MNE tax strategies and Ireland
Jim Stewart
School of Business, Trinity College, Dublin, Ireland

Abstract
Purpose – A systematic assessment of multinational enterprise (MNE) tax minimisation strategies at the firm level is difficult. This paper aims to present systematic evidence for Ireland of tax minimisation strategies at both an aggregate and individual firm level. The paper uses Apple and Google as its case studies.

Design/methodology/approach – The paper is based on 31 US intellectual property (IP)-intensive MNEs with substantial operations in Ireland. Financial and other data including tax payments were extracted from Form 10K and filings in Companies Registration Office in Ireland.

Findings – The paper develops three different measures of effective tax rates and that tax strategies have resulted in effective tax rates lower than the nominal US tax rate and far lower than those published in company accounts. Although two-thirds of profits are earned outside the USA, around 70 per cent of corporate tax is paid in the USA.

Research limitations/implications – The paper relies on data from a subset of MNEs operating in Ireland. The paper also uses publicly available data which may not be available for all firms.

Practical implications – The findings have implications for European Union (EU) tax policy and tax revenues in countries where MNEs operate. The paper also has implications for industrial policy based on attracting Foreign Direct Investment (FDI).

Social implications – The study has implications not only for the equitable distribution of corporate tax payments and income distribution but also especially for a tax-based industrial policy.

Originality/value – MNE tax strategies, although of considerable public interest, are often obscure and poorly understood. The paper is original in providing a detailed examination of MNE tax strategies at the firm level and discussing some implications from a public policy perspective.

Keywords Ireland, Tax avoidance, Foreign direct investment

Paper type Research paper

1. Introduction
Tax incentives that attract foreign direct investment have been the main tool of industrial policy in Ireland for over 50 years. One effect is that US companies reported the third highest net income in Ireland in 2013, after The Netherlands and Luxembourg.[1] The current 12.5 per cent tax rate is often described as the cornerstone or “heart of Irish industrial policy”[2]. Low tax policies have resulted in controversial tax minimisation strategies[3], for example, in relation to Apple and Google (parent Alphabet). On a global basis, the widespread use of tax havens and tax avoidance strategies has resulted in considerable adverse comment, owing to the growth and size of assets held offshore (Henry, 2012, p. 36). Losses because of corporate tax avoidance alone are estimated at $100-$240bn per annum by the OECD (2015a, Table 3.3). Other estimates are much higher (Oxfam, 2016, pp. 12-13).

UNCTAD (2015, p. 192) note that a “systematic not anecdotal assessment” of tax strategies at the firm level is difficult. Jurisdictions that act as conduits for Foreign Direct

The author thanks conference participants at the Tax Justice Network Conference, Barcelona and participants at a seminar in NUI Maynooth and University of Limerick for helpful comments. Also thanks Louis Brennan, Rafique Mottiar, Michael Taft and especially David Jacobson for valuable comments. Finally, referees’ comments and suggestions were very useful.
Investment (FDI) account for most of the cross border flows. The key characteristics of these transit countries are as follows: no tax on inflows/outflows; extensive double taxation treaty networks; strong legal and regulatory frameworks; a sophisticated banking system and economic and political stability (UNCTAD, 2015, pp. 191-192). Ireland meets all of these characteristics and together with Luxembourg, The Netherlands and Switzerland have been described as the four OECD tax havens (Weyzig, 2013, pp. 72).

This paper presents evidence for Ireland of effective tax rates and tax minimisation strategies at both an aggregate and individual firm level, using data derived from filings with the Securities and Exchange Commission (SEC) and Companies Registration Office (CRO) Ireland. Effective tax rates were calculated for 31 US intellectual property (IP) intensive multinational enterprises (MNEs) with substantial operations in Ireland for the period 2006-2015[4]. These firms are more likely to undertake activities in tax havens as they are “technology intensive” with “significant levels of intangible assets” (Jones and Temouri, 2016).

The paper shows that alternative measures of effective tax rates are far lower than those published in corporate annual reports and have fallen through time. For 2015, average effective tax rates for the study group as published in company accounts were 22 per cent, but other measures show lower effective tax rates of 18 and 14 per cent. The main reason for the difference between statutory tax rates and effective tax rates is because of foreign tax savings. Even though non-US earnings varied between 54 and 78 per cent of total earnings, the non-US tax charge amounted to between 26 and 34 per cent of the total tax charge. Thus, even though most profits are earned outside the USA, most corporate tax is paid in the USA.

The paper also considers proposed reforms to international tax, from the OECD Base Erosion Profit Switching programme (BEPS); the Taxation Directorate of the European Commission (2015a) and investigations by the European Union (EU) Competition Directorate into Apple and other companies. The paper argues that there are considerable risks to countries using industrial strategies dependent on firms using complex tax strategies. Individual country tax regimes will change because of external forces. A tax-based industrial policy is not likely to result in an innovative, research led economy, but rather is more likely to lead to an emphasis on tax reduction.

