

Measuring corporation tax uncertainty across countries:

Evidence from a cross-country survey

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Summary

This paper presents the results of a survey of senior tax professionals in large businesses and in professional firms on the uncertainty of corporation tax in major countries.

The survey was undertaken between January and March 2016. 88 respondents answered questions about 25 countries. The respondents were from businesses in 10 different countries. Over 10% of the world's businesses with turnover in excess of \$5 billion were respondents. Dropping 4 countries with less than 10 responses each, there were 534 responses on individual countries.

The main results were as follows:

- Of 21 countries analysed, BRIC countries take up 4 of the top 5 places in respondents' assessments of the extent of corporation tax uncertainty.
- In the last 5 years, corporation tax uncertainty has increased in 20 out of 21 countries analysed.
- Overall, respondents ranked corporation tax uncertainty third in a list of factors influencing business investment and location decisions. 72% ranked this as either 4 or 5 on a scale of 1 to 5 with 5 indicating "extremely important". This was more important than the anticipated tax rate itself.
- In the experience of respondents, BRIC countries take up the top 4 places in frequency with which corporation tax uncertainty has had a serious impact on business decisions.
- The single most important factor in determining uncertainty is "unpredictable or inconsistent treatment by tax authority". However, the importance of different factors varies across countries, and this factor more important in BRIC countries than in the UK and the USA. Another factor, very important in both groups of countries, is "complexity in the tax code".

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1. Introduction

Anecdotal evidence suggests that uncertainty about taxes on profit is important in determining the investment and location behaviour of business. This view is supported by a substantial theoretical literature. However, there is very little solid empirical evidence. One obvious reason for this lack of evidence is the difficulty in measuring tax uncertainty.

This paper addresses the issue of measuring tax uncertainty directly. Given that uncertainty may stem from many aspects of the tax regime, and the way it is implemented, then it is unlikely that measures based solely on the volatility of tax parameters – such as statutory rates, bases, or effective tax rates – could capture all important aspects of uncertainty. On the other hand, measures based on the volatility of tax revenues are likely to reflect aggregate macroeconomic fluctuations, and cannot be relied upon to identify only uncertainty with respect to taxation. The US GAAP FIN 48 rule requires companies to analyse and disclose risk associated with income taxes. However, this has limited applicability to comparisons between countries.

¹ This paper was written for the European Tax Policy Forum conference held in London on April 18, 2016. I would like to thank ETPF members, and especially Will Morris, Giles Parsons, Tom Roesser, Charlotte Winzer and David Murray for helpful comments in the design of the survey. I would also like to thank Peter Merrill and ITPF members, members of the Hundred Group tax committee and especially Andrew Bonfield, and also Tom Neubig for helpful comments. I would like to thank ETPF, ITPF, BIAC, FEI, TEI and TCPI, and especially Will Morris, David Murray, Tom Roesser, Peter Merrill, Giles Parsons and Tom Neubig for help in distributing the survey. All errors are my own.

An alternative approach explored here is to seek the subjective views of tax experts in identifying the extent of, and causes of, tax uncertainty in different countries. The results reported here are based on a questionnaire distributed between January and March 2016. The survey was aimed primarily at senior figures in tax departments in large multinational companies, who had experience of business activity and taxes in many countries. In addition, some respondents were senior tax advisors in professional firms.

The survey begins with three general questions, on the importance of tax uncertainty and the sources of tax uncertainty. Respondents were then asked their views on tax uncertainty on any country within a list of 25 countries with which they were familiar. The list of 25 countries contained all countries in the G20, the largest 21 countries measured by GDP and the largest 10 countries measured by population size. The results below exclude 4 countries for which there were less than 10 responses. The 88 respondents collectively gave 534 responses for the remaining 21 countries. The results are set out below, after a brief review of the relevant literature.

