.

24. It was the strongest rate of private sector output growth in ten months. Furthermore, for the first time since October last year, the overall rise was broad-based, with both manufacturers and service providers observing greater business activity. Overall, the rate of growth in Scotland was stronger than that seen for the UK as a whole.

25. Sebastian Burnside, chief economist at Royal Bank of Scotland, said: "Businesses in Scotland reported a rapid improvement in trading conditions over the last three months, helped by bulging order books. The service sector is leading the charge at the moment but the resurgent oil price should help boost engineering activity in the North East, too."

26. The official statistics show that the Scottish economy has underperformed the UK in recent years. There have been various reasons for that but I believe that the main one was the recession in the North Sea oil and gas industry following the collapse in world oil prices in 2015.

27. The SNP Government and their economists frequently blame the Brexit vote for the UK to leave the European Union (EU). There is little doubt that the Brexit vote has had a negative impact on the Scottish economy but it is difficult to understand why that has been or would have been worse in Scotland than elsewhere in the UK.

28. The SFC report gives a poor explanation of why the Scottish economy has underperformed during the last few years. The main reason given is a fall in productivity (output per person/worker). The Summary (para 7) states that "one of the main factors underlying subdued GDP growth is slow growth in productivity or output per hour worked. The underlying reasons for this are not yet fully understood and are not unique to Scotland."

29. The next paragraph (8) states that "in isolation weak economic growth observed in recent years would suggest a lower forecast for the next five years than pre-2008 historic averages. Scotland faces additional challenges which mean that the period of slower growth is unlikely to end in the near future……Future downside risks include the UK's changing relationship with the EU, a weakening outlook for global trade, Scotland's industrial and demographic structure, and weak onshore demand linked to activity in the oil and gas industry."

30. Economic forecasting is difficult, as the Commission recognises. However, bodies like the SFC should do their best to produce as accurate forecasts as possible. The Commission has an annual budget of £1.6 million and a staff of about 25.

31. I am not an expert on the implications of inaccurate forecasts from the SFC, although there appear to be some. For example, the Fraser of Allander Institute (FAI) recently published an article (or blog) on "**Revisions to the Scottish income tax forecasts: what has driven them, and do they matter?"**

32. It states that "in its latest forecasts, published last week, the SFC revised down its forecast for Scottish income tax revenues by £209m compared to its previous forecast in December. In questioning the SFC on Wednesday this week, MSPs on the Finance and Constitution Committee seemed unanimously incredulous about this. That a forecast could be revised, in a relatively short period of time, by what is (in political terms) a significant sum, seemed difficult to fathom – particularly when the broader forecasts of economic output and employment had remained unchanged."

33. One of the Institute's conclusions is that "the combination of the downward revision to the Scottish income tax forecast of £209m and the upward revision to the BGA of £181m causes a deterioration in the Scottish Budget outlook of £389m compared to a few months ago. And £389m is clearly a very significant amount in the context of the Scottish budget (revenues from the Scottish Government's tax policy changes in 2018/19 are forecast to raise jus under £220m). The underappreciated point is that the Scottish budget is exposed to two sets of forecast errors – the SFC's errors in respect of Scottish revenues, and the OBR's forecast errors in respect of the block grant adjustment."

34. Further, "the challenge so far in 2018/19 (and 2017/18) has been that forecast revisions by the SFC and OBR have gone in opposite directions. And this year, the gap could have been worse – based on changes to the SFC's wage forecasts alone, the Scottish tax forecast would actually have been revised down by over £300m in 2018/19, but some better news on revenue outturn in earlier years offsets that a bit, resulting in the final downward revision of £209m."

Economic output

35. There are various ways of measuring economic output. The normal approach, which I have used for many years, is to measure it on an industry by industry basis. The ONS do that for the UK and the Scottish Government statisticians also publish estimates for individual industries in Scotland.

36. As mentioned earlier, in our Prospects for the Scottish Economy reports we gave estimates and forecasts for 25 separate industries. The definitions of such industries can vary.

37. It is very common to aggregate those into a few groups, eg
    - services
    - production/manufacturing
    - primary
    - construction
    - electricity, gas and water supply .

38. I put services first because they now account for over 70% of total output, as in most developed economies. This sector can also be disaggregated in various ways, eg into private and public services.

39. The importance of the manufacturing/production sector has declined significantly in the recent past and it now accounts for only about 15% of total output. The SGov statisticians include electricity, gas and water supply, as well as mining and quarrying, in this sector, although that is not done in some other countries.

