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Country-by-country Reporting:  
An Exploration of the Data Potential for Tax Authorities

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# Country-by-country Reporting

an exploration of the data potential for tax authorities\*

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**Abstract** This paper has four purposes. First it summarises, briefly, the data available from two types of country-by-country reporting ('CBCR') reporting now in use. Second, it suggests the uses that might be made of that information to provide information of use to tax authorities when undertaking risk assessments on the entities they are charged with taxing. Third, it suggests ways in which the CBCR data may be compared with third party information to improve the quality of these risk assessments. Finally, it suggests a number of ways in which the tax lost to base erosion and profits shifting might be estimated.

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## 1 Background

Country-by-country reporting is an accounting concept first created in 2003<sup>1</sup>. In essence it is simple. What CBCR does is hold multinational corporations ('MNCs') to account in all the locations in which they have operations. It does this in a number of ways.

Firstly, CBCR requires an MNC to state all the countries in which it has taxable operations. For all practical purposes if the MNC is in a jurisdiction CBCR requires that it says so.

Then CBCR requires that the MNC disclose the names of all its subsidiaries that operate in each jurisdiction. The logic is straightforward: if a company is not identifiable by the community in which it is working it cannot be held accountable by it.

Thirdly, CBCR requires that the MNCs to which it applies must disclose key financial data for each jurisdiction where they work, without exception. Note that there is no de minimis below which disclosure is not needed: for CBCR purposes zero (tax payable, for example) is as interesting as very large numbers. As a result materiality limits cannot be applied to jurisdictions in CBCR.

The data that must be disclosed is not a full set of accounts as is clear from the data disclosure requirements noted in section 3 below. The data to be disclosed was, however, chosen for good reason. The intention was always to provide the stakeholders of MNCs (whether they be investors, management, suppliers, customers, lenders, employees, regulators, tax authorities

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\*Richard Murphy's work on country-by-country reporting is undertaken as part of COFFERS (Combating Fiscal Fraud and Empowering Regulators), a EU Horizon 2020 project.

<sup>1</sup>Murphy, R. (2003). A Proposed International Accounting Standard: Reporting Turnover and Tax by Location. Essex: Association for Accountancy and Business Affairs. Available at: <http://visar.csustan.edu/aaba/ProposedAcstd.pdf>.



or the communities that host the activities of the corporation) with sufficient information to ensure that they might have opportunity to hold those companies to account for what they do. In saying this it is stressed that tax was by no means the only concern in suggesting what should be disclosed: issues relating to governance, geopolitical and economic risk, corporate social responsibility and exposure to potential corruption were all as significant when demanding initial geographic data. The accounting data was also clearly designed to meet a variety of other needs as well. Employment data, for example, also assists trade unions and those interested in employment related issues whilst also permitting a range of productivity related ratios to be calculated. Combining profit and capital ratios also indicates to investors how effective management might be at allocating the capital entrusted to their care. The significance of country-by-country reporting for these interest groups should not be ignored.

This paper does, however, focus on a particular use for which CBCR has been adopted, which is the appraisal of the risk that base erosion and profits shifting is taking place within specific MNCs. This was one of the purposes for which CBCR was designed and is the reason why it was adopted by the Organisation for Economic Cooperation and Development's ('OECD') Base Erosion and Profits Shifting ('BEPS') process, recommended for use in September 2015 and rapidly adopted by many countries since then.

This paper suggests the ratios that tax authorities might wish to prepare based on CBCR data to guide their tax risk assessments. By also referring to the calculations that can also be undertaken on the basis of the European Union's CRD IV data for banks and other financial services entities it also suggests those calculations that can now be undertaken using that data to monitor the potential tax shifting activities of those corporations.

