Visualizing the Forest for the Trees:
Arbor Corporation’s Country-by-Country Reporting

Submitted February 2018
ABSTRACT: One of the outcomes (“action items”) of the OECD’s Base Erosion and Profit Shifting (BEPS) project was the implementation of Country-by-Country (CbC) reporting beginning in 2017 (the first reports are due June 2018). These reports, which are to be housed in a Master File, provide “country-by-country” information to participating countries on a multinational company’s related party and unrelated party revenues, profit and loss before income tax, income tax paid, income tax accrued, stated capital, accumulated earnings, number of employees, and stated capital other than cash and cash equivalents. U.S. taxpayers report this information on Form 8975 and Schedule A to Form 8975. The OECD stated that its purpose in requiring CbC reporting “recognized that enhancing transparency for tax administrations by providing them with adequate information to assess high-level transfer pricing and other BEPS-related risks is a crucial aspect for tackling the BEPS problem.”¹ U.S. multinational companies have expressed concern that the reporting template could lead to misinterpretation of the data by tax jurisdictions because … “there’s a story behind that information, and you don’t get the story.”² In an effort to help clients prepare to tell the story behind their CbC reports and to identify areas that could be perceived by tax jurisdictions as profit shifting without substance, tax advisers (public accounting firms) have created data analytics programs for CbC reporting. Working in collaboration with two international public accounting firms, we develop a data base that mirrors the information required by Form 8975 and apply Tableau® visualization technology to provide a “comparative analysis of key CbCR ratios per entity” to provide a

¹ OECD BEPS website
“consolidated overview of potential pressure points”\textsuperscript{3} for a hypothetical U.S. multinational client. We then engage students with practitioners in the classroom by having student teams present their results along with a PowerPoint presentation to identify potential tax risk areas that might require a “story” if challenged by a tax jurisdiction.

Students analyze tax and transfer price issues about a (hypothetical) multinational enterprise that has 116 constituent entities doing business in 24 countries around the world. The case includes a written business memo and presentation. We designed this case for a graduate tax and accounting course on multiunit enterprises and then adapted the case for three other courses to encourage integrative thinking across courses by students.

**Keywords:** Accounting analytics, accounting curriculum, base erosion profit shifting (BEPS), big data, country-by-country (CbC) reporting, critical thinking, data analytics, inversion, tax avoidance, Tableau\textregistered, transfer pricing, tax accounting, technology

**Data Availability:** The case, data set, teaching notes, and assessment instruments are available to instructors on request.

\textsuperscript{3} PwC BEPS Webcast Series Country-by-country reporting for US multinationals, April 18, 2016.
INTRODUCTION

Now and then, a transformational tax and accounting issue stimulates collaboration between academics and public accounting professionals and leads to innovative active-learning teaching cases for students. The Organisation for Economic Co-operation and Development’s (OECD) Base Erosion and Profit Shifting initiative, with its Action Item 13 relating to Country-by-Country Reporting (CbCR) provides for just such an opportunity. The OECD, a global nonprofit organization that works with businesses, labor, and governments to “…make life harder for the terrorists, tax dodgers, crooked businessmen and others…” began studying base erosion and profit shifting (BEPS) in 2013 to curb profit shifting by multinational companies to low tax jurisdictions in transactions that lacked business purpose and substance (that is, a correlation between profits and the drivers of those profits, either employees or capital). One means chosen by the OECD was to create a global reporting system that identified a multinational company’s profits and taxes paid or accrued on a country-by-country basis along with the factors that might indicate whether there was a disconnect between such profits and taxes and the factors associated with such profits (employees and capital). In addition, the OECD required a separation of revenues by related and unrelated party to highlight, at a “high level,” potential transfer pricing anomalies. The OECD believed that more transparency as it related to intercompany

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4 Examples include the Committee of Sponsoring Organization (COSO) of the Treadway Commission guidance on internal controls and fraud deterrence, the Public Companies Accounting Oversight Board (PCAOB) arising from the Sarbanes-Oxley Act of 2002, and International Financial Reporting Standards (IFRS).

5 The OECD is headquartered in Paris, France and comprised of the G-20 and fifteen other countries—Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.
transactions, a technique used to shift profits, could lead to an increase in efficient allocation of economic resources and public confidence in the fairness of the tax system (OECD, 2015, p. 3).