The paper is structured as follows: The next section considers aggregate effects of tax reliefs and MNE tax strategies on the Irish macroeconomy; Section 3 discusses data sources; Section 4 gives evidence for effective tax rates; Section 5 is a detailed examination of the tax strategies of Apple and Alphabet (Google); Section 6 discusses the broader use of the “double Irish” and other tax strategies. Finally, some conclusions and implications for industrial policy are given.

2. Some aggregate effects of tax strategies

Most foreign investment in Ireland consists of financial assets in the Irish Financial Services Centre (IFSC). In 2013 the aggregate value of IFSC investment was over 11 times the size of non-IFSC FDI. The value of FDI amounted to €98bn in 2005 and increased to €400bn in 2015, of which €266bn consisted of non-IFSC FDI.

Fiscal incentives strongly encourage diverting profits via “profit switching transfer pricing” (PSTP). Goods/services imported to a low tax area may be valued at an artificially low price and exported at an artificially high price; thus, maximizing value added in the low tax area. These effects are particularly pronounced in the digital economy where profits may be easily switched, for example, using royalty and license payments (OECD, 2015b, esp. annex A).
PSTP results in distortions to aggregate data. Profit switching by MNEs is evident for Ireland in a large balance of payments trade surplus (merchandise net exports) but a deficit or small surplus on the current account because of net payments abroad for services for most years and dividend payments (Table 1). The effect of PSTP on merchandise trade is a longstanding feature of Ireland’s imports and exports (Stewart, 1989).

Unusually amongst OECD countries, GNP is lower than GDP because outflows of income are greater than inflows. For the period 2005-2015, GNP varied between 79 and 87 per cent of GDP. Luxembourg is another exception, with a GNP/GDP ratio of 42.8 per cent for 2012.[5] Luxembourg also has a large international financial sector. Tax minimisation strategies by MNEs pose particular problems for national income statisticians. The inversion of several large USA firms to Ireland has exacerbated these distortions in particular in relation to the stock of foreign investment owned in Ireland[6]. However Ireland’s fiscal regime is best known for tax avoidance strategies and resulting low effective tax rates. The next section presents data on effective tax rates for individual firms.

### 3. Data sources

Effective tax rates were calculated for 31 US intellectual property (IP) intensive MNEs with substantial operations in Ireland for the period 2006-2015[7]. The study group are also large in global terms and accounted for 11 per cent of the net income of US foreign majority-owned affiliates for 2013. The study group varies over time because of the inclusion of new firms (Facebook, Linkedin), a new firm created from divestment (Abbvie), the exclusion of firms taken-over (BMC, Dell, Forest Laboratories, McAfee) and the exclusion from 2014 of a firm that changed residence to Ireland (Medtronic). Although ownership changed for some firms, all firms had substantial or growing employees and investment in Ireland in the years 2013 and 2014. The 30 firms examined (excluding Medtronic) employees just over 48,000 in 2014[8] with 215 identified subsidiaries. The median number of subsidiaries per firm was seven[9].

Detailed financial data were collected from form 10K filed with the SEC, on revenues, profits and tax payments, on cash flows such as tax payments and from notes and commentary on tax payments and geographical operations. Searches of the annual return and subsidiary accounts (if available) filed in CRO Ireland, were used to identify operating characteristics such as revenues, profits, tax payments, ownership structure, place of incorporation, location of registered office, directors and company secretary. The study period begins in 2006 as tax payments and tax rates were distorted by increased dividends from abroad and associated increased tax payments in 2005[10].

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Merchandise net exports</td>
<td>30.4</td>
<td>32.2</td>
<td>39.9</td>
<td>42.9</td>
<td>43.3</td>
<td>42.4</td>
<td>36.2</td>
<td>42.3</td>
<td>64.6</td>
</tr>
<tr>
<td>Services&lt;sup&gt;a&lt;/sup&gt;</td>
<td>−12.4</td>
<td>−12.4</td>
<td>−15.0</td>
<td>−14.1</td>
<td>−8.6</td>
<td>−7.0</td>
<td>0.2</td>
<td>−7.6</td>
<td>19.8</td>
</tr>
<tr>
<td>Of which royalties and licenses</td>
<td>−10.4</td>
<td>−15.2</td>
<td>−23.8</td>
<td>−26.8</td>
<td>−29.8</td>
<td>−30.0</td>
<td>−31.7</td>
<td>−47.9</td>
<td>−56.5</td>
</tr>
<tr>
<td>Primary income&lt;sup&gt;b&lt;/sup&gt;</td>
<td>−19.1</td>
<td>−25.9</td>
<td>−28.6</td>
<td>−26.4</td>
<td>−32.1</td>
<td>−30.3</td>
<td>−26.3</td>
<td>−25.1</td>
<td>−32.4</td>
</tr>
<tr>
<td>Current account balance</td>
<td>−0.75</td>
<td>−5.80</td>
<td>−5.1</td>
<td>0.9</td>
<td>1.4</td>
<td>2.7</td>
<td>7.6</td>
<td>6.8</td>
<td>9.5</td>
</tr>
</tbody>
</table>

