What creates tax uncertainty? Evidence from three phases of a cross-country survey

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Abstract

This paper presents the results of three waves of a survey of large multinational businesses on the sources and effects of uncertainty about business taxation. The results indicate that tax uncertainty plays an important role in investment and location decisions. There is huge variation in tax uncertainty amongst countries, suggesting an important role for country-specific factors in creating uncertainty. The most important sources of uncertainty in high income countries reflect the tax system itself: complexity and frequent changes to the statutory system. By contrast, the most important sources in lower, and upper, middle income countries reflect problems of administration: for example, unpredictable or inconsistent treatment by tax authorities and courts, and an inability to achieve clarity either proactively or retroactively.

Keywords

Profit taxation, tax uncertainty, cross-border investment

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"As recognised by G20 Ministers, maintaining and enhancing tax certainty brings benefits for taxpayers and tax administrations alike and is key in promoting investment, jobs and growth… Enhancing tax certainty is one of the main priorities of the OECD Forum on Tax Administration".

From the preamble to OECD Tax Certainty Day 2021

INTRODUCTION

In recent years, there have been growing complaints from both business and tax administrations about the uncertainty of the international tax system for taxing profit. Business complains that lack of certainty harms investment. Tax administrations complain about wasted resources dealing with complex disputed tax positions with uncertain outcomes. Politically, this issue has moved up the agenda sufficiently for the OECD to declare a day each year to be "Tax Certainty Day".

The most significant academic research on tax uncertainty has investigated links between tax avoidance and uncertainty. The idea is that multinational companies push the boundaries of existing tax law in an attempt to reduce their overall tax liabilities. But in doing so, they create situations that are not clearly reflected in well understood law, thereby adding to uncertainty. There are a number of contributions which compare firm level uncertainty about taxation, primarily as disclosed for US companies in the FIN48 statement on the 'unrecognized tax benefit' (UTB), with measures of tax avoidance.[2]

There is convincing evidence of a link between tax avoidance and tax uncertainty. However, that does not rule out other factors also creating tax uncertainty, independently of the actions of the taxpayers. Indeed, a different perspective on the link between uncertainty and avoidance might be that the existence of uncertainty with respect to taxation creates opportunities for businesses to arrange their affairs in ways that reduce their tax liabilities. In principle, there may be many other possible factors determining uncertainty. For example, there could be frequent changes in the tax regime, such that an investor with a long-term horizon has no clear idea what to expect of the tax regime in several years' time. In extreme cases, governments can introduce retrospective changes to taxation, changing the regime ex-post. Legislation may be badly drafted, leaving the position of some specific situations ambiguous. An additional factor in many countries is likely to be how taxes are administered: for example, tax authorities, or the courts, may not have sufficient understanding of the existing tax code.

[2] Financial Accounting Standards Board (FASB) Interpretation No. 48, Accounting for Uncertainty in Income Taxes (FIN 48), effective for fiscal years beginning after December 15, 2006.

In an international context, these potential sources of uncertainty are likely to vary from country to county.

There is less empirical evidence on the consequences of tax uncertainty. There is a theoretical economic literature which examines how business investment decisions are likely to respond to different forms of uncertainty. And there are a small number of papers that investigate the impact of tax uncertainty on the level of investment, flows of foreign direct investment, and holdings of cash. However, in the context of a much broader literature on the impact of macroeconomic uncertainty more generally, the OECD's claims that tax uncertainty may depress investment and growth seem plausible.

This paper aims to contribute to our understanding of the sources of tax uncertainty, and to a lesser extent, its consequences, by presenting the results of three waves of a survey of senior tax representatives of multinational businesses and their advisers undertaken in 2016, 2018 and 2020. The survey asks general questions about tax uncertainty relevant for business but focuses more specifically on the taxation of corporate profit.

The primary aim of the survey is to identify in more detail the tax sources of uncertainty. This is generally not possible with studies using existing published datasets.[3] Respondents are asked to evaluate from their own experience a number of possible sources of uncertainty (and to add others that they believe have been missed in the survey). Among other things, this allows us to distinguish between factors that are more, or less, dependent on avoidance behavior by multinational businesses.

An important aim of the survey is to investigate differences in the sources of tax uncertainty across countries. We ask respondents to identify specific counties (from a list of 25) with which they have familiarity and about which they are able and willing to answer questions on tax uncertainty. This enables us to differentiate between countries in a way that has not previously been explored in the academic literature.

We are also able to differentiate results in three other dimensions. First, since we have three surveys with two year gaps, and the first survey in 2016 asked about how uncertainty had changed over the preceding 5 years, we are able to identify how much uncertainty has changed over the last decade. These years were amongst the most tumultuous for reforms to the international tax system, and so the results give some indication of at least initial reactions to these reforms, and the broader discussion of the reforms. We also explicitly ask respondents for their views on some of the major developments. Second, we are able in many cases to identify the size of the business on whose behalf the respondent was answering; and so we can investigate whether, and to what extent, the sources of uncertainty are different for larger businesses, for example. Third, in many cases, we are also able

[3] There is increasing use of business surveys to address issues of uncertainty. Examples, include the Survey of Business Uncertainty created by Steven Davis, Nick Bloom and the Federal Reserve Board of Atlanta, used in a number of academic papers; and Duke University/CFO magazine Global Business Outlook (GBO) survey of financial executives, used, for example, by Sharpe and Suarez (2021). Surveys have also been used to elicit understanding of business decision-making with respect to taxation: see, for example, Graham et al (2017).

to identify the type of respondent – for example, whether they work in the tax department of a multinational business or are a tax adviser – and we are therefore also able to investigate whether there are systematic differences in responses for these groups.

We find strong evidence that uncertainty surrounding tax is an important factor in business investment and location decisions. In fact, uncertainty about tax was reported to be a more significant factor than the level of tax.

However, the most striking findings concern differences across countries. There is remarkable variation in perceived tax uncertainty between countries. In response to the question "*how uncertain is tax in India?",* over 96% of respondents answered that it was very uncertain or fairly uncertain. The comparable result for Japan was less than 4%. On the whole, lower middle and upper middle income countries appear to have higher tax uncertainty than high income countries. Apart from India, other countries with high scores are the other BRIC countries (Brazil, Russia and China) as well as Nigeria and Indonesia. At the other end of the spectrum, just above Japan, are the Netherlands and Switzerland. Further, on every measure, and in almost every country, uncertainty has increased in the last 10 years. The only country to diverge from this trend was Japan.

The most important sources of uncertainty also differ strongly across countries and groups of countries. Respondents were asked to score 11 factors on how important they were for tax uncertainty. For high income countries, the leading factor was "complexity in the tax code", followed by "frequent changes in the statutory tax system". Lower middle and upper middle countries had higher scores on all of the 11 factors. However, differences between countries by income varied by factor. The most significant factor in lower middle and upper middle countries was "unpredictable or inconsistent treatment by tax authority". The other most important factors in these countries also reflect problems with the tax administration – an "inability to achieve clarity", either retroactively or proactively, "poor understanding of the tax code by tax authorities" and "unpredictable or inconsistent treatment by the courts".

These differences amongst countries are stark. In high income countries, the problem of uncertainty reflects the tax law itself – the problems are complexity and frequent changes. But in middle income countries, the problems stem more from administration, although no doubt these problems are made worse by complexity and frequent changes to the statutory system. The variation in the sources of tax uncertainty as perceived by business are not inconsistent with a role for aggressive tax avoidance behavior by multinational businesses in worsening tax uncertainty. However, they strongly suggest that there are other important factors. The huge variation across countries in perceived tax uncertainty and in the sources of that uncertainty must reflect country-specific factors. This also suggests that there is unlikely to be a quick fix to solving the problems of uncertainty, which arise both from the tax system itself and the administration of the system.

Before presenting the survey and results, Section I briefly reviews the prior academic literature on tax uncertainty. Section II outlines the scope of the survey. Section III presents the results of the general questions, and Section IV presents the country-specific results. Section V concludes.