The OECD’s final report in 2015 included 15 action items designed to reform international tax rules and specifically transfer pricing. Action 13 requires multinational entities (MNEs) to report annually on where and why they do business in other countries through subsidiaries and joint ventures (referred to as constituent entities). U.S. corporations will report on new Form 8975 and Schedule A attached to the federal corporate tax Form 1120 starting in 2017 (for tax year 2016) which is patterned on the IECD’s reporting templates (see Appendix A). Each country will send this data to the OECD’s clearinghouse.\(^6\)

As early as 2015, public accounting firms started preparing their MNE clients for CbC reporting. One question these data are expected to show is whether global companies are using transfer pricing to systematically over-report profits in low tax jurisdictions while under-reporting in high tax jurisdictions where they have significant economic activity. A Bloomberg BNA survey of more than 250 corporate tax professionals showed sixty-three percent of corporate tax professionals were concerned about CbC reporting and 44 percent said they were worried about transfer pricing (July 11, 2017). We believe that engaging students in a teaching case integrating these tax, business, accounting, and political issues will increase their awareness, confidence, and skills in data visualization that are now considered a core competency in public accounting tax groups.

In this paper we describe how we took this timely, real-world tax and accounting issue and engaged with public accounting professionals to develop a CbCR case for a graduate tax

\(^6\) The OECD has a Multilateral Competent Authority Agreement for the exchange of CbC reports using a standardized electronic format for submission.
accounting course on multiunit enterprises that was then adapted for three other courses in the accounting curriculum (two graduate, one undergraduate). We created MS-Excel workbooks for a hypothetical multinational company to provide students with a data base that they could import into Tableau® to visualize their clients’ operations around the world and identify disconnects, if any, between where profits and taxes were reported whether there was “substance” (employees or capital) associated with such metrics. Feedback from the firms, students, and faculty reinforced that the project helped develop an analytic mindset in students. We provide implementation guidance and teaching notes to assist instructors who feel active-learning case-based instruction using data analytics better prepares students for accounting and business careers of the future.

**MOTIVATION**

Faculty regularly engage with accounting and business professionals through visits, conferences, and webinars to understand the knowledge and skills students will need to work effectively in professions that will look very different than today. Students need to have life-long learning skills, analytical mindsets, and the ability to leverage technology in analyzing big data so that they can effectively communicate data-driven recommendations. Faculty often rue the fact that real world cases using data visualization, especially ones that provide context in a tax setting, are lacking in the marketplace. The OECD’s new CbC reporting requirement, coupled with tax reform and transfer pricing provide a timely and relevant issue on which to develop an instructional case designed to meet each of the goals of the graduate accounting program.
Accounting Curriculum. We designed this case to meet the learning goals of the assurance of learning metrics adopted at our university. Many AACSB accredited accounting programs likely share the goals of preparing students to:

1) act ethically and in harmony with professional standards and responsibilities,
2) be effective accounting and business communicators,
3) achieve disciplinary competence in specialized accounting and business knowledge,
4) be competent users of business and accounting-related research resources, and
5) be competent in integrating information technology with accounting and business.

We constructed this case to assure that all of our accounting graduates will meet each of these goals. This case brings students together with professionals to discover how they work with their clients on tax and transfer pricing issues and provides the professionals with the opportunity to interact with the students in a simulated presentation to a client. We developed the case study by visiting the home offices of professionals in two large public accounting firms and observing how they used proprietary data analytics programs to simulate CbCR using a prototype database of a hypothetical client. We adopted the databases to conform to the U.S. reporting template (Form 8975) to import into Tableau®. Representatives of the firms then debriefed the case study in class by observing the student presentations and showing the students their internally developed data analytics programs. Collaboration across these three-faculty from different disciplines (tax, analytics, managerial accounting) further led to case studies tailored for broader courses in analytics and introductory managerial accounting. We leveraged the conversations with professionals to engage students across four courses using variations of this case, as shown in Figure 1.

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7 This last learning goal relates to the Association to Advance Collegiate Schools of Business’ (AACSB) call for using technology to integrate data in AACSB Accounting Standard A7.
One of our primary motivations was to raise students’ intellectual curiosity about the tax and accounting issues relating to transfer pricing and country-by-country reporting using forward thinking technology.

ARBOR CORPORATION and CbC REPORTING

The original case was developed for a graduate course related to tax and accounting reporting for a multiunit enterprise. Given the ecumenical focus of the course on tax and accounting across an extended organization chart, and the fact that almost all of the graduate students take this course (required in the tax track; elective in the financial accounting track), we pilot-tested this case to reach as many students as possible using context that was relevant over multi-disciplines. The framework used included a section on 1) background on CbC reporting, 2) access and basics of Tableau®, 3) case requirements, and 4) analytical mindset questions.

Abstract for multiunit enterprises graduate course. In this case, you will analyze the tax expense and effective tax rate of a (hypothetical) multinational enterprise (MNE) that operates subsidiaries in different taxing jurisdictions. Using data visualization software, you will examine whether the company engages in base erosion and profit shifting.

Learning objectives: After completing this project, you will be able to:

1. Calculate effective tax rates per employee across tax jurisdictions.
2. Compare company total tax expense by shifting subsidiary profits and employees across tax jurisdictions.
3. Analyze the impact of shifting profits to tax havens.
4. Display the impact of different scenarios/choices the company has.