40. The primary sector normally comprises:
    - agriculture, fishing and forestry
    - oil and gas production.

41. The latter is excluded from Scottish "onshore" GDP, as mentioned earlier. Otherwise the primary sector accounts for only about 5% of total Scottish output.

42. Finally, the construction sector normally accounts for about the remaining 10% of total output. However, that share has fluctuated considerably in recent years and caused problems for the statisticians, as mentioned below.

43. For most industries the output or final demand can be disaggregated into:
    - domestic demand
    - export demand.

44. The shares of these two categories vary enormously from industry to industry. Most Scottish exports have been from manufacturing industries but there has been an increasing proportion from some service industries, such as financial services. Tourism can also be defined as an export industry.

45. I believe that most of the output estimates for the Scottish industries are accurate and provide a sound basis for forecasts. There are a few exceptions, notably the recent estimates for construction output.

46. In contrast I have serious reservations about the accuracy of some of the key indicators or variables which the Scottish Fiscal Commission have chosen to use for their forecasts, specifically productivity, population and participation rates.

47. Let me give one brief example.

48. The retail and wholesale industry is one of the most important in Scotland. According to the latest estimates its output (GDP) in 2017 was approximately £15 billion, which was 11% of the Scottish total.

49. There appears to be a lot of good data on the output of the retail industry in Scotland. In addition to the official surveys used by the SGov statisticians, the Scottish Retail Consortium publish the results of monthly surveys which they undertake. Other market research organisations also publish monthly surveys of retail expenditure, footfall, occupancy rates etc. I believe therefore that there are good "checks" on the official estimates of retail output, which are of course historical.

50. These various surveys show major changes underway in the retail industry in Scotland and the rest of the UK. There have been many shop closures and retail chains going out of business. Just in the last few days the House of Fraser and Poundworld, for example, have announced closures and related financial problems.

51. One of the main factors is clearly the trend to online shopping. Fewer and fewer people are using "High Street" shops.

52. How does the SFC's model take this and other changes into account? It is impossible to say from their report. There are very few references to the retail industry…or, indeed, any other industry.

53. What relevance are the SFC's 3 Ps – productivity, population and participation rates? Population size is obviously important in influencing retail spending but I find it very difficult to understand the relevance of the other two SFC variables.

54. I could give many examples from other industries.

55. I shall comment briefly on each of the three SFC key indicators below. Firstly, however, I am concerned that the SFC staff and the three Commissioners themselves appear to have a poor understanding of why the Scottish economy has performed poorly during the last 2-3 years. They frequently refer to poor productivity or output/person statistics but without giving any explanation for those.

56. If the SGC used an output forecasting model, like those used by the ONS and myself, they would be able to give some answers. The main one clearly appears to be the downturn in the North Sea oil and gas industry, following the world oil price collapse in 2015.

North Sea oil and gas industry

57. Oil prices have fluctuated enormously in recent years. The price of Brent crude reached a peak of about $140 a barrel in 2008, before collapsing to $35 in 2009; then it rose again to about $125 in 2012, before falling again to a low of $25 in 2016. The latest price (June 11) was $76.50 a barrel.

58. The oil price collapse in 2015 resulted in massive job losses in the industry in Scotland, particularly in the Aberdeen area, and serious financial problems for many companies, some of which were forced out of business.

59. It is difficult to estimate the economic output (GDP/GVA) of the oil and gas industry in Scotland, although the statisticians have had many years to improve their estimates. The SFC report stresses that it is only concerned with the "onshore" GDP and not the offshore GDP from oil and gas production from fields in the Scottish waters on the UK Continental Shelf (UKCS).

60. The latter is allocated to a special offshore region in the UK national accounts. The associated tax revenues have gone to the UK Treasury. That has long been a bone of contention with the SNP, of course, but that issue is not relevant in the present context.

61. Nevertheless, the onshore oil and gas industry in Scotland has long been a very important part of the Scottish economy. Our research shows that it has had by far the highest output per person of all the industries in the country.

62. The industry comprises:
    - oil and gas producers, such as BP, Shell and many smaller ones
    - the "supply chain" – businesses providing goods and services for the industry
    - bodies such as the Oil and Gas Authority, which is headquartered in Aberdeen.

63. It is very difficult to estimate the onshore GDP of the companies like BP and Shell, who employ many people in Scotland, particularly in Aberdeen. Some of the smaller, "independent" companies have their European or international headquarters in Aberdeen.