2. Literature

There are at least four distinct issues that have been analysed in the economic literature that are relevant to uncertainty about taxation. The first is the impact of uncertainty on investment generally. A starting point for this is the vast theoretical and empirical literature in finance on distinguishing different elements of risk – for example, systematic risk as opposed to idiosyncratic risk – which forms the basis of many asset pricing models, such as the capital asset pricing model. Beyond that, the “real options” approach, developed in the early 1990s (see, for example, Dixit and Pindyck, 1994) emphasised the option value of waiting until new information becomes available. This approach has been used in a variety of settings.

The empirical literature on uncertainty and investment has mostly measured uncertainty and risk by considering the volatility of asset prices. Other measures have been developed, though. For example, Bond et al (2005) report that stock return volatility is positively correlated to both the within-year variability of analysts’ earnings forecasts and the cross-sectional dispersion across forecasts made by different analysts for the same firm. More recently there have been some innovative approaches that focus on policy uncertainty, and which are therefore more relevant to the theme of this paper. For example, a recent paper by Baker et al (2015) measures uncertainty with respect to economic policy in the US by analysing newspaper articles; specifically, the authors develop an index that counts the number of times that the following three combinations of words appear in mainstream newspapers: “economic” or “economy”; “uncertain” or “uncertainty”; and one or more of “congress”, “deficit”, “Federal Reserve”, “legislation”, “regulation” or “White House”.

There is a large theoretical literature on the optimal design of tax in the presence of risk, which dates back to Domar and Musgrave (1944). This literature has focused on the effects of different forms of taxation – for example, based on income or consumption, and with different ways of

treating losses – on the tax-induced distortions to investment.² But this literature does not generally allow the tax itself to be uncertain – rather it studies the impact of tax on investment in the presence of more general economic uncertainty.

There is much less work on uncertainty in tax itself. One empirical approach draws on the data provided by the introduction of the FIN 48 rule issued by the Financial Accounting Standards Board in 2006, which requires US companies to disclose the scale of their uncertain tax benefits. This provision has been used to identify differences across companies in the uncertainty of their tax position, which is typically taken to be dependent on the aggressiveness of their tax planning and avoidance strategies.³ This approach certainly has some potential to identify uncertainty, but it cannot be used to compare uncertainty across countries.

Two papers have attempted to assess the impact of uncertainty in taxation on flows of foreign direct investment. Edmiston (2004) measures uncertainty by the volatility in two measures of taxation. One, taken from Mendoza et al (1994), is based on revenues from capital taxes. This of course suffers from the problem that volatility may depend on a number of factors other than taxation. The second, taken from Devereux et al (2004), is based on an effective tax rate measure that relies only on the broad parameters of the tax system – the rate and a broad definition of the base. This is more promising, but cannot capture many of the sources of uncertainty discussed below. Edmiston et al (2003) use a number of measures to assess the complexity and uncertainty of taxes in Eastern and Central Europe. These include the number of different tax rates, the number of lines in the description of the tax base, the presence of indefinite phrases in tax law, the number of changes in tax parameters and the number of inconsistent changes in tax parameters. Compared to the measures set out here, Edmiston et al (2003) has the advantage of being based on objective measures. On the other hand, these measures may not capture some important sources of uncertainty.

3. Survey and respondents

The survey was written and produced online using *Smart Survey*.⁴ Experienced tax professionals from business and to a lesser extent, professional firms, were approached using several networks, including: European Tax Policy Forum, International Tax Policy Forum, Business Industry Advisory Committee Tax Committee to the OECD, Financial Executives International, the EMEA chapter of Tax Executives Institute, and the Tax Council Policy Institute.

88 respondents completed the survey. Tables 1, 2 and 3 give some details of the respondents.

First, Table 1 reports the country of the business headquarters of the respondent. This question was answered by only around half the respondents. Of those that replied, most responses were received

² Other contributions include, for example, Bond and Devereux (1995, 2003), Bulow and Summers (1984), Fane (1987), Gordon (1986) and Gordon and Wilson (1989).

³ See, for example, Blouin et al (2007) for an early analysis of FIN 48 provisions.

⁴ The survey can be found at <http://www.smartsurvey.co.uk/s/CBTandETPFsurvey/>.

from the USA, with 17. 8 responses were from the UK, with other respondents representing businesses in 8 other countries.