5. Communicate with an audience the effect of difference business and tax strategies.

6. Explain when tax avoidance becomes tax evasion.

7. Analyze “what if” scenarios with “big data.”
Memo

To: Team Members / Arbor Corporation Engagement
From: Annie Magnolia / Senior Manager / RPA Associates LLP
Date: ______________
Subject: New Engagement

As you are aware, we recently were engaged by Arbor Corporation, a non-audit client, to examine the company’s organizational structure prior to filing of their Country-by-Country Report (Form 8975 and Form 8975, Schedule A) with the 2017 tax return. Management wants us to do a tax risk assessment on their operations based on the metrics they are required to report on the CbC Report.

Management wants an analysis of the following metrics:

- After-tax profit per employee
- After-tax profit per tangible asset
- Cash tax rate compared to the country’s marginal tax rate
- Percentage of revenue in each country that is earned from “related parties” and whether the highest related party income is earned in low or high tax countries.

As you are members of Generation Data, I believe that using a data visualization presentation to management will be an effective way to convey our findings. I would like your team to create a slide deck that visually highlights where the company may face tax risk exposure on the above dimensions and in which countries. Please keep your presentation to no more than 10 slides, with bullet point observations following each visual (you decide whether a bar graph, bubble chart, heat map, dashboard, or other visual is most effective).

The client-provided Excel spreadsheet (Appendix B), background reading materials (Appendix C), instructions on how to download Tableau® (Appendix D), and step-by-step instructions on how to create the client-requested metrics (presented next) are available in our online-shared space.

I am excited to see what you create, as I am sure our client is as well. Please have your presentation to me by noon, ______________.

Good Luck and May the Force be with You!!!
The Instructions:

1. **Overview.** Retrieve all your materials from the CbC folder in our online-shared space and submit your reports to the Drop Box. This assignment is worth 20 points. You may work *individually or in groups up to four*. You will be graded on the effectiveness of your PowerPoint slide deck and your originality.

2. **Due date.** Friday, __________ at noon. Submit two files to the Drop Boxes: 1) Tableau® file .twbx and 2) PowerPoint slide deck with your presentation to the internal team. The presentation needs to stand on its own.

3. **Pre-test.** Before you begin, please take the 10-question pre-test located online in our shared space.

4. **Context/Background.**
   A. Read the background papers in the CbC folder to understand the business context of the country-by-country reporting “action item” issued by the OECD.
   
   B. Read the memo to the team concerning our new engagement with Arbor Corporation and the Instructions to accompany your assignment.

5. **Case Requirements.**
   A. **Scope.** You are analyzing a large US multinational enterprise (MNE) that has 116 constituent entities doing business in 26 countries including the United States.

   You will import the Excel data file provided into Tableau® and then create new variables from existing ones and produce heat maps, dashboards, and other graphical representations to help you analyze the data and answer the analytical questions below. Save your work in a Tableau® file .twbx.

   B. **Analytical mindset discussion questions.** Assume the role of an engagement team member in a public accounting firm advising your client (Arbor Corporation) with analyzing any vulnerability its CbC report might expose. Help the client understand which countries *require further risk assessment* because they are most likely to be asked about because of incongruities (or discontinuities) in the measures shown below.

   1) Where are the incongruities between *profits and employees across countries*?

   2) Where are the incongruities relative to countries’ *statutory tax rates and cash tax rates*?

   3) Where are the incongruities in *profits to tangible assets across countries*?
4) Has this MNE put employees (i.e., “substance”) in countries with high profits (i.e., do a profit per employee analysis)?

5) Are the constituent entities with the highest percent of related party revenues to total revenues situated in high or low tax jurisdictions?

6. **Specific Instructions.** For using Tableau® in this CbC reporting case.
   
   A. Open the Excel file in Tableau®.
   
   - Download the Excel data file “CbC Data 2017” from D2L and save to your computer/drive.
   - Open Tableau®, choose Excel file (on left), search for the “CbC Data 2017”.
   - Make sure you are in “Data Source” (bottom left corner) Drag “Form 8975 Sch A” file into the Tableau® center white area.
   - Note that the column headings now range from F2 – F30. Check the box on left to turn on the “Data Interpreter” and column headings will appear. Columns with “Abc” are alphabetic columns (Dimensions); columns with “#” are numeric columns (Measures).