I. PRIOR LITERATURE

The prior economic and accounting literature on tax uncertainty has addressed a number of related issues. The primary focus has been on the relationship between tax uncertainty and firm behavior – especially with respect to investment and tax avoidance. The approaches in these two dimensions tend to differ in their presumption about the direction of causation. For the investment literature, the question is generally how uncertainty (including in taxation) affects investment decisions. For the avoidance literature, it is rather how more aggressive tax avoidance strategies determine uncertainty. There have also been significant contributions in the accounting measurement of uncertain tax positions, and developments in the measurement of uncertainty more generally. We briefly outline these contributions in turn.

Uncertainty and investment

Of course, risk and uncertainty play a major role in financial markets and analysis of these issues form the basis of a large part of the academic finance literature. There is also a rich economic literature investigating the role of uncertainty in the determination of investment by firms. For example, Bloom, Bond and Van Reenen (2007) show that with partial irreversibility of investment decisions (in the spirit of Dixit and Pindyck, 1994) higher uncertainty reduces the responsiveness of investment to demand shocks. Uncertainty increases real option values making firms more cautious when investing.[4] One strand of literature investigates the design of tax systems in such an uncertain investment environment.[5]

However, this paper focuses on uncertainty generated by taxation itself. An earlier, and mostly theoretical, literature examined the impact of uncertainty in general settings.[6] Other papers have focused more specifically on investment. For example, in a theoretical model, Alvarez et al. (1998) extend papers that consider the effects of an anticipated reform[7] to analyze how the uncertain timing of the reform impacts investment, concluding that an expected reduction of the tax rate induces accelerated investment whereas an expected reduction of the tax base has the opposite effect. Hassett and Metcalf (1999) demonstrate that the effects depend on the nature the uncertainty process, concluding that tax policy uncertainty tends to delay investment under a continuous-time random walk, but increases the capital stock under a Poisson jump process. Niemann (2004) also finds that tax rate uncertainty has an ambiguous impact on investment, depending on the investment project's structure of cash flows and depreciation deductions. In a later paper, Niemann (2011) also finds an ambiguous impact in a theoretical setting with stochastic cash flows and tax payments. If tax uncertainty is small relative to cash flow uncertainty, then an increase in tax uncertainty may accelerate investment. Dillar et al (2017) investigate under which circumstances investors have an

[4] See also Bloom (2009) and Altig et al (2020) who survey executives regarding uncertainty about their own-firm outcomes at a one-year horizon.
[5] See, for example, Bond and Devereux (1995, 2003), and Panteghini (2001a, 2001b).
[6] See, for example, Weiss (1976), Alm (1988), Skinner (1988), Bizer and Judd (1989) and Alm, Jackson and McKee (1992).
[7] See, for example, Auerbach and Hines (1988); House and Shapiro (2008) consider a temporary tax reform.

incentive to request advance tax rulings to offset uncertainty, and what fee tax authorities should charge for offering such rulings.

There is a relatively small empirical literature on the impact of tax uncertainty on investment. Edminston (2004) analyses a cross-section of 17 countries, measuring tax uncertainty by volatility in effective tax rates[8], and finding a negative impact of this volatility. Edminston, Mudd and Valev (2003) investigate flows of foreign direct investment into transition economies in the EU, using as measures of uncertainty the number of different tax rates, the number of lines in the description of the tax base, the presence of indefinite phrases in the legislation, and the number of changes in tax parameters. They find these factors have a significant negative effect on inward FDI. More recently, Jacob, Wentland and Wentland (2022) investigate how tax uncertainty influences the timing of large capital investments, focusing on the staggered implementation of Schedule UTP in the US, which required firms to privately disclose details about uncertain tax positions (UTP) to the IRS, and which they interpret as heightening perceived tax uncertainty. They find that firms responded by delaying and reducing large capital investments. This effect is concentrated amongst financially-constrained firms, which buffer against higher tax uncertainty with cheaper sources of financing or cash. This mirrors the results of Hanlon, Maydew and Saavedra (2017) who find that both domestic firms and multinational firms hold larger cash balances when subject to greater tax uncertainty.

Uncertainty and avoidance

A second important area of the literature concerns the extent to which tax uncertainty is driven by avoidance. The idea here is that as firms engage in greater levels of profit shifting and tax avoidance, they will use strategies that involve increasingly pushing the boundaries of settled tax law, resulting in higher levels of tax uncertainty. Lisowsky, Robinson and Schmidt (2013) investigate whether FIN 48 tax reserves reflect aggressive tax positions, namely, tax shelters. They identify the use of shelters from private tax return disclosures of reportable transactions made to the IRS Office of Tax Shelter Analysis (OTSA) during the initial years of FIN 48 reporting. They find a positive association between the publicly available FIN 48 tax reserves and use of tax shelters, concluding that tax reserves serve as a reliable proxy for tax shelter use. The benefits of tax shelters are economically significant, accounting for up to 48% of the aggregate FIN 48 tax reserves analyzed. Law and Mills (2015) find that financially constrained firms both record higher tax reserves and undertake more aggressive tax strategies.

Dyreng, Hanlon and Maydew (2019) address the relationship between tax uncertainty, as measured by the FIN 48 additions to the unrecognized tax benefit (UTB), and avoidance, measured as the long-run cash effective tax rate. They find a significantly higher uncertainty amongst “tax avoiders”, in the lowest tercile of the distribution. These effects are especially pronounced for firms with frequent patent filings, tax haven usage and use of tax shelters. They suggest that the “price” of greater uncertainty explains why there Is not more avoidance.

[8] Of the form proposed by Mendoza et al. (1994) and Devereux and Griffith (2003).

Other papers find mixed results. De Simone et al (2020) and Gallemore et al (2018) find that UTB reserves themselves can be taken as a proxy for avoidance. However, Guenther, Matsunaga and Williams (2017) find that corporate tax avoidance is accomplished using strategies that are persistent and do not increase firm risk. Law and Mills (2015) show that financially-constrained firms undertake more aggressive tax strategies and record higher UTBs. Guenther, Wilson, and Wu (2018) also compare financially constrained and unconstrained firms and find that financially constrained firms engage in more tax avoidance and that such additional avoidance is more uncertain. However, they also find that most tax avoidance strategies are not uncertain, and they do not find evidence for the proposition that avoidance becomes more uncertain as the rate of tax avoidance increases.

A related question is the impact of tax avoidance on expected returns, and hence, indirectly on investment. This depends in principle on the extent to which the risk created is diversifiable. Consistent with Sikes and Verrecchia (2020), Heitzman and Ogneva (2019) provide evidence that industry-wide practices create non-diversifiable risk that raises the expected return of the industry. By contrast, and consistent with Goh et al (2016), firm-specific activity may be diversified, and reduces the expected return of the firm.

Accounting treatment of uncertainty

A third area of research has been in attempting to identify the performance of the UTB reserves as incorporated in the FIN 48 provision. Thus, while the previous group of papers investigate whether, and to what extent, UTB tax reserves are associated with alternative measures of avoidance, a separate question is whether the level of the reserves accurately reflects the degree of tax uncertainty. There is a significant literature on the FIN 48 provision, which will not be summarized here, as the focus of this paper is primarily on the sources of tax uncertainty, rather than its measurement in FIN 48.[9]

De Simone, Robinson and Stomberg (2014) and Cazier et al (2015) examine whether the use of FIN 48 reduced the propensity for earnings management through the reserve for income taxes. Using different approaches, both papers found that that it did not, implying that managers continue to take advantage of their discretion over the accounting for income taxes. De Simone et al suggest also that income-increasing tax accrual decisions are related to characteristics generally associated with weak corporate governance. Robinson, Stromberg and Towery (2016) study the consistency of provisions over time. They estimate that over a three-year period, only 24 cents of every dollar of reserves unwinds through settlements, and that FIN 48 did not increase the ability of tax expense to predict future tax cash flows. They conclude that uniform accounting rules of FIN 48 negatively affects the relevance of income tax accounting.