Table 1. Number of respondents to survey from each of the following countries

UK	8
UK / NL	2
USA	17
Australia	5
Netherlands	2
Switzerland	4
France	1
Italy	1
Japan	1
Germany	2
Brazil	2
No answer	43
Total number of respondents	88

To gain some idea of the scale of the businesses involved, respondents were also asked the approximate worldwide turnover of the business. As Table 2 shows, of those who answered this question, well over half represented businesses with a global turnover in excess of \$5 billion.⁵ According to data from the FT Global 500, only 340 businesses in the world were recorded as having turnover in excess of \$5 billion in 2015.⁶ These respondents are therefore from very large businesses. Further, although not all respondents answered his question, this suggests that at least 10% of all businesses with turnover in excess of \$5 billion were respondents. These are precisely the type of businesses that the survey is aimed at since they are more likely to have detailed knowledge of the tax systems in several countries.

Table 2. Number of respondents to survey from each businesses of the following size

Over €5 billion	37
Between €500 million and €5 billion	15
Between €50 million and €500 million	2
Less than €50 million	7
No answer	27
Total	88

⁵ 34 out of the 37 respondents from businesses with a turnover in excess of \$5 billion were from the tax department of a business. 1 was a professional adviser, and 2 did not identify their position.

⁶ Data from March 31, 2015, downloaded on April 13, 2016, from <http://www.ft.com/cms/s/2/a352a706-16a0-11e5-b07f-00144feabdc0.html#axzz45iJnFk00>.

Table 3 presents information on the individual respondent. Of those who answered, the vast majority came from the tax department of a large business. A smaller number were professional advisers, and financial officers.

Table 3. Number of respondents to survey by type of respondent

Tax department of a business	48
Financial officer of a business	5
Professional adviser	16
No answer	19
Total number of respondents	88

Finally, Figure 1 presents information on the number of responses for the 25 countries listed in the survey. Less than 10 responses were received for Bangladesh, Nigeria, Pakistan and Saudi Arabia and these countries were then dropped from the subsequent analysis. Not including these countries, there were 534 individual responses. The largest responses were for the UK (45), USA (42) and Australia (37). There were also a significant number of responses for some emerging economies, such as the BRIC countries: Brazil (28), China (34), India (34) and Russia (17).