**Notes:** Table I<sup>a</sup>Exports of services such as computer services are less than imports of services largely consisting of royalty/licence payments for every year except 2013 and 2015; <sup>b</sup>For a definition of primary income, see CSO, Dublin, BOP Quarterly Statistical Compilation Methodology, updated June 2014, available at: [www.cso.ie/en/releasesandpublications/er/bop/balanceofinternationalpayments](http://www.cso.ie/en/releasesandpublications/er/bop/balanceofinternationalpayments) and [www.cso.ie/en/media/csoie/surveysandmethodologies/surveys/bop/documents/pdfs/BopBkgdnotes.pdf](http://www.cso.ie/en/media/csoie/surveysandmethodologies/surveys/bop/documents/pdfs/BopBkgdnotes.pdf)
4. Effective tax rates for the study group

Several firms in the study specifically identify Ireland and the USA as their main tax jurisdictions. For example:

Apple (Form 10K, 2015, p. 58) states:

Substantially all of the Company’s undistributed international earnings intended to be indefinitely reinvested in operations outside the US were generated by subsidiaries organized in Ireland.

Google (Form 10K, 2014, p. 85) states:

Although we file US federal, US state and foreign tax returns, our two major tax jurisdictions are the US and Ireland.

Effective tax rate can be defined in a number of ways. Policy analysis is often focused on the “marginal effective tax rate” or METR (Bilicka and Devereux, 2012, pp. 30-32; King and Fullerton, 1984, pp. 24-30; Congressional Budget Office, 2005)[11]. The METR is estimated using parameters such as nominal tax rates, statutory tax allowances and assumed rates of return. Analysis based on these types of models is extensively used by the European Commission to estimate the effects of policy changes on METR and EATR (effective average tax rates), for example, in relation to proposed changes to tax systems.[12] These studies are of very limited use in estimating past effective tax rates at the firm level or in predicting future marginal or average tax rates, as effective tax rates will depend on the history of a firm (for example, losses carried forward), tax allowances used, financing structure and reflect complex tax strategies.

In this paper, effective tax rates are calculated from company accounting data. Table II shows effective tax rates measured in three different ways. The first measure is that shown in company accounts and described as the “effective tax rate” (ETR1) and often quoted by corporate management[13]. This is calculated as the “provision for income taxes” divided by...
pre-tax income shown in the income statement[14]. There can however be a considerable divergence between this measure of tax paid and other measures of ETR, because of deferred tax and tax allowances (Jaafar and Thornton, 2015, Table III). Hence, cash tax paid (as disclosed in Form 10K consolidated statement of cash flows) used in this paper is a more useful measure of tax payments. The second estimate is defined as cash tax paid divided by pretax profits (ETR2).

The third estimate of effective tax rates (ETR3), is defined as cash tax paid divided by (pretax profits plus accounting depreciation and amortization)[15]. Depreciation and amortization reported as an expense in company accounts, is not tax deductible, in contrast to accelerated depreciation allowances and other allowances written into the tax code. Further adjustments could be made to the tax base, for example, by adding “goodwill” which is deducted in arriving at pretax income in company accounts, but is not a tax deductible expense. Adding “goodwill” to the tax base would have the effect of further reducing effective tax rates.

Using cash tax payments as the numerator is more objective than using the tax charge shown in the Profit and Loss account) but means that tax payments in a particular year may not reflect economic activity during that year, because tax may be paid in arrears or there may be extra tax payments/refunds following from dispute resolution with tax authorities.

Table II shows that if cash tax payments are used as the numerator, effective tax rates (ETR2) are lower than those published (ETR1), with the exception of the year 2010. Using a wider definition of the tax base to include accounting depreciation provisions, results in even lower measures of effective tax rates (ETR3). So that for 2015, average effective tax rates for the study group as published amounted to 22 per cent, but on a cash tax basis 18.0 per cent and including depreciation provisions in the denominator 14 per cent.

Effective tax rates though variable over time are lower at the end of the period than the beginning. For two measures (ETR2 and ETR3) effective tax rates reached their lowest point in 2011.