It is worth noting that these measures are observed at the level of the multinational. No studies have, as yet, been able to identify, for example, differences in uncertainty across countries for the same

[9] See, for example, Blouin et al (2007), Blouin and Robinson (2014),

multinational. And these measures do not reveal the precise sources of uncertainty. This paper aims to begin to address both of these issues using survey data.

II. SCOPE OF SURVEY AND DATA

The survey was made available online in three waves: January to March 2016, March to June 2018 and September to October 2020.[10,11] Invitations to tax executives were issued by email through a number of networks: 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.[12] These networks were designed to reach senior tax executives of large multinational corporations. However, in some cases, and typically for smaller companies, the survey was answered by a financial office of the business (typically the CFO), or by a professional adviser. The survey asked respondents details of their own position, the size of the company, and other information. Not all respondents answered these questions, which were not compulsory. We found no systematic differences in responses between those who provided this information and those who did not.

Table 1 reports on the number of respondents who completed the survey. We include here (and throughout the paper) only those respondents who answered a significant number of the questions. In total, we have slightly under 200 usable responses, split broadly evenly between the three waves. Of course, this is not a very large number of responses. However, this is a rather specialized survey; we are interested in the views of a rather small group of people who have professional experience of corporation tax and specifically, sources of uncertainty surrounding corporation tax, in a number of different countries. This is quite unlike a survey, for example, seeking views from the general public, where one would expect the number of respondents to be significant higher. We comment on this further below. Across the three waves, around 30% of respondents were based in the UK, and another 30% in the US. Slightly fewer were from other EU countries, and the remainder spread around the world.

[10] Results of each wave were presented at conferences organised by the European Tax Policy Forum in 2016, 208 and 2020.

[11] Respondents were invited by email with a link to the online survey. The three surveys can be found online at http://www.smartsurvey.co.uk/s/CBTandETPFsurvey/, https://oxfordsaid.eu.qualtrics.com/jfe/form/SV_74LIeKvQDRW4XFH and https://oxfordsaid.eu.qualtrics.com/jfe/form/SV_cVcyH2M4gdRY5W5.

[12] Invitations to respond to the survey stated the following. *"Although there has been much academic work investigating the impact of taxes on investment, there has been very little about the impact of uncertainty about taxation. One reason is the difficulty in measuring uncertainty. This survey aims to contribute to understanding the extent of uncertainty, and the sources of uncertainty, in different countries. We invite tax professionals, especially in business, with knowledge and experience of tax systems around the world, to take part in the survey. The survey first asks some general questions about tax uncertainty. You will then be asked to choose from a list of countries those for which you have experience. Some questions will then be asked about each of the specific countries that you have chosen."*

One issue raised in analyzing these data is whether to treat the data as independent observations, or as a panel. In principle, it is possible that there three responses by the same person across the different waves of the survey. If that were true, then we may want to take account of the identity of the respondent over time. However, there is no evidence that this is true – in fact, rather the reverse. We invited respondents to give their names, and they did so in 95 cases. Out of those 95, only one name is repeated, once. Similarly respondents were invited to state the name of their business. In this case, 73 of observations contained a name, and there were two businesses that each had two observations (and none with three). Of course, we cannot be sure that observations where no name or business name was recorded were not completed by the same person. Overall, though, there seems to be very little overlap in respondents across observations. The results presented here therefore simply treat all observations as independent. Our results do not change when the later of two repeated observations by the same person or business are dropped.

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

Country of respondent	All 3 surveys	2020	2018	2016
UK	26	6	10	10
US	26	4	5	17
Other EU	23	9	5	9
Other	13	5	0	8
No answer	*111*	*43*	*40*	*28*
Total number of respondents	**199**	**67**	**60**	**72**

To gain some idea of the scale of the businesses involved, respondents were also asked the approximate worldwide turnover of the business, split into broad categories. Table 2 shows that, of those who answered this question, just over two thirds represented very large businesses with a global turnover in excess of $5 billion.[13] According to the Eikon DataStream Dataset, in 2019 there were approximately 1,700 companies in the world having turnover in excess of €5 billion. If the proportion of two thirds of our sample working for, or advising, such businesses also applies to respondents who did not record the size of the business, and we treat observations as being from separate businesses, then a little under 8% of all such businesses worldwide are represented in the survey. 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 3 presents information on the type of respondent – specifically whether they come from the tax department of a business, are a financial officer of the business, or a professional adviser. Of those

[13] 72 out of the 82 respondents from businesses with a turnover in excess of $5 billion were from the tax department of a business. 5 were professional advisers, and 5 did not identify their position.

who answered this question, around two thirds were from the tax department of a business. Indications from other comments made on the survey, and the names, suggest that these were typically the most senior member of the department, sometimes in collaboration with a team.

Table 2. Number of respondents by size of business

Turnover:	**All 3 surveys**	**2020**	**2018**	**2016**
Over €5 billion	82	26	19	37
€500 million to €5 billion	23	2	6	15
€50 million to €500 million	5	2	1	2
Less than €50 million	12	3	2	7
No answer	*77*	*34*	*32*	*11*
Total number of respondents	**199**	**67**	**60**	**72**

Table 3. Number of respondents by type of respondent

	All 3 surveys	**2020**	**2018**	**2016**
Tax department of a business	94	25	21	48
Professional adviser	35	11	8	16
Financial officer of a business	10	3	2	5
No answer	*60*	*28*	*29*	*3*
Total number of respondents	**199**	**67**	**60**	**72**

Part of the survey related to questions about tax uncertainty in individual countries. Respondents were invited to identify for which of 25 countries listed they were able to answer questions about tax uncertainty. If they checked the box indicating a particular country, then they were asked questions on that country. The 25 countries chosen were those that fell into any of the following groups: the G20, the largest 21 by GDP and the largest 10 by population. Of these, 3 countries - Bangladesh, Pakistan and Saudi Arabia - were dropped since there were insufficient responses. The number of observations for each of the remaining countries is shown in Table 4. In total, there were 944 responses in respect of individual countries. Not surprisingly, the most popular countries were the UK (9.3% of observations) and the US (7.8%). However, seven other countries had more than 50 observations.

Table 4. Reponses for each country

Country	number of observations	percentage
Argentina	32	3.4%
Australia	69	7.3%
Brazil	48	5.1%
Canada	40	4.2%
China	51	5.4%
France	54	5.7%
Germany	55	5.8%
India	55	5.8%
Indonesia	24	2.5%
Italy	56	5.9%
Japan	26	2.8%
Mexico	26	2.8%
Netherlands	60	6.4%
Nigeria	15	1.6%
Russia	30	3.2%
South Africa	26	2.8%
South Korea	21	2.2%
Spain	36	3.8%
Switzerland	39	4.1%
Turkey	19	2.0%
United Kingdom	88	9.3%
United States	74	7.8%
Total	**944**	**100.0%**

III. GENERAL QUESTIONS

The first part of the survey consisted of questions that were not specific to a particular country. The first question focused on the role of tax uncertainty in investment and location decisions of businesses. The next two were concerned with sources of tax uncertainty.