## 2 Current and likely to be available country-by-country reporting data

There are high expectations for CBCR. These are slightly constrained by the fact that the only existing publicly available CBCR information that qualifies as accounting data rather than disclosure information is that from the European Union's Capital Requirements Directive IV, Article 89 (CRD IV).<sup>2</sup> CRD IV provides disclosure from the banks and other EU based financial services entities covered by it on:

- The name of the reporting entity;
- The locations in which that reporting entity has trading activity;
- Names of subsidiaries by location (although this information is frequently omitted);
- The nature of the activities undertaken in the locations in which the reporting entity trades (although, again, this information appears to be omitted from disclosure on many occasions);

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<sup>2</sup>Accounting data provides data that is: 1. Relevant; 2. Reliable; 3. Complete (in the sense that it covers the whole population); 4. Comprehensive (meaning that it has all required variables available for all members of the population); 5. Consistent; 6. Comparable information.

To achieve these goals accounting data must include relevant denominators that permit the appropriateness of the disclosure made to be appraised. This is what differentiates accounting data from disclosure data, where these denominators are excluded from publication. So, for example, for a figure for tax paid to be meaningful accounting data requires that a figure for profit before tax be available (if that is the base on which the tax charge is levied) so that the appropriateness of the payment made can be appraised against an established benchmark, whether that be a headline rate of tax or the rate paid by another company.

## COUNTRY-BY-COUNTRY REPORTING

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- The turnover of the reporting entity in each location where it undertakes trade;
- The profit or loss of the entity before tax in that jurisdiction;
- The tax paid by the reporting entity in that jurisdiction (with what ‘paid’ means being subject to differing interpretation by individual EU member states);
- The number of full time equivalent employees engaged by the reporting entity in that jurisdiction;
- Any subsidies received from the government by the reporting entity in that jurisdiction.

It will be immediately apparent that, important though this information is it omits some of the important data that full CBCR would require. It also only applies to banks and certain other companies (often insurance related) in the financial services sector. In particular it does not provide information on intra-group sales from a location and capital investment in a jurisdiction. It also fails to differentiate adequately between tax due on an accruals basis for a period and tax paid in cash terms during that period.

The OECD CBCR template makes good many of these deficits, the problem being that it is not planned that this information be made available publicly at the time of writing. This template provides the following additional data:

- Name of countries where the MNC has an operation;
- Nature of activities undertaken by jurisdiction;
- Names of companies;
- Third party sales;
- Intra-group sales;
- And so total turnover by the simple process of addition of the previous two categories;
- Number of full time equivalent employees;
- Profit or loss before tax;
- Tax accrued for the period;
- Taxes due on profits paid during the period;
- Capital split between:
  - Share capital;
  - Accumulated retained earnings;
- Net value of tangible assets excluding cash.

Encouragingly, the OECD has indicated that anonymised data based on the template disclosures of multinational corporations required to supply this data to their domestic tax authorities may be made available to researchers in due course. In addition proposals for public CBCR have been tabled by the European Commission (EC) and have been subject to review by the European Parliament (EP). These proposals would, if adopted as the EP is suggesting, at least replicate the OECD template data. As such it is assumed that this data will be available for analysis at some time in the near future in the commentary on data analysis that follows.

### 3 Data analysis

Available data permits creation of a wide range of accounting and other ratios for each reporting entity both for a period and over time:

#### 3.1 Entity ratios based on OECD data (and other sources if not supplied under CRD IV)

There is a surprising amount that can be done with this rather basic data that might be of some importance:

- Number of operating entities per jurisdiction;
- Trends in this data over time e.g.
  - Number of entities added or removed each year;
  - Changing ratios of location e.g. more or less in identifiable tax haven locations using whatever list is preferred for this purpose.

This data might by itself reveal:

- Tax haven risk;
- Possible governance risk;
- Data on complexity (a simple index of number of companies to turnover might provide valuable inter-company comparison on this issue whilst within a group the same data might indicate locations where the number of entities was out of proportion to the level of activity apparently undertaken suggesting other reasons for creating entities in a jurisdiction);
- Ratios on the number of employees per entity in a jurisdiction might also be powerful indicators of risk: it is commonplace that tax motivated structures engage few staff.