   B. Calculate a new variable.
   
   - Click on Worksheet 1
   - In the Dimensions area, use the drop-down arrow to the right and click on “Create Calculated Field”
   - Rename “calculation 1” “Profit per Employee”
   - Drag the variable Profit Before Taxes to the white area
   - Insert “/” (divide by) next to that variable
   - Drag “Number of Employees” to that line after the /
   - Hit OK and “Profit per Employee” will appear in Measures

   C. Analyze the new variable across “country of tax residence” (column D)
   
   - Drag “Profit per Employee” to “rows” at top center.
   - Drag “Jurisdiction” from the top left to “columns”.
   - Make sure the variable being analyzed is the weighted average of “Profit per Employee” by country, not the sum or the averages of each MNE in a country. Your formula should look like SUM (profit before taxes) / SUM (number of employees).
   - Look at the data using a visualization chart in the “Show Me” area in the top right. Choose “horizontal bars”, “packed bubbles”, or any other chart that effectively shows information.
   - You might want to explore the “Analytics” option in the upper left-hand corner for additional analysis.
   - Save the file to your flash drive (should have a .twb name). Give it a name with your team members.
D. Calculate other new variables. Repeat Step 6B and 6C for these variables:
   - Profit per tangible asset
   - Percent that related party revenue is of total revenue
   - Difference between statutory tax rates and cash tax rates (i.e., income taxes paid in cash/profit before taxes)

E. **Dashboards (optional):**
   - At the top left of the screen, click on “Dashboard” then “New Dashboard” to open up the dashboard screen.
   - At the left-hand side of the screen, your worksheets will be listed in the “Dashboard” section.
   - Click on the “X” worksheet and then drag it to the left-hand side of the Dashboard area.
   - Click on the “XX” worksheet next and then drag it to the bottom of the Dashboard area.
   - Click on the “XXX” worksheet and drag it to the right-hand side of the Dashboard.
   - Link the worksheets together as follows:
     - Click on the “dashboard” tab at the top of the screen and select “Actions…”
     - Select “Add action”
     - Select “Filter”
     - Name Filter – you can call it *Country Filter*
     - In the Source Sheets section, make sure “X” is the only sheet selected. Switch the “Run action on” from Hover to “Select.”
     - In the Target Sheets section, make sure “X” by Sub-Category and “XX” are selected.
     - Click OK.
     - Now you can click on the countries individually and filter the other graph and bar chart to show only the region you selected.
     - Consider how this dashboard might be useful in the strategic planning phase for a company’s management.

*ENJOY!!!!!!!*
IMPLEMENTATION GUIDANCE FOR FACULTY

An example of a student team’s submission is presented in Appendix E.

Level of Difficulty

The difficulty will depend, of course, on the class level of the course and the learning objectives of that course. The authors used the case during the 2016-2018 academic years and continue to use it in these courses:

- *Accounting for Multiunit Enterprises* (graduate). Focus is on financial reporting.
- *International Taxation* (graduate). Focus is on taxation.
- *Accounting Analytics* (graduate). Focus is on information systems.
- *Principles of Management Accounting* (undergraduate). Focus is on managerial accounting.

Students with a working knowledge of Excel and an intellectual curiosity will find the specific instructions sufficient to be able to use Excel with Tableau®.

Implementation Approaches

Students should be given at least four weeks to work on the case so there is ample time to master the mechanics of Excel and Tableau® and an equal amount of time to thoughtfully consider the analytical mindset questions. They should be encouraged to rerun the analyses as they ask “what if” questions and drill down on the data.

Restricting students to using the most current version available of Tableau® will make retrieving and grading the cases much easier. Many students use the version available on the university’s computer lab, which often is several versions behind. When an earlier version is submitted, Tableau® does not convert the data to the most recent version, which might require
the faculty member to reconfigure the data file to conform to the higher version. Students can access the most recent version directly from Tableau® for a free one-year trial.

**Efficacy**

When introducing a new type of project into a course or curriculum, it is difficult to measure the effect of the project on student learning as there are many moving parts. A direct measure used in the graduate course *Accounting for Multiunit Enterprises* was a pre and post-project survey. The survey was designed to measure students’ perception of their level of understanding about five international tax topics and five technology topics. That instrument is presented in Figure 2.

- - - INSERT FIGURE 2 ABOUT HERE - - -

The first five questions related to students’ understanding of tax issues not covered in a traditional undergraduate accounting program—accounting for income taxes, international corporate taxation, transfer pricing, the OECD’s BEPS project, and inversion. The second five questions relate to technology, most of which are introduced in one of the courses required of all business majors—data visualization software, Tableau®, dashboards, data analytics, heat maps.

The results in Table 1 show that the graduate students in the multi-unit enterprises course, on average, rated themselves as having a higher level of understanding at the beginning of the project than they did after the project was completed.

- - - INSERT TABLE 1 ABOUT HERE (Data to be added)- - -

While the desired outcome of teaching is to add to students’ understanding of topics through projects and instructional strategies, in this case, it is likely that students’ pre-project answers reflected that they recognized the terms, but as they wrestled with the project, they were humbled by what they didn’t know. Other design flaws include the timing of when each survey was
administered, inability to match responses, the measure of the construct, and incentives for completing the survey.