Table II also shows that foreign tax savings amount to between 10 and 12 per cent of pre-tax profits for the period examined.

Mean and median values of effective tax rates, treating each firm as a separate observation, show similar patterns, except for ETR3 which are consistently lower than average aggregate rates reported in Table II.

Table III shows the amount of foreign earnings each year, the foreign tax charge and the accumulated total of foreign earnings for the period 2006-2015. Even though foreign earnings vary between 54 and 78 per cent of total earnings (Column 3), they account for between 26.5 and 33.9 per cent of the tax charge in the income statement (Column 6). Thus even though most profits are earned outside the USA, most corporate tax is paid in the USA. The foreign tax charge as a per cent of foreign (non-USA) earnings fell from around 15 per cent at the beginning of the period to 8.6 per cent in 2015 (Column 5). Calculating ETR for foreign earnings based on cash tax payments (if available), rather than the “tax charge” in the income statement, would result in lower estimates.

Table III also shows that unremitted earnings, described as the “cumulative amount of earnings upon which USA income taxes have not been provided”, increased approximately 5.2 times, from $128-$670bn (Column 7) from 2006 to 2015. A wider definition of unremitted earnings to include earnings which are intended for repatriation, but not yet repatriated, shows total un-repatriated earnings rose from $158bn in 2006 to $769bn in 2015[16].

The Obama Government proposed a tax of 14 per cent on unremitted profits of USA firms, a continuing tax of 19 per cent and a reduction in the standard rate of corporation tax to 28 per cent (USA Government, 2015, pp. 56-57). Tax reform proposals, amongst others,
<table>
<thead>
<tr>
<th>Year</th>
<th>No. of firms</th>
<th>Foreign earnings</th>
<th>Foreign earnings as % of total earnings</th>
<th>Foreign tax charge</th>
<th>Foreign tax charge as % of foreign earnings</th>
<th>Foreign tax charge as % of total tax charge shown in income statement</th>
<th>Unremitted overseas earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>20</td>
<td>175,424</td>
<td>78.2</td>
<td>15,025</td>
<td>8.6</td>
<td>30.8</td>
<td>670,327</td>
</tr>
<tr>
<td>2014</td>
<td>20</td>
<td>129,743</td>
<td>65.7</td>
<td>14,090</td>
<td>10.9</td>
<td>27.8</td>
<td>614,217</td>
</tr>
<tr>
<td>2013</td>
<td>23</td>
<td>131,661</td>
<td>65.7</td>
<td>13,676</td>
<td>10.4</td>
<td>32.1</td>
<td>577,558</td>
</tr>
<tr>
<td>2012</td>
<td>23</td>
<td>133,748</td>
<td>65.6</td>
<td>12,756</td>
<td>9.5</td>
<td>28.0</td>
<td>480,529</td>
</tr>
<tr>
<td>2011</td>
<td>26</td>
<td>122,882</td>
<td>66.8</td>
<td>13,796</td>
<td>11.3</td>
<td>32.2</td>
<td>436,369</td>
</tr>
<tr>
<td>2010</td>
<td>26</td>
<td>102,098</td>
<td>61.9</td>
<td>11,907</td>
<td>11.7</td>
<td>26.5</td>
<td>330,844</td>
</tr>
<tr>
<td>2009</td>
<td>26</td>
<td>87,481</td>
<td>66.0</td>
<td>10,746</td>
<td>12.3</td>
<td>33.9</td>
<td>257,534</td>
</tr>
<tr>
<td>2008</td>
<td>23</td>
<td>80,468</td>
<td>67.0</td>
<td>8,697</td>
<td>10.9</td>
<td>29.5</td>
<td>223,535</td>
</tr>
<tr>
<td>2007</td>
<td>26</td>
<td>64,715</td>
<td>55.4</td>
<td>9,278</td>
<td>14.3</td>
<td>32.2</td>
<td>199,054</td>
</tr>
<tr>
<td>2006</td>
<td>24</td>
<td>53,276</td>
<td>54.3</td>
<td>8,169</td>
<td>15.3</td>
<td>33.0</td>
<td>128,096</td>
</tr>
</tbody>
</table>

Notes: aThe number of firms vary by year because firms reporting losses (foreign or group) were excluded, the inclusion of newly quoted firms and exclusion of firms subject to takeovers/going private. Medtronic was also omitted from 2014 as the firm redomiciled from the USA to Ireland; bDefined as earnings that are "indefinately" invested overseas

Source: SEC Filings – Form 10K various years
from the Trump administration are for a standard corporation tax rate of 15 per cent, a tax of 10 per cent on unrepatriated earnings held in cash and 4 per cent on other earnings (Fleischer, 2015; Nunns et al., 2016). Such changes if introduced, could have a dramatic effect on USA MNE corporate tax strategies; for example, a reduced number of firms “inverting” to a lower tax location[17]. The effects of these and other measures, on real investment are more difficult to predict, in particular if other countries react by reducing nominal and effective corporate tax rates.