It would also make sense to reconcile this CBCR data with other publicly available data sources to seek to understand the structure of the MNC. For example, group subsidiary data required to be reported in the financial statements of some German MNCs, similar data required to be filed in the UK under Section 409, Companies Act 2006, data filing requirements on subsidiary entities required by the US SEC, and similar such data could be compared with the CBCR reports. Explanations of differences in reporting might highlight:

- Errors;
- Changes in group structures;
- The differences in reporting resulting from different definitions of control for legal and accounting purposes;
- Entities excluded from the accounting consolidation for which explanation can be sought;
- The possible existence of joint ventures, SPVs and hybrid entities that are of tax significance but which are not reflected in CBCR data.

A considerably enhanced understanding of the group, its structure and the resulting risks that it creates for tax and other purposes should be created as a result of this work. It is also possible that little or not risk will be exposed: that is at least as valuable in terms of risk appraisal.

### 3.2 Turnover ratios based on CRD IV data

The following ratios based on CRD IV turnover data are likely to be of use:

- Turnover for the jurisdiction as a proportion of total turnover;
- Proportion of total turnover attributed to jurisdictions;
- Proportion of total turnover not specifically allocated to jurisdictions;
- Value of turnover subject to reconciling adjustments, which might indicate the value of intra-group transactions (Note: not all groups will report this)
- The change in these ratios over time
- Maximum / minimum ratios of each of these, where appropriate.

This data might indicate:

- The significance of jurisdictions;
- The potential level of intra-group trading (which is not disclosed under CRD IV requirements);
- The potential scale of accounting adjustments within groups, which might be indication of profit shifting.

If this data was combined with other economic information that is relatively straightforward to secure, such as GDP and population, other key variables might be prepared or which the most likely to be useful is:

- Turnover per head of population. This might be best stated when adjusted for purchasing power parity for comparison purposes.

The aim is to indicate disproportionate activity in a jurisdiction suggesting that transactions might be arising for non-commercial purposes.

It is also possible that a ratio of turnover to GDP (with necessary adjustment to the reported scale, which is likely to be in fractions of a per cent in most cases) might indicate the economic significance of a jurisdiction to a group. If profit or capital employed appeared disproportionate to that apparent economic significance is then engaged in the jurisdiction it might be appropriate to ask why apparently irrational allocation of resources is taking place. This may be because of, for example, planned market growth but in that case greater understanding of the MNC will have been secured.

### 3.3 Turnover ratios based on OECD data

The OECD CBCR template data considerably extends the range of ratios with regard to turnover that might be prepared. The additional ratios might include:

- Proportion of sales within a group that relate to internal transactions:

- For the group as a whole;
- By jurisdiction within the group.

These ratios might be significant because whilst a high proportion of internal sales within a group need not necessarily indicate the existence of tax risk, but it will indicate risk to be investigated before that conclusion can be reached. Likewise, a high proportion of internal sales in a particular jurisdiction is not necessarily an indication of a tax problem but if the jurisdictions where this phenomena is identified are generally lower tax jurisdictions then clearly it might be.

The following ratios could also be calculated:

- Average turnover per entity by jurisdiction:
  - Internal;
  - External;
  - Total.

Discretion may be required in the interpretation of this ratio. In some jurisdictions both high and low ratios may indicate the presence of special purpose vehicles that may have a tax motive and so might require investigation. The ratios may also need to be interpreted in the light of changing reports on the number of subsidiaries reporting in the jurisdiction: if there is a significant change in the number of these reported over time (and especially if they appear to have a limited life or a reconciliation is required with the alternative data sources noted in para 4(a) above) then the suggestion that a significant number of SPVs that may have a primary tax function are in existence in the jurisdiction might prima facie appear to exist and will require investigation.