Student Reaction - Students were also given an opportunity to provide feedback about the project through these open-ended questions:

1. What suggestions do you have to make this a more effective project for students in future semesters?
2. What questions do you still have about using Tableau®?
3. What questions do you still have about CbC reporting?

SUMMARY

Collaboration among faculty across several courses has many benefits. Faculty learn and share what works best with each audience. Students see how the program integrates learning goals across courses and through different perspectives. Students who use software like Tableau® across different courses discover more of the power of the programs and spread that knowledge to faculty and other students.

Integrating topics like BEPS, CBC, transfer pricing, and technologies like MS-Excel and Tableau® across functional areas of accounting (tax, systems, managerial) and class levels (undergraduate and graduate) prepares students to be nimble, analytical thinkers who can adapt to changes an increasingly global business environment will bring. Experience with big data can improve students’ abilities to look for patterns, trends, and outliers and investigate what these means.

Developing active-learning projects with insight from professionals not only requires upfront costs of time, but ongoing maintenance costs to ensure projects continue to be relevant. For
example, this project can easily move from simulations with hypothetical companies’ data to examination of real-world companies’ CbC reports, if made publicly available.

Country-by-country reporting starts off as an exciting new opportunity for firms to monetize consulting engagements with clients to review strategic decisions related to cross-border business. In time as the low-hanging fruit has been harvested, firms will likely shift CbC reporting to its tax compliance areas. Accounting programs that develop students to be “transformational thinkers and doers” will teach them to follow the political and economic climate around transfer pricing, border taxes, out-sourcing, inversion, profit shifting, and related topics. It is not adequate to merely know how to comply with current regulations. Students who are intellectually curious analytical thinkers will ask “what if” questions to be prepared for accountability issues around the corner.
FIGURE 1

OECD's BEPS Country-by-Country (CbC) Reporting: Visualizing Transfer Pricing and Big Data

MOTIVATION: Call for developing students' analytic mindsets through firms' Webinars and engagement with employers. Also AACSB, Pathways Commission.

PROJECT DEVELOPMENT: Designed a real-world business context project based on two firms' CbC demo MS-Excel files, each for a multinational enterprise with 50+ subsidiaries in 40+ countries.
- Faculty collaborated to use Tableau to help students visualize "what if" scenarios.
- Customized project for four courses - including student/professional presentations.

Accounting for Multiunit Enterprises (GR)
Focus: Financial Reporting

International Taxation (GR)
Focus: Tax

Accounting Analytics (GR)
Focus: Info Systems

Principles of Management Accounting (UG)
Focus: Managerial
FIGURE 2
Pre-/Post-Assessment Questions

On a scale of 1 to 7, choose the number that best represents your understanding of the following topics:

<table>
<thead>
<tr>
<th>High-level of understanding</th>
<th>Some understanding</th>
<th>No understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

*Tax knowledge:*
- Accounting for income taxes.
- International corporate taxation.
- Transfer pricing
- Organisation for Economic Co-operation and Development’s (OECD) 2016 Base Erosion and Profit Shifting (BEPS) project
- Inversion.

*Technology knowledge:*
- Data visualization software.
- Tableau®.
- Dashboards.
- Data analytics.
- Heat maps.
TABLE 1

RESULTS FROM PRE/POST CASE SURVEY

Course ______  Semester ________

1=high, 7=low

<table>
<thead>
<tr>
<th></th>
<th>Fall 2016 Pre-Case Average</th>
<th>Fall 2016 Post-Case Average</th>
<th>Fall 2017 Pre-Case Average</th>
<th>Fall 2017 Post-Case Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tax Knowledge:</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Accounting for income taxes</td>
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<tr>
<td>International corporate taxation</td>
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<tr>
<td>Transfer pricing</td>
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<td>OECD 2016 BEPS project</td>
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<tr>
<td>Inversion</td>
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<tr>
<td><strong>Technology Knowledge:</strong></td>
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<tr>
<td>Data visualization software</td>
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<td>Tableau</td>
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<td>Dashboards</td>
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<tr>
<td>Data analytics</td>
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<td>Heat maps</td>
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<tr>
<td><strong>Overall average</strong></td>
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<tr>
<td>Change between Pre/Post Case Results</td>
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Appendix A
CbC Reporting Templates

Annex III to Chapter V
A model template for the Country-by-Country Report

Table 1. Overview of allocation of income, taxes and business activities by tax jurisdiction

<table>
<thead>
<tr>
<th>Tax Jurisdiction</th>
<th>Name of the MNE group: Fiscal year concerned:</th>
<th>Unrelated Party</th>
<th>Related Party</th>
<th>Total</th>
<th>Profit (Loss) before Income Tax</th>
<th>Income Tax Paid (on cash basis)</th>
<th>Income Tax Assessed - Current Year</th>
<th>Stated capital</th>
<th>Accumulated earnings</th>
<th>Number of Employees</th>
<th>Tangible Assets other than Cash and Cash Equivalents</th>
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</tbody>
</table>