One implication of a lower tax rate on overseas earnings than on US earnings, is that the higher the proportion of foreign earnings the lower the overall tax rate. That is, foreign earnings are negatively related to effective tax rates. This relationship was examined by relating various measures of ETR (1, 2 and 3, Table II and ETR 4 Table III) for individual firms on a year by year basis, to the proportion of: foreign earnings in total earnings; foreign sales in total sales; foreign earnings in foreign sales; and foreign tax savings as a proportion of total earnings.

Table IV below shows regression results for four measures of ETR. The relationship between three measures of ETR (ETR1, ETR2, ETR4) and the explanatory variables is statistically significant, but with low $R^2$adj. In addition some of the explanatory variables have the predicted negative coefficient. The ratio of foreign earnings over total earnings was negatively related for two measures of ETR (ETR1 and ETR4). The ratio of foreign earnings/foreign sales (foreign earnings margin) was found to be weakly negatively related to ETR for two measures (ETR2 and ETR4). The weakest relationships was found for ETR 3 (cash tax paid/pretax profits plus accounting depreciation). These results provide some support for the hypothesis of a negative relationship between foreign earnings and ETR, but may also indicate that the ETR is the outcome of complex tax strategies and numerous variables, for example, repatriation strategies[18]. As noted earlier cash tax payments in any given financial year may also affected by payments/refunds of tax relating to previous years.

Table V shows that for all years, except 2007, foreign earnings net of foreign tax are far larger than the estimated change in unremitted earnings. Unremitted earnings may vary between periods owing to divestments and also because of repatriations[19]. Table V also

<table>
<thead>
<tr>
<th>Effective tax rate</th>
<th>ETR1</th>
<th>ETR2</th>
<th>ETR3</th>
<th>ETR4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>31.723</td>
<td>12.170</td>
<td>9.632</td>
<td>8.210</td>
</tr>
<tr>
<td>Foreign earnings/foreign sales % –</td>
<td>0.027</td>
<td>–0.022</td>
<td>0.029</td>
<td>–0.031</td>
</tr>
<tr>
<td>Foreign sales/total sales % –</td>
<td>–0.038</td>
<td>0.071</td>
<td>0.075</td>
<td>0.184</td>
</tr>
<tr>
<td>Foreign earnings/total earnings % –</td>
<td>–0.034*</td>
<td>0.062*</td>
<td>0.000</td>
<td>–0.037</td>
</tr>
<tr>
<td>Foreign tax savings/total earnings % –</td>
<td>–0.362*</td>
<td>0.065</td>
<td>0.015</td>
<td>–0.206</td>
</tr>
<tr>
<td>F statistic</td>
<td>13.378*</td>
<td>6.432*</td>
<td>1.477</td>
<td>8.21*</td>
</tr>
<tr>
<td>$R^2$ (adj)</td>
<td>0.176</td>
<td>0.086</td>
<td>0.007</td>
<td>0.111</td>
</tr>
<tr>
<td>No. of cases</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
</tr>
</tbody>
</table>

Notes: The data were analysed using SPSS version 21. (*) represents significance at the 95% level. Only those cases where both foreign earnings and total earnings were greater than 0 were included. Cases were also excluded where tax payments/refunds were more/less than 100% of the tax base. There were no substantial correlations amongst predictor variable for the four models. VIF (variance inflation factor) values average less than 2 indicating an absence of multicollinearity (Field, 2013, p. 343). A Durbin–Watson test statistic for heteroscedasticity for three of the models varied between 1.548 and 1.85 indicating a relative lack of autocorrelation (Field, p. 311). For the fourth model (ETR4), the test statistic was 1.072 indicating some positive autocorrelation.
shows median values for both net foreign earnings and the change in unremitted earnings. Median values of net foreign earnings are again higher than median values of the change in unremitted profits for all years except 2007-2008. These data provide some evidence that US firms pay dividends to the parent company even though nominal tax rates are higher than in countries where profits are earned [20].

Perhaps indicating the sector and size of firm in the study group, there is little evidence of a fall in revenues, profits, or liquid assets over the period of the Great Recession. Median values of foreign sales over total sales varied rose from 47 per cent in 2006, to 54.5 per cent in 2015 with a peak of 58 per cent in 2014. Median values of foreign earnings over total earnings rose from 54 per cent in 2006 to 66 per cent in 2008 and to 68 per cent in 2015, with slight falls in years 2007 and 2009. Median values of liquid assets/total assets increased from 28 per cent in 2006 to 32 per cent in 2016 and reached a peak of 35.5 per cent in recession year 2010. The only clear trend has been a fall in effective tax rates. Effective tax rates fell over the period 2006 to 2011-2012, both for firm group earnings and foreign earnings.