4. General Results

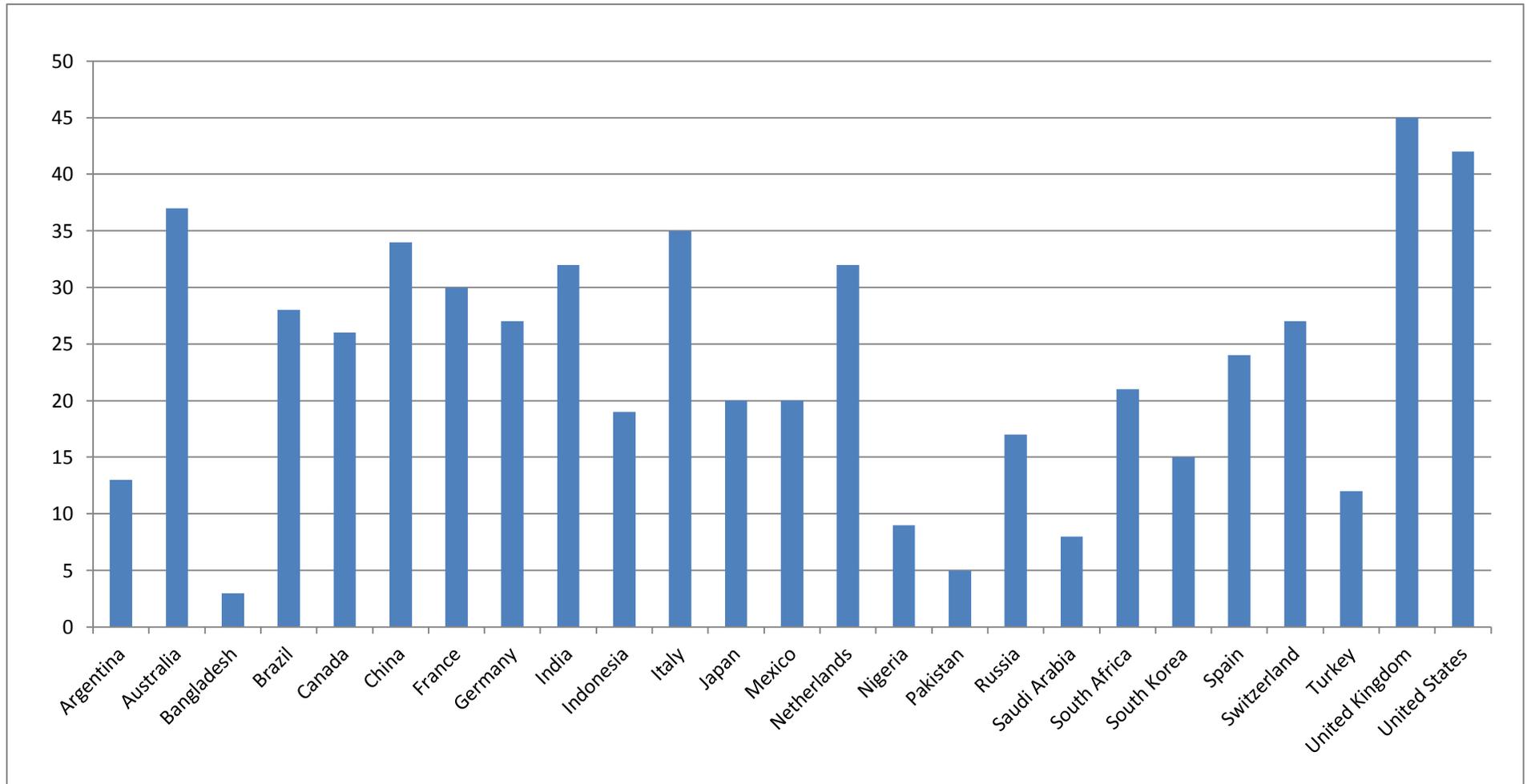
The survey began with a question on the importance of different factors in determining investment and location decisions:

“We would like to understand the importance of uncertainty about taxation in determining investment and location choices. Based on your own experience, please assess the importance of each of the following factors in determining the investment and location decisions of large businesses. Using the scale from 5 to 1, please use 5 when the factor is extremely important, and lower numbers when it is progressively less important.”

Respondents were invited to select from a list of 8 factors. These factors included separately the level of corporate taxation and uncertainty about corporate taxation. The table summarises the results in two ways. The first measure is the mean response for each factor – where, as noted in the question, a score of 5 implies that the factor is extremely important. The second measure is the proportion of responses answering either 4 or 5.

On both measures, the two most important factors were political uncertainty and macroeconomic conditions. However, the third most significant factor – on both measures - was “uncertainty about the effective tax rate on profit”. Nearly three quarters of respondents ranked this as 4 or 5. Perhaps surprisingly, this was ranked as a more important than the anticipated effective tax rate on profit, which was only the sixth highest ranked factor. This suggests that uncertainty surrounding the effective tax rate can outweigh even a lower anticipated effective tax rate.

Figure 1. Number of survey responses for each country



Note. Countries with less than 10 responses are dropped from the analysis in the paper.