Table 2. List of all the Constituent Entities of the MNE group included in each aggregation per tax jurisdiction

<table>
<thead>
<tr>
<th>Tax Jurisdiction</th>
<th>Name of the MNE group: Fiscal year concerned:</th>
<th>Constituent Entities resident in the Tax Jurisdiction</th>
<th>Tax Jurisdiction of organisation or incorporation if different from Tax Jurisdiction of Residence</th>
<th>Main business activity(ies)</th>
</tr>
</thead>
<tbody>
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</table>

2 Please specify the nature of the activity of the Constituent Entity in the “Additional Information” section.
Appendix B

The Client-Provided Excel Spreadsheet

A partial view of the Excel worksheet “Form 8975 Sch A data” in the workbook “CbC Data 2017”..

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Part II line 1</td>
<td>Part II line 2</td>
<td>Unrelated Party Revenue</td>
<td>Related Party Revenue</td>
<td>Total Revenue</td>
<td>Profit (loss) before income tax</td>
</tr>
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<td>1</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>AU - 1</td>
<td>Eucalyptus 1</td>
<td>corporate</td>
<td>Australia</td>
<td>France</td>
<td>1,749,030</td>
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Partial screen shot of the Excel worksheet “Country Tax Rates” in the workbook “CbC Data 2017”
Appendix C

BACKGROUND PAPER: Visualizing Country-by-Country (CbC) Reporting

THE PROBLEM: BASE EROSION AND PROFIT SHIFTING (BEPS)

There is a growing political concern about multinational entities (MNE) that shift profits to other countries to avoid paying corporate income tax. They do this by shifting profits to “constituent entities” (e.g., subsidiaries) that are located in countries considered “tax havens”. Finding ways to avoid taxes within the current Internal Revenue Code is legal and effective tax planning, but companies that aggressively shift profits to low or no tax countries in which they have little economic activity or employment bear the political costs of close scrutiny by the press and policymakers.

Not only does the U.S. economy “lose” tax revenue when companies shift profits to foreign countries, but those profits often remain in the foreign countries rather than be repatriated back to strengthen the U.S. economy. Some domestic companies have even “inverted” and become subsidiaries of new companies founded in a low-tax rate country, such as Ireland or the Netherlands.

International corporate taxation. The U.S. federal income tax that a corporation is liable for is calculated as the tax base * the tax rate as described in the Internal Revenue Code resulting in “income tax expense” also called “provision for income taxes.” Companies make estimated tax payments throughout the year and at the end of the year the difference between income tax expense and taxes already paid is the remaining taxes payable or tax refund. The media often gets it wrong by reporting that a company ‘paid no taxes” when they refer to the residual taxes payable or tax refund (cash basis concept) rather than the provision for income taxes (accrual basis concept).

The tax calculation quickly becomes complex for MNEs doing business in other countries. In addition to permanent and temporary timing differences between book and tax that all corporations face, the MNE has tax credits for taxes paid to foreign countries. Foreign countries may also offer other inducements beyond low tax rates to attract MNEs to do business in their country.

Accounting for Income Taxes. A lot of information about the difference between accrual (FASB ASC 740) and tax basis accounting can be found in the Income Tax note in audited annual financial statements filed with the Securities and Exchange Commission (SEC) as a 10-K. This note reports on the effective tax rate (ETR) which is calculated as the actual rate paid after all incentives and allowances are taken into account.

THE FIX: OECD’s ACTION 13 CbC REPORTING

The Organisation for Economic Co-Operation and Development (OECD) launched a base erosion and profit shifting (BEPS) project in 2013 to rewrite international tax rules. The OECD felt that companies were making investments purely for tax reasons, rather than for economic reasons, leading to an inefficient allocation of resources, loss of revenue for certain countries, and a decrease in confidence in the fairness of the tax system.
The OECD’s mission is to “… promote policies and make recommendations that will improve the economic and social well-being of people around the world.” This organization works with businesses, labor, and governments to “… make life harder for the terrorists, tax dodgers, crooked businessmen and others whose actions undermine a fair and open society.” ([https://www.oecd.org/about](https://www.oecd.org/about)). The goal of the OECD’s BEPS project is to curb tax evasion and avoidance. While tax avoidance is legal and good tax planning, tax evasion is against the law. The OECD seeks to find the point at which aggressive tax planning turns into tax evasion.

Towards that goal, 44 countries (OECD members, OECD accession countries, and G20 countries) have built a consensus international tax framework. They felt an urgency to drastically increase information requirements by implementing Country by Country (CbC) reporting as soon as possible as cross-border investments increase in number. On October 5, 2015, the OECD released its final report on its BEPS Project comprised of 15 action items designed to reform international tax rules.