Investment and Location Decisions

The first question aimed to identify the importance of tax uncertainty in investment and location choices, relative to a number of other factors, including the overall expected tax rate. Specifically, the question asked:

> *"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 the list of 8 factors set out in Table 5. These factors included separately the expected level of tax on profit and uncertainty about tax on profit. 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. The factors are presented in the order of importance based on the average score, although this ordering matches that identified by the percentage responding with a 4 or 5. It should perhaps be noted that this type of analysis can understate the impact of taxes. Typically, businesses rate tax lower than other factors as a determinant of investment and location choices, although other empirical evidence suggests that it nevertheless has a significant impact on both choices.[14]

Table 5. Determinants of investment and location decisions

	Mean Response	Percentage 4 or 5	Significant difference in mean for	
			Large firms	Tax department
Political uncertainty	4.3	87.6		
Current and expected macroeconomic conditions in the country	4.3	87.2		
Uncertainty about the effective tax rate on profit	3.9	72.2	- 0.41	- 0.34
Proximity to consumers	3.8	68.0		+ 0.47
Cost of complying with regulations	3.8	64.3		- 0.34
The anticipated effective tax rate on profit	3.6	56.9	- 0.41	- 0.51
Exchange rate risk	3.5	52.6		
Proximity to other parts of the business	3.3	43.8		

Notes. *This table shows the results from the question specified in the text about investment and location decisions. The last two columns are the result of regressing the response on a dummy indicating that the respondent is either from a large firm (turnover in excess of €5 billion) or form the tax department of a business. Only statistically significant differences (at conventional levels of significance) are shown. There were no statistically significant differences by year.*

[14] In particular, compared to other estimates of the impact of differences in profit taxation across countries on cross border flows and investment. There is a wealth of literature on this; see for example, Devereux and Griffith (1998), the surveys of de Mooij and Ederveen (2008), and Feld and Heckemeyer (2011), or for more recent estimates in the context of macroeconomic growth and headquarters, see respectively Khan et al (2020) and Chow et al (2022).

The table shows that our respondents considered political uncertainty and macroeconomic conditions to be the single most important factors in investment and location decisions; 87% of respondents scored these factors as 4 or 5. The importance of macroeconomic conditions is not at all surprising; the strength of political uncertainty is perhaps more so. Other non-tax factors are of less importance; on average, proximity to customers is more important that proximity to other parts of the business, though this presumably depends to some extent on the nature of the business.

The responses on the two tax factors suggest that tax does play an important role in investment and location decisions. These two factors are intended to distinguish between the expected tax liability and uncertainty around that expectation. Of the two, it is the uncertainty about the effective rate of tax on profit that scores most heavily, with 72% of respondents rating this as 4 or 5. By contrast only 57% rate the anticipated effective tax rate on profit as 4 or 5. This is perhaps initially surprising – for example, the very large empirical academic literature has effectively focused almost exclusively on the expected tax rate. Also, conventional finance theory suggests that businesses should focus on shocks that are correlated with the market. That would imply that if shocks to the effective tax rate are independent of other shocks faced by the business, they can be ignored by the business.

One possible explanation of this is a form of loss aversion. Businesses – and perhaps especially those in tax departments – may focus more on negative (to them) factors which are likely to result in a significant rise in the effective tax rate. So "uncertainty" may be interpreted more as a fear of a much higher effective tax rate than the possibility of a much lower rate. This is consistent with the results of Holzmeister et al (2020), who find that skewness is the only moment the distribution of possible outcomes that systematically affects financial professionals' perception of financial risk, with the consequence that it is the chance of experiencing losses that is the strongest predictor of what is perceived as being risky. This could then be consistent with the fear of a significant detrimental impact on the effective tax rate being even more important than the expected rate itself.

We also explore heterogeneity in responses in three dimensions. First, we test whether there are any statistically significant differences across the three waves of the survey. There are no significant differences in responses over time, and so we do not include these in the table.

Second, we test whether large businesses respond differently from other respondents. To do so, we regress each response on a dummy variable indicating whether the respondent is from a large business. In this regression we include only observations where the respondent answered the question about the size of the business. In the table, we include the effects for large businesses only for those questions where there is a significant difference. It turns out that there is a significant difference only for the two tax variables. For both variables, respondents from large businesses indicated a lower average score, both by 0.41. For example, for the uncertainty question, the average response for respondents not from large businesses was 4.2 and the average response from large businesses was 3.8. Overall, this results in the 3.9 shown in the table. The lower weight given to tax by respondents from large businesses may reflect that such businesses are more able to deal with uncertainty, with a large tax department, and more ready access to advisers.

Third we test whether respondents from tax departments respond differently. We follow the same procedure as described above for large businesses. Here we also find the respondents from tax departments suggest a smaller effect for both tax variables. This might be contrary to the notion that individuals tend to exaggerate the importance of their own contribution to the business. But it would be consistent with the results for large businesses, with such individuals believing that they are able to deal with, and perhaps plan around, any sources of uncertainty, without necessarily affecting total tax liabilities.

Sources of tax uncertainty

We next investigate the sources of tax uncertainty. The survey lists 11 possible factors that may affect tax uncertainty, and respondents were invited to add other factors that they believed were important. We distinguish two different issues in respect of these factors: How frequently are these factors encountered and, when encountered, how important are they. Specifically, the survey asks two questions:

> *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."*
>
> *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.*

The results from the first question are presented in Table 6, and from the second question in Table 7. In each case the table presents the mean score and the percentage of respondents rating the factor as 4 or 5 (with 5 indicting extremely common (Table 6) or extremely important (Table 7)). In both tables, the factors are listed in order of the mean response. The tables also explore heterogeneity, as in Table 5.

By some distance, the most frequently encountered factor is “complexity in the tax code”, with 86% of respondents rating it as 4 or 5. The mean response for this factor has also increased over time, indicating that encountering complexity is becoming more common. Given the developments in international tax over this period, this is perhaps not surprising. However, complexity does not top the list of important factors in Table 7, although over two thirds of respondents rated it as 4 or 5. Its importance also seems to have grown over the three waves of the survey. On average, large businesses consider complexity to be less important, presumably because they have greater resources for dealing with complexity.

Table 6. Frequency of factors in determining tax uncertainty

	Mean Response	Percentage 4 or 5	Significant difference in mean for	
			2020 - 2016	Tax department
Complexity in the tax code	4.3	85.7	+ 0.28	
Frequent changes in the statutory tax system	3.9	66.1		
Unpredictable or inconsistent treatment by tax authority	3.8	68.3		
Inability to achieve clarity pro-actively through rulings	3.7	60.3		
Inability to achieve clarity retroactively in case of dispute including, but not limited to MAP	3.4	49.2		
Poor understanding of tax code by tax authority	3.3	42.3		
Non-adoption of the OECD guidelines on transfer pricing	3.0	33.5		
Unpredictable or inconsistent treatment by the courts	3.0	35.8		
Poor general relationship with tax authority	2.9	26.5	- 0.36	- 0.42
Retroactive changes to legislation	2.9	29.3	- 0.40	
Corruption	2.1	15.4	- 0.46[15]	

Notes. *This table shows the results from the question specified in the text about the frequency of factors affecting tax uncertainty. The last two columns are the result of regressing the response on a dummy indicating that the respondent answered in the 2020 wave or from the tax department of a business. Only statistically significant differences (at conventional levels of significance) are shown. There were no statistically significant differences by the size of business.*

The next most important factor in Table 6 is "frequent changes to the statutory tax system". This also tops the list of the most important factors, with 83% of respondents rating this as a 4 or 5. The importance of these first two factors is interesting in the context of the literature which links uncertainty with avoidance. There seems to be no direct link between either of these factors and avoidance, at least not at the level of an individual business. There may be an indirect link in that changes to the tax system and increasing complexity may reflect attempts by governments to shore up the system in response to avoidance and profit shifting. But that affects all businesses, not only those engaged in avoidance.

The third most important factor for frequency, and the second for importance, is "unpredictable or inconsistent treatment by tax authority". Viewed from the perspective of business, this may also

[15] There was also a significant difference between 2018 and 2016, with a reduction in 2018 of 0.55.

appear to be unrelated to avoidance by specific businesses. However, this is less clear than for the two previous factors; to the extent that aggressive businesses push the boundaries of the tax system, then this may induce such responses by the tax authority. By contrast, respondents rate their "general relationship with tax authority" as neither a frequent nor important factor for tax uncertainty. This relationship also appears to have improved on average over the three waves of the survey and is rated even lower on frequency by respondents from tax departments.