64. I have reservations about the official statistics for the "onshore" GDP of the oil and gas industry and have communicated those to the relevant authorities. The SFC should be aware of these reservations.

65. The "supply chain" comprises a wide range of businesses covering four distinct phases of North Sea activity – exploration, development, production and decommissioning.

66. There has been a substantial fall in employment, of course. According to OGUK the number of direct jobs fell from 41,300 in 2014 to 28,300 in 2017….a fall of -13,000 or -34%. OGUK also estimate that the total number of jobs, including indirect and induced ones, fell

from 440,900 to 302,200 over the same period….a fall of -138,700 or 31%. However, their estimates of the indirect and induced jobs created by the industry are far too high.

67. Most of these job losses have been in Scotland, particularly in the Aberdeen area. However, OGUK are predicting small increases in oil-related employment over the next few years.

68. A rough approximation is that currently about 65% of the supply chain's work is for the UK sector of the North Sea and 35% overseas. The latter share has increased significantly in recent years and I expect that to continue.

69. The recession or downturn in the North Sea oil and gas industry appears to have come to an end, albeit possibly temporarily. There has been a significant rise in oil prices. At the time of writing (June 11) Brent crude was trading at about US $76 a barrel, compared with a low of S25 in 2016.

70. Oil and Gas UK (OGUK), which is the industry's main representative body, publish some excellent reports on the industry, including an annual **Business Review**. Very briefly, OGUK forecast that production will remain at about the current level until 2020 before the decline resumes. Similar forecasts have been made by the Oil and Gas Authority (OGA).

71. It may well be therefore that the Scottish productivity figures will improve again. The SFC do not appear to have taken that possibility into account.

Population change

72. The second "negative" factor highlighted in the Commission's report is the slowdown in population growth. The report summary states (para 18) that "as we set out in December, although the Scottish population has been growing in recent years, it has not been growing as fast as the rest of the UK (mainly England), and this difference is projected to continue."

73. The next paragraph states that "however, when the effects of population growth are stripped out Scottish GDP growth is much closer to UK growth".

74. The size of the population obviously has an impact on demand and therefore output in Scotland. That is particularly true for service sector industries such as health, education and retail. Other important factors include the age breakdown and income levels.

75. Much of the recent population growth has been of people from other EU countries, notably Poland, moving to work and live in Scotland. The Commission is quite right to assume that this will slow down, and probably be reversed, when the UK leaves the EU, as a consequence of the Brexit vote.

76. I would like to have seen some analysis of the likely implications for economic output in key industries, such as food processing and agriculture, but regrettably there is none in the report. It may be that many EU nationals working in these industries will move away from Scotland. If so, how will that affect output and also productivity?

Labour market

77. As mentioned above, the Commission put a high importance on the labour market, emphasising the supply side rather than the demand side of the economy. Their three key variables are:
    - labour supply
    - trend unemployment
    - average hours worked
      which when multiplied together give
    - total potential hours worked.

78. These are very important variables, of course, and vital for the income tax forecasts. However, as stressed earlier, I do not believe that they are the best variables for forecasting Scottish economic output.

Productivity

79. Productivity is the third key variable in the Commission's forecasting system.

80. A paragraph in the Summary states that "despite subdued growth in the economy over the last two years, the labour market has been robust. As shown in Figure 2.1….the economy has grown by 1.0%, while employment and hours worked have grown by 2.4%. Usually, with increasing productivity over time, one would expect to see the economy growing faster than employment or hours worked. There is an apparent disconnect."

81. The Commission is reliant on the official statistics on labour productivity but I have doubts over their accuracy.

Conclusions

82. A lot of hard work has gone into the Commission's latest forecasts, as demonstrated by the detail in the 220 page report. The financial forecasts seem very well thought out.

83. However, in my opinion Section 2 on the Economy is disappointing and I believe that the forecasts of economic output are too pessimistic. The Commission is now forecasting just 0.8% growth in 2018 and then 0.9% in each of the next five years to 2023.

84. Those forecasts are lower than mine and also the other independent forecasters referred to above. There is no attempt in Section 2 to explain why the Commission is more pessimistic.

85. I have serious doubts over the forecasting approach and model used by the SFC. It can be described as supply-led, whereas I believe a demand–led model would be more appropriate and accurate.

86. I am not an expert on the implications of the Commission's forecasts proving to be too pessimistic but the Fraser of Allander Institute have made some calculations in their paper referred to above.

Tony Mackay

Professor of Economics

Inverness, 11 June 2018.