Table 4. How important is tax uncertainty for investment and location decisions?

	mean	% 4 and 5
Political uncertainty	4.4	91.5
Current and expected macroeconomic conditions in the country	4.3	86.1
<i>Uncertainty about the effective tax rate on profit</i>	3.9	72.2
Proximity to consumers	3.8	61.1
Cost of complying with regulations	3.8	63.9
<i>The anticipated effective tax rate on profit</i>	3.6	56.9
Exchange rate risk	3.4	45.8
Proximity to other parts of the business	3.3	38.9
	<i>Observations</i>	72

The next two questions explored reasons for uncertainty about the taxation of profit. Here the survey sought to distinguish between two issues: whether a particular factor was a common occurrence, and how important it was when it did occur. Hence question 2 asked:

*“We would like to understand the factors that determine relevant uncertainty about taxation for business; specifically, we would like to ask about both the frequency with which you have encountered each of the following factors, and also separately how important they are in determining uncertainty. **First, how frequently have you experienced each of the following factors?** Again, please use the scale of 5 to 1, with 5 indicating that, in your experience, the factor is extremely common, with lower numbers indicating progressively that it is less common, and 1 indicating that you have not experienced this factor at all.”*

Question 3 asked:

*“**Second, if and when you have encountered each of these factors, please identify in your experience how important it has been in determining the overall uncertainty about taxation.** Again using the scale from 5 to 1, please use 5 when the factor is extremely important, and lower numbers when it is progressively less important.”*

Table 5 presents the mean results for each of these two questions; the 11 factors are ranked according to the mean response of the second of these questions. Although frequent changes to the statutory tax system are an important source of uncertainty, it is not the most important, for either question. The most commonly encountered problem is complexity in the tax code, followed by unpredictable or inconsistent treatment by the tax authority. This latter factor is also the most important factor in determining uncertainty when it has been encountered. Unpredictability and inconsistent treatment should be distinguished from the general relationship with the tax authority, which appears to be a much less significant in determining uncertainty.

The responses to other factors differed between the two questions. For example, retroactive taxation is not very common, compared to other factors. However, when it is encountered, it tends to be very important.

Table 5. How important are alternative sources of tax uncertainty?

	How frequently have you experienced each of the following factors? <i>on a scale of 1 to 5 where 5 = extremely common</i>	If and when you have encountered each of these factors, how important it has been in determining the overall uncertainty about taxation? <i>on a scale of 1 to 5 where 5 = extremely important</i>
	mean response	mean response
Unpredictable or inconsistent treatment by tax authority	3.9	4.2
Retroactive changes to legislation	3.1	4.1
Frequent changes in the statutory tax system	3.8	4.1
Complexity in the tax code	4.1	3.8
Poor understanding of tax code by tax authority	3.4	3.7
Inability to achieve clarity retroactively in case of dispute including, but not limited to, MAP	3.5	3.7
Unpredictable or inconsistent treatment by the courts	3.2	3.6
Inability to achieve clarity pro-actively through rulings	3.6	3.6
Poor general relationship with tax authority	3.1	3.5
Non-adoption of the OECD guidelines on transfer pricing	3.1	3.3
Corruption	2.4	2.9
<i>observations</i>	<i>72</i>	<i>71</i>

In the next section, we compare these factors between two different groups of countries.

5. Country-specific results

We now turn to the responses for each country. Four questions were asked for each country.

“How uncertain is corporation tax in ...?”.

“How has uncertainty in taxing corporate profit changed over the last 5 years in ...?”

“In your experience, how frequently has uncertainty about corporation tax had a serious impact on business decisions in ...?”

“In your experience, how important are the following factors in determining the uncertainty in the taxation of corporate profit in ...?”

For the first of these questions, respondents were offered five possible responses, ranging from very uncertain to very certain. In Table 6, these are coded as a score of 1 for very uncertain to a score of 5 for very certain. The table presents the mean score for each country, ranked with the most uncertain at the top.

Table 6. How uncertain is corporation tax in ... ?

On a scale of 1=very uncertain to 5=very certain

Rank	Country	Mean
1	India	1.4
2	Brazil	1.6
3	Russia	1.9
4	Indonesia	2.1
5	China	2.2
6	Italy	2.4
7	Mexico	2.4
8	Argentina	2.5
9	United States	2.8
10	Turkey	2.9
11	France	3.0
12	South Africa	3.0
13	Spain	3.1
14	South Korea	3.1
15	Australia	3.2
16	Canada	3.2
17	United Kingdom	3.3
18	Germany	3.5
19	Japan	3.8
20	Netherlands	3.9
21	Switzerland	4.1

Table 6 presents striking results. The BRIC countries take 4 of the top 5 places in terms of uncertainty about tax; the other is Indonesia. India, Brazil and Russia score less than 2; for India and Brazil, more than half of the respondents answered “very uncertain”. At the other end of the scale is Switzerland,

followed by the Netherlands, Japan, Germany and the UK. Perhaps one surprising result is the relatively high position of the USA, ranked ninth, and more uncertain than, for example, Turkey and South Africa.