### 3.4 Profit ratios based on CRD IV data

The ratios that should be considered based upon this data are:

- Profit as a proportion of turnover by jurisdiction;
- Profit for the jurisdiction as a proportion of total profit;
- Proportion of total profit attributed to jurisdictions (when data on unattributed profit adjustments is disclosed);
- Proportion of total profit not specifically allocated to jurisdictions (the balancing ratio the previous one);
- Value of profit subject to reconciling adjustments, which might indicate the value of profit shifting in the group (Note: not all groups will report this);
- The change in these ratios over time;
- Maximum / minimum ratios of each of these, where appropriate.

The purpose of estimating these ratios is to indicate:

- Unusual patterns of profit allocation: economic logic suggests that a company should invest in activity in each jurisdiction until its marginal cost of capital is reached. Since the marginal cost of capital is calculated for a group as a whole (subject to any risk weighting justified by the chance that profit arising in a jurisdiction may not be distributable) the rate of return earned in jurisdictions should tend towards that for the group as a whole (subject to weighting for justifiable variation in capital invested, if appropriate, and as noted below). Prima facie, significantly differing profit ratios, especially if sustained over time, suggest unusual economic performance worthy of investigation;
- If the profits attributed to jurisdictions in CBCR reports are significantly different from the overall group profit it suggests that there are a large number of consolidation adjustments arising when preparing overall group accounts. It is only group accounts that are accepted by accountants and most economists as providing a real indication of the true and fair results of an MNC; the activities of each subsidiary are not objective in themselves (hence the requirement for arms' length transfer pricing adjustments). The overall level of adjustment required to restate the accounts of those individual entities to ensure an overall true and fair view is given reflecting the real economic substance of transactions undertaken is, in that case, a measure of transactions a) undertaken without third party financial motive, which could include perfectly reasonable cross border trade and b) those transactions that may be undertaken with a profit shifting motive. The ratio will not differentiate the two by itself: that can only be decided upon in the light of other evidence.

### 3.5 Profit ratios based on OECD data

The ratios that might be added if this data is available are:

- Average profit per entity by jurisdiction;
- An indicator to suggest the relationship between profit by jurisdiction and the proportion of its activity generated by internal sales;
- Rate of return on capital employed by jurisdiction;
- Rate of return on tangible assets employed by jurisdiction.

The first of these ratios is only indicative: it may misrepresent the profits of any one company in the jurisdiction. Its purpose is to suggest whether there appears to be an over-population of legal entities in the jurisdiction which might suggest that entities are being created for non-commercial purposes.

The third and fourth ratios are variations on a theme. As noted in the previous section, the rate of return that an MNC would be expected to tend towards its overall cost of capital across jurisdictions given that in the vast majority of such company's capital is raised centrally. If this rate of return varies substantially, and especially if high rates of return are associated with high returns on turnover, high rates of internal sales and location in a low tax jurisdiction, very strong indications of concern exist based on these ratios alone.

The second ratio is deliberately stated to be an indicator. This should suggest the relationship between high rates of profitability and high rates of internal sales. It is a ranking and not a ratio.



### 3.6 Employee ratios based on CRD IV Data

CRD IV employee disclosure permits the calculation of the following ratios:

- Turnover per employee by jurisdiction;
- Profit per employee by jurisdiction;
- Maximum / minimum ratios of each of these, where appropriate.

Available evidence<sup>3</sup> suggests that employee ratios are a particularly powerful way of indicating profit shifting because a) few employees are engaged in most tax haven locations and b) they have a habit of appearing to be disproportionately productive. These ratios may be simple to estimate, but are powerful indicators of risk.

### 3.7 Employees based on OECD Data

If the additional information supplied by the OECD template is available the following ratios can be calculated:

- Employees per entity by jurisdiction;
- Break down of turnover per employee:
  - Internal, and
  - External;
- Capital per employee;
- Net tangible assets per employee;
- Productivity - ratio of turnover per employee divided by net tangible assets per employee.

The first three ratios explore in greater depth the ratios that CRD IV permits. The focus is similar: the intention is to identify those places where there appear to be insufficient personnel to economically justify the transactions recorded in the jurisdiction.