Table 7. Importance of factors in determining tax uncertainty

	Mean Response	Percentage 4 or 5	Significant difference in mean for	
			2020 - 2016[16]	Large firms
Frequent changes in the statutory tax system	4.1	82.6		
Unpredictable or inconsistent treatment by tax authority	4.1	76.9		
Retroactive changes to legislation	4.0	72.1		
Complexity in the tax code	3.9	68.1	+ 0.40	- 0.38
Inability to achieve clarity pro-actively through rulings	3.6	59.1		
Poor understanding of tax code by tax authority	3.6	54.6		
Inability to achieve clarity retroactively in case of dispute including, but not limited to MAP	3.6	52.2		+ 0.45
Non-adoption of the OECD guidelines on transfer pricing	3.2	42.9		
Unpredictable or inconsistent treatment by the courts	3.4	48.0		
Poor general relationship with tax authority	3.2	41.2	- 0.40	
Corruption	2.7	32.4		

Notes. *This table shows the results from the question specified in the text about the importance of factors affecting tax uncertainty. The last two columns are the result of regressing the response on a dummy indicating that the respondent answered in the 2020 wave or from a large firm. Only statistically significant differences (at conventional levels of significance) are shown. There was also one marginally significant difference for respondents from tax departments with the response to "Poor general relationship with tax authority" having a lower mean by 0.37.*

[16] There was also a significant difference between 2018 and 2016 in: "complexity in the tax code", with a reduction in 2018 of 0.49; and in "Unpredictable or inconsistent treatment by the courts", with a reduction of 0.48.

Other factors do not rate highly, on average for example, “unpredictable or inconsistent treatment by the courts” is not rated highly for either frequency or importance. Retroactive changes to legislation are important when they occur, but they appear to be infrequent. Corruption does not seem to be a problem, at least in respect of tax uncertainty.

In the 2020 survey only an additional question was asked, about the upheaval in international tax provisions taking place at the OECD - the BEPS project, and the work on the digitalized economy – significant changes in national tax system, including digital services taxes, and other measures introduced in response to the covid pandemic. Specifically, the question asked was:

How important have the following factors been in affecting uncertainty about corporation tax?

The results are presented in Table 8. These factors receive rather lower scores than some of the key factors in Tables 6 and 7. The most significant factor was the OECD/G20 BEPS project which scored an average of 3.7, with 58% of respondents rating the project as a 4 or 5 for its contribution to tax uncertainty. However this masks some heterogeneity by respondent. There was a much higher response from respondents from tax departments who gave it a mean score of 4.1, compared to others who gave it a mean score of only 2.8. A similar difference applied also to the OECD work on the digitalized economy, and to a lesser extent, changes to national tax regimes. Digital services taxes and pandemic measures were not considered to be of great importance for tax uncertainty.

Table 8. Importance of factors in determining tax uncertainty

	Mean Response	Percentage 4 or 5	Significant difference in mean for tax department
OECD/G20 BEPS project	3.7	57.9	+ 1.31
OECD work on taxation of the digitalized economy	3.6	49.1	+ 1.51
Other changes in national tax regimes	3.6	56.9	+ 0.96
The introduction of digital services taxes and other similar unilateral measures	3.3	50.9	
Governments' fiscal responses to the covid-19 pandemic	2.9	32.8	

Notes. *This table shows the results from the question specified in the text about the importance of the specific factors listed in the table affecting tax uncertainty, which was asked only in 2020. The last two columns are the result of regressing the response on a dummy indicating that the respondent was from a tax department of a business. Only statistically significant differences (at conventional levels of significance) are shown. There were no statistically significant differences across respondents based on the size of the business.*

IV. COUNTRY-SPECIFIC QUESTIONS

Variation of tax uncertainty across countries

We now turn to responses with respect to individual countries. As set out in Table 4, we have usable responses for 22 countries individually. A starting point – the results of which are summarized in Table 9 – is the question: "How uncertain is tax in …. ?". Respondents chose from five possible answers: very uncertain, fairly uncertain, nether certain nor uncertain, fairly certain, very certain.

In the first column, these responses were given numerical scores of 5, 4, 3, 2 and 1 respectively, and the mean response is shown. The second column presents the percentage responding very uncertain, or fairly uncertain. The third column indicates the number of responses by country. There are relatively few respondents for each country that are not from large businesses and tax departments, and so it is not possible to examine heterogeneity in these dimensions. Countries are shown in the order of the percentage shown in column 2.

There is a huge dispersion in responses by country. At the top of the list, by some distance, is India with over 96% of respondents identifying taxes there as being very, or fairly, uncertain. At the other end, less than 4% identified Japan as very, or fairly, uncertain. This difference is also reflected in the mean score. That is a gulf in the experiences between these two countries.

More generally, the BRIC countries (Brazil, Russia, India and China), together with Nigeria and Indonesia, all have scores in excess of 76% in column 2, with the next highest country, Italy, scoring only 66%. By contrast, four other countries besides Japan – Netherlands, Switzerland, Canada and Germany - have scores below 22%, with the next lowest, Spain, being in excess of 33%. The vast range of responses by country indicates that there must be important country-specific factors in determining uncertainty, and that avoidance behavior by multinationals is likely to be, at best, a relatively small part of the explanation for tax uncertainty.

Changes over time

Table 10 explores how these perceptions of tax uncertainty have changed since 2011. To begin with, the first column shows the results from a question asked in 2016: *"How has uncertainty in taxing corporate profit changed over the last 5 years?"* – that is, from 2011 to 2016. Respondents chose from five possible answers: uncertainty has: increased substantially, increased a little, not changed, reduced a little, and reduced substantially. Column 1 presents the percentage choosing the first two answers, less the percentage choosing the last two answers. The third column presents the mean response for from the question "how uncertain is tax in … ?" in 2016. Countries are ranked by the score in column 1.

The results are striking. For 21 out of 22 countries, respondents answered on balance that uncertainty had increased in the five years leading up to 2016. Top in this case is Russia with 7 in every 8 respondents identifying an increase in tax uncertainty. Other countries with a very substantial increase over this period were Argentina, Brazil and Indonesia. Only in Japan did respondents, on balance, believe that uncertainty had decreased. It is interesting to note from the third column the highest mean score for 2016 was India; while uncertainty did increase in India over the preceding 5 years, the increase was not as strong as in other countries, suggesting that it had earlier been in an even more extreme position relative to other countries.

Table 9. How uncertain is tax in each country?

	Mean Response	Percentage of responses "very uncertain" or "fairly uncertain"	Number of observations
India	4.5	96.4	*55*
Brazil	4.4	89.6	*48*
Nigeria	4.0	80.0	*15*
Indonesia	4.0	79.2	*24*
China	4.1	78.4	*51*
Russia	4.0	76.7	*30*
Italy	3.6	66.1	*56*
Argentina	3.7	65.6	*32*
Mexico	3.6	57.7	*26*
United States	3.5	55.4	*74*
Turkey	3.5	52.6	*19*
South Korea	3.1	42.9	*21*
South Africa	3.2	42.3	*26*
United Kingdom	3.0	36.4	*88*
France	3.1	35.2	*54*
Australia	2.8	34.8	*69*
Spain	3.0	33.3	*36*
Germany	2.6	21.8	*55*
Canada	2.6	20.0	*40*
Switzerland	2.2	12.8	*39*
Netherlands	2.2	5.0	*60*
Japan	2.2	3.9	*26*

Note. *This table shows the results from the question "how uncertain is tax in … ?". Respondents chose from five possible answers: very uncertain, fairly uncertain, nether certain nor uncertain, fairly certain, very certain. The first column reports the average response, with the five answers being given numerical scores of 5, 4, 3, 2 and 1 respectively. The second column presents the percentage of respondents identifying the first two answers (this determines the ordering of the table) and the third column indicates the number of responses by country. There are relatively few respondents for each country that are not from large businesses and tax departments, and so it is not possible to examine heterogeneity in these dimensions.*

Table 10 : How has uncertainty changed over time?