5. Two case studies: Apple and Google (alphabet)
Ireland is central to the tax strategies of Apple and Google and is important for tax strategies of all firms included in the study. Both Apple and Google have elements of commonly used tax strategies and are worth examining in greater detail.

In addition Ireland is the world’s leader in the export of ICT services (Table VI) with a share of global ICT exports of 12.6 per cent in 2014, compared with 7.5 per cent for the USA. Google is a global leader in ICT exports and Apple is a global leader in the manufacture of digital devices and the provision of related services.

5.1 Apple tax strategy
One important reason for the success and profitability of Apple is the development of “organizational competencies” in the context of an “innovative enterprise” (Lazonick et al. 2013). This includes what has been described as the best known example of “factoryless production” (Bernard and Fort, 2015). The US Senate Permanent Subcommittee on Investigations (PSI), 2013, p. 26) describes the production and distribution structure of the main subsidiary of Apple Ireland, Apple Sales International (ASI) as follows: ASI contracts with a firm in China to produce finished products. These are then shipped from China to the

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of firms (1)</th>
<th>Foreign earnings net of foreign tax (2)</th>
<th>Annual change in unremitted earnings (3)</th>
<th>Median values for net foreign earnings (4)</th>
<th>Median values for the change in unremitted earnings (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>22</td>
<td>161,523</td>
<td>66,310</td>
<td>3,421</td>
<td>1,600</td>
</tr>
<tr>
<td>2014</td>
<td>21</td>
<td>116,309</td>
<td>64,197</td>
<td>3,207</td>
<td>900</td>
</tr>
<tr>
<td>2013</td>
<td>23</td>
<td>112,833</td>
<td>56,138</td>
<td>1,928</td>
<td>1,500</td>
</tr>
<tr>
<td>2012</td>
<td>23</td>
<td>120,992</td>
<td>91,987</td>
<td>2,216</td>
<td>1,900</td>
</tr>
<tr>
<td>2011</td>
<td>26</td>
<td>109,086</td>
<td>96,968</td>
<td>1,898</td>
<td>1,327</td>
</tr>
<tr>
<td>2010</td>
<td>27</td>
<td>90,927</td>
<td>73,145</td>
<td>1,215</td>
<td>1,000</td>
</tr>
<tr>
<td>2009</td>
<td>26</td>
<td>76,735</td>
<td>30,904</td>
<td>1,527</td>
<td>1,275</td>
</tr>
<tr>
<td>2008</td>
<td>23</td>
<td>72,143</td>
<td>45,983</td>
<td>1,299</td>
<td>1,399</td>
</tr>
<tr>
<td>2007</td>
<td>25</td>
<td>55,170</td>
<td>62,164</td>
<td>894</td>
<td>1,400</td>
</tr>
</tbody>
</table>

Note: Those firms making foreign losses were excluded and those firms for which unremitted earnings were unavailable for consecutive years.
final market. While en route, ASI pays for the goods[21]. The Report states [Permanent Subcommittee on Investigations (PSI), 2013, p. 27]:

Once ASI took initial title of the finished goods, it resold the goods to the appropriate distribution entity, in most cases without taking physical possession of the goods in Ireland.

Apple Ireland is regularly described as the HQ for European operations. Apple has seven subsidiaries in Ireland. The US Senate [Permanent Subcommittee on Investigations (PSI), 2013, p. 3, p. 21] found that one subsidiary located in Ireland (Apple Sales International) had no employees, income of $22bn in 2011 (64 per cent of group income) and paid $10m in tax (Table VII). This compares with income before tax for the Apple group of $34bn for 2011 and cash tax payments of $3.3bn. The US Senate Report groups Ireland along with Bermuda and the Cayman Islands as a tax haven and states that “Ireland has essentially functioned as a tax haven for Apple, providing it with minimal income tax rates approaching zero”. For 2014, the effective tax rate for ASI fell further to 0.005 per cent (European Commission, 2016a).

High profits and low tax rate for ASI is explained by the following:

- Switching profits to Ireland via transfer pricing in particular relating to IP [Permanent Subcommittee on Investigations (PSI), 2013, pp. 5-8].
- Key subsidiaries of Apple had “no declared tax residency anywhere in the world” and consequently paid no corporate tax [Permanent Subcommittee on Investigations (PSI), 2013, p. 4]. In response to a question as to where a subsidiary of Apple (AOI) was managed and controlled, Apple replied “Apple has not made a determination regarding the location of AOI’s central management and control. Rather Apple has determined that AOI is not managed and controlled in Ireland” (Permanent Subcommittee on Investigations (PSI), 2013, p. 23, footnote 93). This is an example of what has been described as “double non-taxation” (OECD, 2015c, pp. 5-7).