The last three ratios are particularly important with the last being the most significant. Productivity per employee need not, of course, be the same in all jurisdictions (and the absence of data on payroll costs per jurisdiction and so average wages is sorely noted at this point as it would have added enormously to the economic understanding of country-by-country reporting to the benefit of society as a whole) but variances that cannot themselves in turn be explained by internationally recognized variances in wage rates might well indicate profit shifting and could require further investigation.

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<sup>3</sup>For example, at <http://www.taxresearch.org.uk/Blog/2014/06/30/barclays-the-bank-that-just-loves-luxembourg-and-jersey/>

### 3.8 Tax based on CRD IV data

There are weaknesses in the CRD IV tax data because the requirements of the EU Directive have been inconsistently transcribed into individual member state legislation but the following ratios can still be of use:

- Tax as a proportion of profit by jurisdiction;
- The change in this ratios over time;
- Maximum / minimum ratios, where appropriate.

The aim is to explore average tax rates.

The simple addition of data on local declared headline rates of tax (see below) adds considerably to any such analysis by permitting:

- The preparation of a variance between headline and effective rates of tax by jurisdiction;
- A ranking of this variance;
- An estimated tax gap per jurisdiction, being the variance stated as a percentage multiplied by the local headline rate of tax;
- An overall estimated tax gap for the multinational corporation, which is the aggregate of the data by jurisdiction.

The objective in preparing these ratios is to indicate overall levels of risk. It may be that if the overall level of risk is low it is not worthwhile pursuing estimates of tax risk that might be suggested to exist based on other ratios noted in this chapter.

### 3.9 Tax based on OECD data

The tax data to be supplied in the OECD template is more precisely specified than under CRD IV, with tax accrued and paid in a period to be separately stated. The following ratios should, then, be capable of assessment:

- Tax accrued as a proportion of profit for the period;
- Tax paid as a proportion of profit for the period;
- Tax accrued as a proportion of profit over the time period for which data is available;
- Tax paid as a proportion of profit over the time period for which data is available;
- Tax paid as a proportion of tax accrued over the period for which data is available.

This data will provide powerful indicators of tax risk. In particular, tax accrued and tax paid should tend towards each other over time. If they do not then it is very likely that considerable tax provisions are being made that are not being settled. This can be indication of:

- Tax provisioning for potential settlements arising in the event that tax avoidance is discovered;
- Anticipated or actual ongoing tax disputes where settlement has not yet been made on account of potential liabilities, providing a clear indication of the company's assessment of risk (provision indicates risk awareness; not settling on account indicates belief in a reasonable likelihood of settling favourably);
- Accounting error on a persistent basis at the time that audited financial statements are prepared.

If trends do not reflect prevailing trends in the corporation tax rate of the jurisdiction then further investigation is required to discover why trends are not as expected. Other data may indicate reason: for example, considerable investment in tangible assets may indicate significant capital allowances are available to the company. This may also indicate that a reversal in the trend should be anticipated. The declared deferred tax position of the multinational corporation as shown in its financial statements may help interpretation on this issue but may be insufficiently detailed to permit this at the level of the individual jurisdiction.

### 3.10 Profit shifting ratios using CRD IV

One of the purposes of country-by-country reporting (but by no means its sole one<sup>4</sup>) is the estimation of profit shifting in multinational corporations. This was always the case from the time it was first suggested in 2003. To estimate the scale of profit shifting the following ratios can be calculated using CRD IV data:

- Calculate:
  - The amount of profit that would be allocated to the jurisdiction if allocated in proportion to the jurisdiction's share of total MNC third party turnover;
  - The amount of profit that would be allocated to the jurisdiction if allocated in proportion to the jurisdiction's share of total MNC employees;
- Average these two calculations to provide an apportioned figure for profit likely to have been earned in the jurisdiction;
- Compare this apportioned figure for profit with actual profit reported in the jurisdiction;
- Rank the resulting profit reallocations;
- Rank the change in these reallocations over time.

The aim is to quite specifically estimate base erosion and profits shifting.