	% uncertainty increased *less* % uncertainty decreased in last 5 years: 2016 only	*number of obs 2016*	Mean response 2016	Significant change in mean response 2018-2016	Significant change in mean response 2020-2016
Russia	87.5	*16*	4.1		
Argentina	83.3	*12*	3.5	0.66	
Brazil	81.5	*27*	4.4		
Indonesia	79.0	*19*	3.9		
Mexico	77.8	*18*	3.6		
United States	66.7	*42*	3.2	0.83	
Australia	65.8	*38*	2.8		
Canada	64.0	*25*	2.8		
India	63.3	*30*	4.6	-0.43	
France	58.6	*29*	3		0.54
Switzerland	58.3	*24*	1.9	1.51	
United Kingdom	57.1	*42*	2.7		0.71
Italy	54.3	*35*	3.6		
South Korea	50.0	*14*	2.9	1.48	
Spain	50.0	*22*	2.9		
China	48.5	*33*	3.8	0.61	0.58
Germany	46.2	*26*	2.5		
Nigeria	44.4	*9*	4		
Netherlands	38.7	*31*	2.1		
South Africa	36.8	*19*	3	0.41	
Turkey	25.0	*12*	3.1	0.92	1.31
Japan	-5.6	*18*	2.2		

Note. *This table shows different measures of how tax uncertainty has changed over time. The first column presents results from the 2016 survey, which asked "How has uncertainty in taxing corporate profit changed over the last 5 years?" in each country, offering five answers, uncertainty has: increased substantially, increased a little, not changed, reduced a little, and reduced substantially. The column presents the percentage choosing the first two answers, less the percentage choosing the last two answers. The second column shows the number of observations for each country for column 1. The third column shows the mean response in the 2016 survey to the question "how uncertain is tax?" in each country, as in Table 9. The fourth column presents cases where there is a statistically significantly change in that mean between the 2016 and 2018 surveys, and the last column presents cases where there is a statistically significantly change in that mean between the 2016 and 2020 surveys.*

The fourth column shows cases where there is a statistically significant change in the mean response between the 2016 and 2018 surveys, and the fifth column does the same in comparing 2016 and 2020. In many countries there was no statistically significant change over this period. However, of the 12 cases where there was such a change, 11 were positive, and only one was negative, again indicating a worsening of tax uncertainty. Two countries – Chinas and Turkey – had a statistically significant increase in uncertainty in the shorter and longer periods, 2016 to 2018 and 2016 to 2020. In others, such as the US, uncertainty increased from 2016 to 2018, which was around the time of the major US tax reform, but had a relative decrease after 2018, reducing by 2020 to around 2016 levels. Given the international debate and agreement on reform in since 2020 – which can only result in increased complexity – it seems very likely that uncertainty will have increased even further since 2020.

Importance of uncertainty on business decisions over time

Table 11 investigates the impact of this uncertainty on real economic activity, asking the question: *"How frequently has uncertainty about corporation tax had a serious impact on business decisions?"*. In this case, respondents chose from five possible answers: very frequently, frequently, sometimes, very occasionally and never. As with Table 9, we convert these responses into numerical scores of 5, 4, 3, 2 and 1 respectively, and present the mean response in column 1. Column 2 presents the percentage of responses of very frequently or frequently.

The ranking of countries is broadly similar to that in Table 9. The BRIC countries, with Nigeria, are top of the table. In Brazil, nearly 70% of respondents identified tax having had a serious impact on business decisions very frequently, or frequently. India, Nigeria and China also had scores in excess of 50%, with Russia just behind. There is then a gap before Italy at around 43%. At the other end of the table there were very low scores for Netherlands (1.7%), Switzerland (3.4%) and Japan (3.9%), with Canada, Spain and South Korea also having scores below 10%. As in Table 9 this indicates a dramatic variation in experiences across countries, which can only be explained by country-specific factors. We therefore proceed to examine the role of specific factors, and how they vary across countries.

Sources of uncertainty by country

To investigate variation in the sources of uncertainty across countries, for individual countries respondents were asked:

"In your experience, how important are the following factors in determining the uncertainty in the taxation of corporate profit in … ? Again, please use the scale of 5 to 1, with 5 indicating that, in your experience, the factor is extremely important, with lower numbers indicating progressively that it is less important."

The factors offered to respondents were the 11 analysed in Tables 6 and 7. Results for each country and each factor are presented in the Appendices. Table A1a shows the mean score for each country, and Table A1b shows the proportion of respondents answering 4 or 5.

Here we examine systematic differences in the factors creating uncertainty across countries in three dimensions: income per capita, whether or not the country is a member of the OECD, and the country's relative ranking in Table 9. The size of each of these groups, by country and the number of observations, is shown in Table 12. We use the World Bank classification of income per capita levels. Just over half of the countries analysed are high income and the others are upper and lower middle

income; we do not have any low income countries. In grouping countries together, we include the total of 19 responses from countries that were dropped individually in the previous analysis: Bangladesh, Saudi Arabia and Pakistan. In using the scores in Table 9, we group countries into three groups, with scores: above 66.7%, between 33.3% and 66.7% and equal to or below 33.3%. In this case, we again exclude the three countries excluded in Table 9.

Table 11. How frequently has uncertainty about corporation tax had a serious impact on business decisions in each country?

	Mean Response	Percentage of responses "very frequently" or "frequently"	Number of observations
Brazil	3.8	69.4	*49*
India	3.8	61.8	*55*
Nigeria	3.6	60.0	*15*
China	3.5	51.0	*51*
Russia	3.4	48.3	*29*
Italy	3.1	42.9	*56*
Argentina	3.3	40.6	*32*
Indonesia	3.2	37.5	*24*
Mexico	2.9	33.3	*30*
Turkey	2.8	31.6	*19*
United States	3.0	27.0	*74*
France	2.8	21.1	*52*
United Kingdom	2.7	17.2	*87*
Australia	2.4	16.2	*68*
South Africa	2.7	15.4	*26*
Germany	2.6	14.6	*55*
South Korea	3.1	9.5	*21*
Spain	2.5	8.3	*36*
Canada	2.2	6.8	*44*
Japan	2.1	3.9	*29*
Switzerland	1.8	3.4	*38*
Netherlands	1.9	1.7	*59*

Note. *This table shows the results from the question "How frequently has uncertainty about corporation tax had a serious impact on business decisions?". Respondents chose from five possible answers: very frequently, frequently, sometimes, very occasionally and never. The first column reports the average response, with the five answers being given numerical scores of 5, 4, 3, 2 and 1 respectively. The second column presents the percentage of respondents identifying the first two answers (this determines the ordering of the table) and the third column indicates the number of responses by country. There are relatively few respondents for each country that are not from large businesses and tax departments, and so it is not possible to examine heterogeneity in these dimensions.*

The results of this analysis are presented in Tables 13a and 13b. For each category, Table 13a presents the mean response and Table 13b presents the proportion of respondents answering 4 or 5. In each case, factors are ranked by the score of lower middle income countries. There is some variation in responses by factor, since some respondents did not answer all questions. The number of observations is the same for the first two classifications, and slightly lower for the third. Statistical differences between the categories were tested by running three regressions with dummy variables: for lower middle and upper middle income countries; for non-OECD countries; and for the two groups with higher uncertainty scores. All of these dummy variables were highly significant, indicating that the differences shown in these tables are highly significant.

The results indicate strongly that *all* of the factors are more important in lower and upper middle income countries relative to high income countries, non-OECD countries relative to OECD countries, and (as would be expected) in countries with a higher, relative to lower, ranking for uncertainty. In comparing the means in Table 13a, for example, the difference between lower middle and high income countries ranges from +0.36 for "complexity in the tax code" to +1.54 for "non-adoption of the OECD guidelines on transfer pricing". Upper middle income countries score lower on every factor than lower middle income countries – indicating a clear ranking by income per capita on very factor, although the scores for upper middle income countries are much closer to those for lower middle income countries.