<table>
<thead>
<tr>
<th>Year</th>
<th>2000 (%) of world</th>
<th>2014 (%) of world</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>5,496</td>
<td>6.9</td>
</tr>
<tr>
<td>India</td>
<td>4,647</td>
<td>5.8</td>
</tr>
<tr>
<td>US</td>
<td>11,069</td>
<td>13.8</td>
</tr>
<tr>
<td>Germany</td>
<td>5,246</td>
<td>6.6</td>
</tr>
<tr>
<td>UK</td>
<td>7,155</td>
<td>8.9</td>
</tr>
<tr>
<td>world total</td>
<td>80,000</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Computer and information and communication sectors, UNCTAD handbook of statistics 2015, p. 264

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-tax profits $bn</td>
<td>$0.268</td>
<td>$0.725</td>
<td>$1.18</td>
<td>$1.844</td>
<td>$3.127</td>
<td>$4.794</td>
<td>$12.0</td>
<td>$22.0</td>
<td>n.a.</td>
</tr>
<tr>
<td>Tax charge in $m</td>
<td>$2.1</td>
<td>$3.9</td>
<td>$6.5</td>
<td>$8.9</td>
<td>$14.9</td>
<td>$3.653</td>
<td>$7.0</td>
<td>$10.0</td>
<td>n.a.</td>
</tr>
<tr>
<td>Effective tax rate (%)</td>
<td>0.78</td>
<td>0.54</td>
<td>0.55</td>
<td>0.48</td>
<td>0.48</td>
<td>0.88</td>
<td>0.06</td>
<td>0.045</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Source: [Permanent Subcommittee on Investigations (PSI), 2013, p. 21]; Apple sales international accounts filed with the Australian Securities and Investment Commission, European Commission (2016b)
Table VIII shows various measures of ETR for Apple for the period 2006-2015. One measure of ETR based on cash flows (cash tax payments/pre-tax profits, ETR 2, Column 8), is considerably lower at 17.0 per cent than the ETR reported in company accounts of 25.6 per cent (calculated as the tax charge/pre-tax profits, ETR1 Column 7).

The Table shows that while the Apple group pays corporation tax, little corporation tax is paid outside the US (columns 2 and 5). The foreign tax charge on overseas earnings (non-US tax charge/non-US earnings) amounted to 5.2 per cent for 2016 (ETR4, Table IV). A similar pattern exists for other US MNEs in the study.

An alternative measure shows an even lower ETR of 3.4 per cent for 2016, although up from 1.2 per cent in 2011 (ETR 5 Table VII)[22]. This measure estimates tax paid on unremitted earnings as the difference between the US statutory rate of 35 per cent and tax shown as due if remitted as disclosed in Form 10K (Donohoe et al., 2012). In contrast to Apple, most US firms do not disclose tax due on unrepatriated earnings, because as stated in accounts “it is not practicable” to do so.

Table VII shows profits and the tax charge for ASI for the years 2004-2011 and 2014.

Apart from Apple the number of Irish incorporated entities, that were not resident in any country for corporate tax purposes is not known.[23] The ability to remain incorporated in Ireland but not resident for tax purposes in any country was ended in the Finance Act 2014.

5.2 Google tax strategy
Google operations in Ireland are described as the HQ of EMEA (Europe Middle East and Africa)[24] and are the best known example of a “double Irish” or “bi-location” tax strategy, that is legal residence in one country but location for tax purposes in a second country. The country of location for tax purposes often has a zero corporate tax rate, such as Bermuda.

Google employed 1500 in the UK (Public Accounts Committee, 2012, Q461) and generated $18bn in sales (13 per cent of global sales) in the period 2006-2011 (Q201, 2013a). Yet, just $16m was paid in UK corporation taxes in this period. The Public Accounts Committee state (2013b, p. 5):

Google defends its tax position by claiming that its sales of advertising space to UK clients take place in Ireland – an argument which we find deeply unconvincing on the basis of evidence that, despite sales being billed from Ireland, most sales revenue is generated by staff in the UK.

Google faces similar issues in countries such as France, Italy and Spain (Buck, 2016).