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<sup>4</sup>See, for example, <http://www.taxresearch.org.uk/Documents/CBC2012.pdf> for elaboration on many other uses

### 3.11 Profit shifting ratios using OECD data

The calculations noted in the previous section can be extended if OECD data is available, as follows:

- Calculate the amount of profit that would be allocated to the jurisdiction if allocated in proportion to the jurisdiction's share of the whole MNC's net tangible assets excluding cash;
- Average this calculation with the two already noted based on the share of third party turnover and the proportion of the MNC's employees in the jurisdiction to provide an apportioned figure estimated over three variables of profit likely to have been earned in the jurisdiction;
- Compare this apportioned figure for profit with actual profit reported in the jurisdiction;
- Rank the resulting profit reallocations;
- Rank the change in these reallocations over time.

This method is likely to provide the most reliable estimate of profit shifting within the MNC.

### 3.12 Tax shifting ratios

To estimate the tax lost as a result of profit shifting (whichever basis of estimation is used):

- Multiply the tax gained or lost by a jurisdiction in a period by its headline tax rate to estimate its tax gained or lost by profit shifting;
- If the estimated gain is more than the tax actually paid in the jurisdiction substitute the figure for tax paid as total gain;
- Aggregate the adjusted gains and losses to provide a measure of the cost of base erosion and profit shifting for the entity.
- Track these ratios over time.

This estimate shows the targeted tax to be collected from an entity if its profit shifting can be eliminated.

The aggregate of these estimates for all reporting entities provides an estimate of the cost of tax abuse to individual societies and to the world at large.

## 4 Additional data analysis

If external data is added to the data to be considered when analyzing CBCR disclosure then the range of analysis becomes much more powerful. The following illustrations only relate to CRD IV data but could be adapted to even greater effect if OECD template data was available.

## 4.1 Legal Entity Identifiers

If Legal Entity Identifiers are available for the MNC being analysed then it is possible to map:

- Inconsistencies between LEI and CRD IV data disclosure.

If, as seems commonplace, CRD IV does not disclose subsidiary names as well as their total number in aggregate and LEIN data allows this data to be added to the analysis then LEI Data allows the following data to be calculated:

- Clustering of entities:
  - By jurisdiction;
  - By activity;
- Revenues per entity;
  - Average;
  - Overall;
  - By jurisdiction.

Combing this data is likely to reveal the intensity of financialisation by jurisdiction and the intensity of jurisdiction use for financial trading.

## 4.2 GDP data by jurisdiction

This easily procured data does, when added to the analysis permit the following ratios to be calculated:

- Turnover as a proportion of GDP;
- Profit as a proportion of GDP;
- Tax as a proportion of GDP.

This data will be most interesting in aggregate and will indicate these places where finance is over-represented, or not.

## 4.3 Population per jurisdiction

This data is also easily secured and permits the calculation of the following ratios:

- Revenue per head of population;
- Profit per head or population;
- Proportion of population employed by the MNC;
- Tax per head.

In the case of some entities the ratios will not be meaningful at any level. For significant entities the measure represents a weighting based on economic substance and may provide interesting data, especially when variances or rankings are considered.

The data might be interesting by bank, especially to compare head office locations.

In aggregate it is likely that the data will also reveal disproportionate banking activity and might provide a new measure of financial services dependence.

When combined with data on the locations and intensity of service (number of offices) of the Big Four auditors it may be possible to establish a link between the number of those offices and the size of the banking sector in the jurisdiction.

#### **4.4 When combined with data on which auditor is engaged by the MNC**

This data is reasonably accessibly available. Adding it to the data sat might allow estimation of:

- Aggregate tax shifting by each firm's clients;
- Proportionate tax shifting by each firm's clients;
- Aggregate of profit shifted to which jurisdictions by Big Four client;
- Aggregate of tax shifted from which jurisdiction by Big Four client;
- Aggregate tax lost through shifting by clients of each Big Four firm.

The benefit is in being able to add the auditor into the risk weighting if significant differences are noted.