Table 12. Number of countries and observations for each country category

	Countries	Obs
High	13	607
Upper middle	7	213
Lower middle	5	97
	25	917
OECD	14	584
non-OECD	11	333
	25	917
Above 66.7%	6	208
33.3% to 66.7%	10	438
Below 33.3%	6	252
	22	898

Note. *This table shows the potential size of the sample used in the analysis in Tables 13a and 13b, by country and number of observations. Non-responses for a few respondents reduce the actual number of observations as shown in Tables 13a and 13b. The classifications by per capita income are as follows. High: Australia, Canada, France, Germany, Italy, Japan, Netherlands, Saudi Arabia, South Korea, Spain, Switzerland, UK, US. Upper middle: Argentina, Brazil, China, Mexico, Russia, South Africa, Turkey. Lower middle: Bangladesh, India, Indonesia, Nigeria, Pakistan. OECD members are Australia, Canada, France, Germany, Italy, Japan, Mexico, Netherlands, South Korea, Spain, Switzerland, Turkey, UK, US. There is clearly considerable overlap with the list of countries with high income per capita.*

Table 13a. Importance of different factors in determining tax uncertainty: means responses

	By per capita income			By OECD			By ranking in Table 9			
	Lower middle	Upper middle	High	non-OECD	OECD	*Obs*	Above 66.7%	33.3% to 66.7%	Below 33.3%	*Obs*
Unpredictable or inconsistent treatment by tax authority	4.39	4.16	3.04	4.03	3.11	*909*	4.40	3.38	2.76	*890*
Inability to achieve clarity retroactively in case of dispute including, but not limited to MAP	4.04	3.82	2.86	3.69	2.93	*896*	4.01	3.19	2.58	*877*
Inability to achieve clarity pro-actively through rulings	4.02	3.91	3.00	3.76	3.06	*904*	4.02	3.37	2.63	*885*
Poor understanding of tax code by tax authority	3.99	3.68	2.66	3.49	2.78	*907*	3.85	3.02	2.38	*888*
Unpredictable or inconsistent treatment by the courts	3.84	3.45	2.55	3.35	2.63	*896*	3.65	2.82	2.37	*877*
Complexity in the tax code	3.82	3.77	3.46	3.73	3.48	*908*	3.93	3.70	3.09	*889*
Non-adoption of the OECD guidelines on transfer pricing	3.69	3.56	2.15	3.34	2.23	*896*	3.74	2.43	2.04	*877*
Frequent changes in the statutory tax system	3.63	3.62	3.18	3.54	3.21	*906*	3.72	3.45	2.83	*887*
Retroactive changes to legislation	3.60	3.31	2.64	3.28	2.68	*903*	3.49	2.94	2.34	*884*
Poor general relationship with tax authority	3.44	3.31	2.58	3.15	2.67	*899*	3.39	2.88	2.31	*880*
Corruption	2.69	2.50	1.42	2.35	1.50	*895*	2.58	1.68	1.35	*876*

Notes. *This table shows the results from the question: "*In your experience, how important are the following factors in determining the uncertainty in the taxation of corporate profit in … ? Again, please use the scale of 5 to 1, with 5 indicating that, in your experience, the factor is extremely important, with lower numbers indicating progressively that it is less important." *The table shows the mean response for each factor, split by income, whether the country is a member of the OECD, and by the country ranking in Table 9. The number of countries and observations in each of these groups is show in Table 12. In this table, all of the differences of income categories relative to high income, OECD and non-OECD, and rankings relative to below 33.3% are highly statistically significant. All responses are included in the first two splits. The last split is only for countries not excluded from Table 9. The ordering of the table is by the man response in low income countries.*

Table 13b. Importance of different factors in determining tax uncertainty: proportion of respondents answering 4 or 5

	By per capita income			By OECD			By ranking in Table 9			
	Lower middle	Upper middle	High	non-OECD	OECD	*Obs*	Above 66.7%	33.3% to 66.7%	Below 33.3%	*Obs*
Unpredictable or inconsistent treatment by tax authority	87.6	78.9	38.3	82.0	40.7	*909*	87.5	50.3	28.8	*890*
Inability to achieve clarity pro-actively through rulings	77.3	68.7	35.4	71.2	37.6	*904*	75.8	47.6	24.3	*885*
Inability to achieve clarity retroactively in case of dispute including, but not limited to MAP	75.8	63.0	30.5	67.4	32.4	*896*	72.4	40.0	23.1	*877*
Poor understanding of tax code by tax authority	72.2	59.0	24.5	62.4	27.1	*907*	65.7	35.6	16.8	*888*
Unpredictable or inconsistent treatment by the courts	68.4	52.7	20.3	59.0	21.8	*896*	62.1	28.0	14.9	*877*
Complexity in the tax code	64.9	59.7	48.5	61.1	49.4	*908*	68.0	57.5	33.5	*889*
Non-adoption of the OECD guidelines on transfer pricing	61.5	55.8	13.5	59.7	15.1	*896*	64.2	20.9	10.3	*877*
Retroactive changes to legislation	58.3	42.3	23.5	48.1	24.6	*903*	52.0	31.8	14.9	*884*
Frequent changes in the statutory tax system	57.7	54.3	36.8	55.4	37.8	*906*	60.5	47.3	22.5	*887*
Poor general relationship with tax authority	48.5	45.0	23.9	44.4	25.9	*899*	46.6	33.1	15.2	*880*
Corruption	28.7	21.6	5.2	24.8	5.9	*895*	25.2	8.9	4.1	*876*

Notes. *This table shows the results from the same question as Table 13a. This table shows the proportion of responses of 4 or 5 for each factor, split by income, whether the country is a member of the OECD, and by the country ranking in Table 9. The number of countries and observations in each of these groups is show in Table 12. In this table, all of the differences of income categories relative to high income, OECD and non-OECD, and rankings relative to below 33.3% are highly statistically significant. All responses are included in the first two splits. The last split is only for countries not excluded from Table 9. The ordering of the table is by the man response in low income countries.*

The tables indicate a considerable variation in the most important sources of tax uncertainty across countries. For lower and middle income countries (and non-OECD countries, and the highest ranked by uncertainty) by far the most significant factor is "unpredictable or inconsistent treatment by tax authority". This is relatively less important for high income countries (and OECD countries and the lower ranked by uncertainty), though still has a relatively high score amongst the factors. The importance of the role of tax authority in middle income countries is striking, and presumably reflects weaker administration of less well-resourced countries.

This is reinforced by the fact that the first four factors for lower middle income countries in both tables[17] all reflect problems of administration. The next three factors for these countries are: "inability to achieve clarity", either "retroactively in the case of dispute" or "pro-actively through rulings", and "poor understanding of the tax code by tax authorities". The fifth factor also reflects problems of administration, but in this case with the courts: "unpredictable or inconsistent treatment by the courts". These factors are relatively unimportant in high tax countries.

By contrast, the most important factor for high income, OECD and lower ranked, countries is the one with the highest score in Table 6: "complexity in the tax code".[18] That does not mean that this factor is not important for middle income countries; in fact, as noted above, it has a higher score in those countries. There is plausibly a link here to problems of administration: complexity in the tax code becomes more significant when the tax authority (and the courts) are less able to deal with the complexity. Reducing complexity may then have the effect of reducing some of the problems of tax administration.

The factor with the largest significant difference by income levels is the "non-adoption of OECD guidelines on transfer pricing". Not surprisingly this is also the most significant difference between OECD and non-OECD countries. However, despite these differences, this factor does not rank particularly high for low income countries. The view from business appears to be that the most significant problems stem from administration, rather than the system which the authorities are trying to administer. Perhaps mildly encouragingly, though, the problems of administration in middle income countries do not appear to be due to the attitude of officials. The two lowest ranked factors are "poor general relationship with the tax authority" and "corruption".

V. CONCLUSIONS

There has been increasing concern about uncertainty with respect to the taxation of profit, expressed by business, governments and tax authorities. This paper provides some evidence that reducing such uncertainty would boost investment and reduce distortions to business location decisions. Reducing uncertainty would therefore bring benefits. However, it is not clear such a reduction could be brought about, largely because there is little evidence on the sources of uncertainty.