Table 7 addresses the question of how uncertainty has changed over the last 5 years. Respondents were again offered the choice of 5 answers: uncertainty has increased a lot, uncertainty has increased a little, uncertainty has not changed, uncertainty has reduced a little, and uncertainty has reduced a lot. The table summarises results by showing the difference in the proportion of respondents answering that uncertainty had increased (the first two answers) and the proportion answering that it had reduced (the last two answers).

Table 7. How has uncertainty in taxing corporate profit changed over the last 5 years in ...

Score = % responding "increased" less % responding "reduced"

Rank	Country	Score
1	Russia	87.5%
2	Argentina	83.3%
3	Brazil	81.5%
4	Indonesia	78.9%
5	Mexico	77.8%
6	United States	66.7%
7	Australia	65.8%
8	Canada	64.0%
9	India	63.3%
10	France	58.6%
11	Switzerland	58.3%
12	United Kingdom	57.2%
13	Italy	54.3%
14	South Korea	50.0%
15	Spain	50.0%
16	China	48.5%
17	Germany	46.2%
18	Netherlands	38.7%
19	South Africa	36.8%
20	Turkey	25.0%
21	Japan	-5.6%

In the UK, for example, 66.7% of respondents answered that uncertainty had increased, and 9.5% answered that it had been reduced. This yields a net response of 57.2%, as shown in the table.

Perhaps the most striking aspect of Table 7 is that 20 out of the 21 countries have a positive score, indicating that in those 20 countries more respondents believed uncertainty had increased than believed it had been reduced. The only exception to this is Japan. In most countries, there is a substantial majority supporting the view that uncertainty has increased.

Table 8 assesses the impact of how frequently uncertainty had had a serious impact on business decisions in each country. Respondents were again offered 5 answers, ranging from very frequently (coded 1) to never (coded 5).

Table 8. In your experience, how frequently has uncertainty about corporation tax had a serious impact on business decisions in ...

On a scale of 1=very frequently to 5=never

Rank	Country	Mean score
1	India	2.1
2	Brazil	2.3
3	Russia	2.5
4	China	2.6
5	Indonesia	2.7
6	Italy	2.9
7	Argentina	3.0
8	Mexico	3.1
9	United States	3.1
10	France	3.2
11	United Kingdom	3.5
12	South Africa	3.5
13	Australia	3.5
14	South Korea	3.5
14	Turkey	3.5
16	Canada	3.6
17	Germany	3.7
18	Spain	3.8
19	Japan	4.0
20	Netherlands	4.2
21	Switzerland	4.4

In Table 8, the BRIC countries occupy the top 4 places, suggesting that these countries have been particularly subject to serious impacts on business decisions resulting from tax uncertainty. There is considerable correlation here with the ranking of uncertainty itself, in Table 6. For example,

Switzerland is again at the other extreme, with 65% of respondents saying that tax uncertainty had never had an effect on business decisions in Switzerland in their experience. In the BRIC countries together, the comparable percentage is less than 2%.

Finally, Table 9 addresses how the reasons for tax uncertainty differ between countries. This uses the same factors that have been explored in Table 5 above. Table 9 addresses this question by comparing two sets of countries: the BRIC countries and the UK and the USA together. Although the UK and the USA are not identified as the countries with the least uncertain taxes, it seems interesting to compare these (for which we have the largest number of both respondents and answers) with the BRIC countries, which stand out as having a significant problem of tax uncertainty. The table identifies the mean response for each factor for these two groups separately, where a response of extremely important is coded as 5. That is shown in the first two columns. The third column shows the difference – and factors are ranked by this difference.