**Transfer pricing.** Several of the 15 Actions in the BEPS final report are on transfer pricing (#8-#9-#10). The OECD feels transfer pricing is a crucial aspect for tackling the BEPS problem (OECD, 2015, p. 5). Transfer pricing refers to cases where a vertically integrated company has a division that produces a component part of a product and another division that uses that part in production of the product. If there is a readily available market price for the component, then that number is used as the “sales price” by the selling division and as the “cost” by the buying division. If the component part is unique and no fair value price exists in the market, then the two division managers negotiate a price/cost that is agreeable to both. At a minimum, this amount should be the variable costs of the division producing the component. The importance of the transfer pricing issue is that it affects the net operating income of each division of the company which is then subject to domestic taxes and/or foreign taxes. Transfer pricing is a topic that crosses economics, law, tax, and business processes.

**Country-by-country reporting.** Action 13 of 15 in the BEPS final report provides guidance for country-by-country reporting that includes a template in which variables associated with BEPS are disclosed (Annex III, Chapter V, September 2014 Report). This template is designed to help MNEs report annually on selected variables for each constituent entity that make up the consolidated enterprise (for U.S. firms, now on Form 8975 and its Schedule A of the Form 112). See Appendix A for the OECD’s Tables 1 and 2.

**Tax regimes.** Of the 191 undisputed countries in the world some have low or no federal taxes. Countries such as the Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Ireland, Netherlands, and Switzerland are called “tax havens” because they have more favorable tax treatment of corporate profits than other countries (from 0% - 20% effective tax rates). Other countries, such as Brazil, France, India, Pakistan, and the United States, are considered to have high tax rates compared to other countries (31%-40% effective tax rates). KPMG makes an annual Global Tax Rate Survey available at [http://kpmg.com/taxrates](http://kpmg.com/taxrates). Then search for online “corporate tax rates tables”. They report that the global average tax rate was 23.68% for 2015.

**Compliance reporting.** MNE Groups are required to file CbC reports for reporting periods beginning on or after 1/1/16. Reports are due no later than 12 months after the last day of the reporting fiscal year of the MNE Group. For example, a U.S. MNE with a calendar year ending
12/31/16 must file the CbC report (Form 8975 and Form 8975, Schedule A) with the 2017 tax return (due October 15, 2018).

The OECD has a Multilateral Competent Authority Agreement for the exchange of CbC reports and standardized electronic submission. As with other business tax forms these are not publicly available, although it remains to be seen whether companies will self-disclose to the public.

**THE TOOL: VISUALIZATION SOFTWARE**

Companies with international operations and their public accountants find that data visualization tools like Tableau® and MS-Excel’s add-on Power BI add-on help them examine “what if” international tax scenarios of doing business in different countries through heat maps and dashboards. The “big data” an MNE accumulates can be analyzed using data analytics to find patterns and relationships that can improve investment decision-making.

Public accounting firms invested in their own visualization programs to help clients more easily gather data from constituent entities and roll that up into aggregated reports that can be used to drill down by variables of interest. Other software vendors, such as SAS, Google, and IBM offer data visualization software and open source JavaScript software is available. These products can be desktop, online, or Cloud-based. Output can be typical histograms or pie charts, or more dynamic pictures that capture multi-dimensions and relative size of variables, such as heat maps. Variables can be filtered and easily distinguished by colors or shapes to show “what happens if” different assumptions are made or strategies followed.

The value of data visualization software in the context of BEPS is that the impact of moving profits from one country to another whose tax regime is different is readily apparent. The correlation of number of employees working in a country and the profit recognized in the country can be easily seen. Hypothetical “what if” scenarios can be examined and plotted against actual data from companies that have made similar moves.

Tableau® software works in this way: 1) data about each constitute entity of a MNE are captured as rows in an Excel spreadsheet with clear column labels for each variable, 2) that data file is imported into Tableau®, 3) new variables can be calculated from others, 4) certain variables are selected for analysis, 5) data presentation tools are selected (e.g., graphs, bar charts…), and then 5) color and size are added to distinguish variables. Dashboards can then be created and linked.

**Conclusion.** 2016 was the first year in which MNEs and their public accounting firms gathered data for CbC reports. 2017 is the first year in which these reports are filed with each country in which the MNE does business, although many countries are deferring the due dates of such reporting until they have appropriate systems in place. The variables “profit by employee” or “revenues by employee” are likely to be key indicators that are tracked across countries. Providing CbC reporting guidance is a service many public accounting firms may offer to their client for the next few years, but what remains to be seen is whether CbC reporting shifts into the tax compliance side of public accounting or provides the basis for additional business planning consulting.
Appendix D

Instructions for using Tableau

Access and Learn Tableau® Basics. Use one of the following ways to gain access to Tableau®.