While uncertainty may be worsened by aggressive avoidance and profit shifting by multinational companies, this paper provides evidence that there is very considerable variation in perceived variation between countries. That suggests, in turn, that country-specific factors must be important. Considering cross-country variation, the survey reported on here presents evidence of key distinctions in the sources of variation between high per capita income countries on the one hand, and upper and lower middle per capita income countries on the other.

[17] With a minor variation in the ordering between tables.

[18] The Table 6 result reflects the fact that there are more observations for these countries.

Business reports that the most important factors determining uncertainty in high income countries reflect the nature of the tax system itself: complexity and frequent changes in the statutory system. By contrast, in middle income countries, the main sources of uncertainty appear to be in the administration of tax. While reducing complexity would no doubt help stretched tax authorities in middle income countries, this seems unlikely in the foreseeable future, given new and highly complex reforms to the international tax system. In the medium term, greater support and resources for tax authorities in upper, and lower, middle income countries may be useful in reducing uncertainty.

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Appendix Table A1a. Importance of different factors in determining tax uncertainty by country: means responses

	Frequent changes in the statutory tax system	Retroactive changes to legislation	Complexity in the tax code	Inability to achieve clarity pro-actively through rulings	Inability to achieve clarity retroactively in case of dispute including, but not limited to MAP	Unpredictable or inconsistent treatment by tax authority	Poor understanding of tax code by tax authority	Poor general relationship with tax authority	Unpredictable or inconsistent treatment by the courts	Non-adoption of the OECD guidelines on transfer pricing	Corruption
Argentina	3.65	3.45	3.40	3.85	3.55	3.90	3.65	3.00	3.42	3.40	2.60
Australia	3.21	2.77	3.54	2.97	2.82	3.00	2.32	2.48	2.41	2.11	1.52
Brazil	4.05	3.30	4.44	4.02	4.09	4.34	3.68	3.41	3.67	4.16	2.56
Canada	3.00	2.42	3.55	3.03	3.03	3.21	2.79	2.64	2.59	2.33	1.42
China	3.57	3.28	3.69	3.88	3.87	4.33	3.88	3.21	3.15	3.45	2.36
France	3.46	3.21	3.47	3.21	3.22	3.46	2.98	3.08	2.86	2.31	1.41
Germany	2.98	2.62	3.62	2.98	2.83	3.00	2.42	2.57	2.56	2.13	1.35
India	4.04	4.20	4.34	4.16	4.23	4.66	4.06	3.58	4.00	4.00	2.33
Indonesia	3.25	2.92	3.25	4.00	3.92	4.29	3.96	3.29	3.78	3.29	2.91
Italy	3.40	3.09	3.50	3.62	3.78	4.06	3.46	3.49	3.50	2.58	1.88
Japan	2.68	2.57	3.11	3.14	2.89	3.07	2.71	2.59	2.71	2.41	1.54
Mexico	3.60	3.30	3.71	3.77	3.73	3.94	3.74	3.45	3.50	3.40	2.50
Netherlands	2.67	2.11	2.64	2.04	2.00	2.18	1.84	1.84	1.95	1.72	1.21
Nigeria	3.14	3.07	3.43	3.86	4.00	4.21	4.00	3.36	3.57	3.57	3.36
Russia	3.56	3.56	3.65	4.15	3.81	4.33	3.48	3.44	3.74	3.59	2.78
S Africa	3.20	3.04	3.36	3.68	3.56	3.88	3.36	2.96	3.12	3.08	2.28
S Korea	2.62	2.48	2.95	3.10	3.14	3.75	3.19	3.10	2.86	2.67	1.86
Spain	3.06	2.47	3.03	2.91	2.97	3.40	3.00	2.74	2.88	2.26	1.55
Switzerland	2.61	1.95	2.58	1.97	2.08	2.03	1.87	1.74	1.79	1.65	1.21
Turkey	3.38	3.25	3.59	3.94	3.88	4.06	3.82	3.71	3.69	3.44	2.50
UK	3.68	2.76	3.79	3.15	2.67	2.75	2.66	2.26	2.15	1.81	1.30
USA	3.63	2.77	4.49	3.46	3.06	3.06	2.89	2.83	2.70	2.20	1.23

Appendix A1b. Importance of different factors in determining tax uncertainty by country: proportion of respondents answering 4 or 5

	Frequent changes in the statutory tax system	Retroactive changes to legislation	Complexity in the tax code	Inability to achieve clarity pro-actively through rulings	Inability to achieve clarity retroactively in case of dispute including, but not limited to MAP	Unpredictable or inconsistent treatment by tax authority	Poor understanding of tax code by tax authority	Poor general relationship with tax authority	Unpredictable or inconsistent treatment by the courts	Non-adoption of the OECD guidelines on transfer pricing	Corruption
Argentina	60.0	45.0	45.0	65.0	50.0	65.0	60.0	35.0	47.4	55.0	30.0
Australia	41.0	31.1	57.4	32.8	30.0	37.7	16.7	23.0	19.7	13.1	8.3
Brazil	76.7	41.9	88.4	76.7	76.7	86.4	56.8	40.9	60.5	76.7	25.6
Canada	30.0	12.5	55.0	42.5	42.1	41.0	28.2	23.1	20.5	16.7	5.3
China	51.1	40.4	57.1	67.3	63.8	83.7	68.8	40.4	51.1	55.3	14.9
France	48.0	37.5	47.1	41.7	38.8	54.0	34.0	36.0	20.4	14.3	6.1
Germany	25.0	23.1	57.7	29.4	28.8	35.8	20.8	17.0	17.3	13.5	3.8
India	78.0	85.7	88.0	78.0	77.1	96.0	74.0	54.0	75.5	75.5	18.4
Indonesia	37.5	29.2	33.3	83.3	79.2	83.3	70.8	37.5	65.2	50.0	36.4
Italy	43.4	34.0	51.9	57.7	62.7	76.9	50.0	47.1	51.9	21.2	5.8
Japan	10.7	21.4	21.4	32.1	28.6	35.7	17.9	14.8	25.0	14.8	7.1
Mexico	56.7	36.7	58.1	58.1	53.3	71.0	64.5	51.6	50.0	46.7	13.3
Netherlands	21.1	10.5	17.9	8.9	7.0	10.5	3.5	8.6	6.9	5.3	1.8
Nigeria	35.7	28.6	50.0	71.4	71.4	78.6	71.4	50.0	50.0	50.0	50.0
Russia	51.9	59.3	57.7	81.5	66.7	88.9	51.9	59.3	63.0	59.3	33.3
S Africa	32.0	36.0	36.0	56.0	56.0	68.0	44.0	36.0	40.0	36.0	20.0
S Korea	14.3	14.3	25.0	42.9	47.6	70.0	47.6	42.9	23.8	19.0	9.5
Spain	26.5	14.7	26.5	26.5	29.4	48.6	31.4	25.7	23.5	11.8	6.1
Switzerland	18.4	7.9	15.8	13.2	10.5	10.5	5.3	5.3	2.6	2.7	2.6
Turkey	31.3	37.5	52.9	75.0	62.5	76.5	58.8	58.8	50.0	43.8	18.8
UK	56.5	27.9	60.5	39.5	22.1	29.4	23.3	17.6	9.4	8.1	5.8
USA	55.6	28.2	86.1	49.3	33.3	32.9	25.4	29.6	22.9	17.1	2.9

Notes. *These tables show the results by country from the question: "*In your experience, how important are the following factors in determining the uncertainty in the taxation of corporate profit in … ? Again, please use the scale of 5 to 1, with 5 indicating that, in your experience, the factor is extremely important,

with lower numbers indicating progressively that it is less important." *Table A1a shows the mean response and Table A1b shows the proportion of respondents answering 4 or 5. The results in these tables are summarized in Tables 13a and 13b.*