The results here are perhaps surprising in the context of the earlier results. Unpredictable or inconsistent treatment by the tax authority is seen as a much more important problem in the BRIC countries than in the UK and the USA. This was also ranked as a significant issue overall in Table 5. The other two main differences are the non-adoption of OECD guidelines on transfer pricing and corruption. Overall, these did not feature as very important in Table 5. However, the difference between BRIC countries and the UK and the USA for these factors is explained by the very low score for each of these in the UK and the USA. The last factor – complexity in the tax code – is very important in both groups of countries.

Table 9. Differences in the sources of tax uncertainty: BRIC countries v UK & USA

In your experience, how important are the following factors in determining the uncertainty in the taxation of corporate profit in ...	BRIC	UK+USA	Difference
Non-adoption of the OECD guidelines on transfer pricing	3.75	2.10	1.65
Unpredictable or inconsistent treatment by tax authority	4.37	2.91	1.45
Corruption	2.65	1.32	1.33
Unpredictable or inconsistent treatment by the courts	3.58	2.47	1.12
Poor understanding of tax code by tax authority	3.78	2.78	1.00
Retroactive changes to legislation	3.65	2.68	0.97
Inability to achieve clarity retroactively in case of dispute including, but not limited to, MAP	3.94	2.98	0.97
Poor general relationship with tax authority	3.32	2.52	0.80
Inability to achieve clarity pro-actively through rulings	4.04	3.25	0.79
Frequent changes in the statutory tax system	3.95	3.51	0.44
Complexity in the tax code	4.04	4.00	0.04
	<i>observations</i>	101	81

References

- Baker, S.R., N. Bloom and S.J. Davis (2015) 'Measuring economic policy uncertainty', NBER working paper 21633.
- Blouin, J., C. Gleason, L. Mills and S. Sikes (2007) 'What can we learn about uncertain tax benefits from FIN 48', *National Tax Journal* 60.3, 521-535.
- Bond, S.R. and Devereux, M.P. (1995) "On the design of a neutral business tax under uncertainty", *Journal of Public Economics* 58, 57-71.
- Bond, S.R. and Devereux, M.P. (2003) "Generalised R-based and S-based taxes under uncertainty ", *Journal of Public Economics* 87, 1291-1311.
- Bond, S., R. Moessner, H. Mumtaz and M. Syed (2005) 'Microeconometric evidence on uncertainty and investment,' Institute for Fiscal Studies.
- Bulow, J.I. and L.H. Summers (1984) "The taxation of risky assets", *Journal of Political Economy* 92,20-39.
- Devereux, M.P., R. Griffith and A. Klemm (2002) 'Corporate income tax reforms and international tax competition', *Economic Policy* 35, 451-495.
- Dixit and R. Pindyck (1994) Investment Under Uncertainty, Princeton, NJ: Princeton University Press.
- Domar, E.D. and R.A. Musgrave (1944) "Proportional income taxation and risk-taking", *Quarterly Journal of Economics* 58, 387-422.
- Edmiston, K. (2004) 'Tax uncertainty and investment: a cross-country empirical examination', *Economic Inquiry* 42.3, 425-440.
- Edmiston, K., S. Mudd and N. Valev (2004) 'Tax structure and FDI: the deterrent effects of complexity and uncertainty', *Fiscal Studies* 24.3, 341-359.
- Fane, G. (1987) "Neutral taxation under uncertainty", *Journal of Public Economics* 33, 95-105.
- Gordon, R.H. (1985) "Taxation of corporate capital income: tax revenues versus tax distortions", *Quarterly Journal of Economics* 100, 1-26.
- Gordon, R. H. and John D. Wilson (1989) "Measuring the efficiency cost of taxing risky capital income", *American Economic Review*, 427-439.
- Mendoza, E.G., A. Razin and L. Tesar (1994) 'Effective tax rates in macroeconomics: cross-country estimates of tax rates on factors incomes and consumption', *Journal of Monetary Economics* 34, 297-323.