1. Follow these instructions from Tableau.
   - Download the latest version of Tableau Desktop here
   - Click on the link above and select Get Started. On the form, enter your school email address for Business E-mail and enter the name of your school for Organization.
   - Activate with your product key: ____________ (instructor provided)
   - Already have a copy of Tableau Desktop installed? Update your license in the application: Help menu -> Manage Product Keys

2. You can also access Tableau Desktop on one of these university’s computer labs: Note:
   Files created the most current version may not be accessible on lower versions of Tableau®.
   Helpful resources from Tableau:
   - Data Analytics for University Students guide
   - Students can continue using Tableau after the class is over by individually requesting their own one-year license through the Tableau for Students program here
   - Need help? Find answers to frequently asked questions here.

An alternative to Tableau® is Microsoft’s Excel’s Power BI. Technology writers’ rankings of data visualization software include upwards to 100 different products. Other software suppliers include SAS, Google, IBM, and open source JavaScript. Some public accounting firms have developed their own proprietary software to serve their consulting clients.

8 Tableau Software, Inc. is a company formed in 2003 that went public in 2013 (Ticker symbol DATA).
Appendix E

Sample of a Student Team Submission

MNE Country-by-Country and Transfer Pricing Findings

Student A, Tax Manager
Student B, Tax Manager

Overview

- Incongruities between profits and employees across countries
- Incongruities relative to countries’ statutory tax rates and effective tax rates
- Incongruities in profits to tangible assets across countries
- Employees and/or tangible assets in countries with low vs. high tax rates
- Related party sales in countries with low vs. high tax rates

Incongruities Between Profits and Employees Across Countries

- The United Kingdom (GB), Spain (ES), Ireland (IE) and the United States (US) have the highest amount of profit before income tax.
- The United Kingdom (GB), Ireland (IE), Germany (DE) and Spain (ES) have the largest number of employees.
- Profit per employee (PPE) values ranged from -$43.1 to $245.4.
  - High PPE results
    - Australia (AU) → $245.4
    - Switzerland (CH) → $56.1
    - Hong Kong (HK) → $217.4
    - Mexico (MX) → $51.7
  - Low PPE results
    - The Netherlands (NL) → $3.2
    - Germany (DE) → $2.5
    - Portugal (PT) → $3.4
    - Italy (IT) → -$43.1
Profit Per Employee by Country Visual

Recommendations
- Further analysis of employees per store
  - Are stores over staffed?
  - Ex: The Netherlands and Mexico
- Further analysis of overall profit loss in Italy
  - What are contributing factors?
  - Where can costs be cut?

Incongruities Relative to Countries’ Statutory Tax Rates and Effective Tax Rates
- Higher and lower rates
  - Ex: Germany’s (DE) effective tax rate is about 17% larger than its statutory tax rate (30%)
  - Ex: Australia’s (AU) effective tax rate is 6% smaller than its statutory tax rate (35%)
Incongruities in Profits to Tangible Assets Across Countries

- Australia (AU) and Switzerland (CH) are high in regards to profits to tangible assets.
- Italy (IT) is in the negatives.
- Hong Kong (HK) profits to tangible assets is one of the lowest.
- Many countries produce profit amounts between .10 - .20.

Employees and/or Tangible Assets in Countries with Low vs. High Tax Rates

- Tax rate across all jurisdictions (statutory) ranged from 35% to 13%.
- High # of Employees
  - United Kingdom (GB) - 20%
  - Ireland (IE) - 13%
  - Germany (DE) - 30%
  - Spain (ES) - 25%
- High # of Tangible Assets
  - United Kingdom (GB) - 20%
  - Spain (ES) - 25%
  - Germany (DE) - 30%
  - Ireland (IE) - 13%
  - United States (US) - 35%
Country Tax Rates Comparison (Effective Tax Rates)

- Global average tax rate was 23.68% for 2015.¹

- Countries such as the Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Ireland, Netherlands, and Switzerland are considered to have low tax rates compared to other countries (from 0% - 20% effective tax rates).
  - “Tax havens”
  - More favorable tax treatment of corporate profits than other countries

- Countries such as Brazil, France, India, Pakistan, and the United States, are considered to have high tax rates compared to other countries (31% - 40% effective tax rates). [http://kpmg.com/taxrates](http://kpmg.com/taxrates)

Related Party Sales in Countries with Low vs. High Tax Rates

- The entities with the highest percent of related party revenues to total revenues are PL (91.18%), IE (63.17%), CA (53.46%) and IT (26.07%).

- Tax Rates
  - Poland (PL) - 19%
  - Ireland (IE) - 13%
  - Canada (CA) - 27%
  - Italy (IT) - 31%

- Tax rate across all jurisdictions (statutory) ranged from 13% to 35%.
- Poland (PL) and Ireland (IE) are in lower tax jurisdictions.
- Italy (IT) is in a higher tax jurisdiction.