Google uses PSTP to switch revenue from other countries to Ireland. Google has six subsidiaries in Ireland. One subsidiary (Google Ireland Ltd.) accounted for 32.8 per cent of Google total revenue for 2015 ($24.6bn), but resulted in a pre-tax profit of 1.9 per cent of global profits for 2015 ($371m), largely owing to unexplained “administrative expenses” of €18.4bn. These are likely to be royalty payments paid to its parent, Google Ireland Holdings, which is an unlimited company registered in Ireland but “administered from Bermuda” (Public Accounts Committee, 2012, Q475). The address of Google Ireland Holdings is c/o Google Bermuda Ltd. Clarendon House, 2 Church St. Bermuda, the same address as law firm, Conyers, Dill and Pearman (CDP).[25]

Google Ireland Holdings has been widely described as transferring royalty payments to a Dutch affiliate before transferring them to Bermuda (the “Dutch Sandwich”). In 2010, a “practice statement” issued by the Irish tax authorities allowed royalties to be paid by an Irish tax resident company to a foreign company, without deducting withholding taxes.
<table>
<thead>
<tr>
<th>Year</th>
<th>Group pre-tax profits (1)</th>
<th>Tax shown in income statement (2)</th>
<th>Cash tax paid (3)</th>
<th>Foreign earnings (4)</th>
<th>Tax on foreign earnings (5)</th>
<th>Foreign tax savings (6)</th>
<th>ETR1 (%) (7)</th>
<th>ETR2 (%) (8)</th>
<th>ETR3 (%) (9)</th>
<th>ETR4 (%) (10)</th>
<th>ETR5 (%) (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>61,372</td>
<td>15,685</td>
<td>10,444</td>
<td>41,100</td>
<td>2,138</td>
<td>5,582</td>
<td>25.6</td>
<td>17.0</td>
<td>14.5</td>
<td>5.2</td>
<td>3.4</td>
</tr>
<tr>
<td>2015</td>
<td>72,515</td>
<td>19,121</td>
<td>13,252</td>
<td>47,600</td>
<td>2,538</td>
<td>6,470</td>
<td>26.4</td>
<td>18.3</td>
<td>15.8</td>
<td>6.2</td>
<td>3.3</td>
</tr>
<tr>
<td>2014</td>
<td>50,483</td>
<td>13,973</td>
<td>10,026</td>
<td>33,600</td>
<td>1,489</td>
<td>4,944</td>
<td>26.1</td>
<td>18.7</td>
<td>16.3</td>
<td>4.4</td>
<td>2.4</td>
</tr>
<tr>
<td>2013</td>
<td>50,155</td>
<td>13,118</td>
<td>9,128</td>
<td>30,500</td>
<td>1,133</td>
<td>4,614</td>
<td>26.2</td>
<td>18.2</td>
<td>16.0</td>
<td>3.7</td>
<td>1.8</td>
</tr>
<tr>
<td>2012</td>
<td>55,763</td>
<td>14,030</td>
<td>7,682</td>
<td>36,800</td>
<td>713</td>
<td>5,895</td>
<td>25.2</td>
<td>13.8</td>
<td>13.0</td>
<td>1.9</td>
<td>1.3</td>
</tr>
<tr>
<td>2011</td>
<td>34,205</td>
<td>8,283</td>
<td>3,338</td>
<td>24,000</td>
<td>602</td>
<td>3,808</td>
<td>24.2</td>
<td>9.8</td>
<td>9.3</td>
<td>2.5</td>
<td>1.2</td>
</tr>
<tr>
<td>2010</td>
<td>18,540</td>
<td>4,527</td>
<td>2,697</td>
<td>13,000</td>
<td>161</td>
<td>2,125</td>
<td>24.4</td>
<td>14.5</td>
<td>13.8</td>
<td>1.2</td>
<td>n.a.</td>
</tr>
<tr>
<td>2009</td>
<td>12,066</td>
<td>3,831</td>
<td>2,997</td>
<td>6,600</td>
<td>310</td>
<td>647</td>
<td>31.8</td>
<td>24.8</td>
<td>15.4</td>
<td>4.7</td>
<td>n.a.</td>
</tr>
<tr>
<td>2008</td>
<td>8,947</td>
<td>2,828</td>
<td>1,267</td>
<td>4,600</td>
<td>200</td>
<td>500</td>
<td>32</td>
<td>14.2</td>
<td>13.4</td>
<td>4.3</td>
<td>n.a.</td>
</tr>
<tr>
<td>2007</td>
<td>5,008</td>
<td>1,512</td>
<td>863</td>
<td>2,200</td>
<td>87</td>
<td>207</td>
<td>32</td>
<td>17.2</td>
<td>16.2</td>
<td>4.0</td>
<td>n.a.</td>
</tr>
<tr>
<td>2006</td>
<td>2,818</td>
<td>829</td>
<td>194</td>
<td>1,500</td>
<td>84</td>
<td>224</td>
<td>29</td>
<td>6.9</td>
<td>6.4</td>
<td>5.6</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Notes: ETR 1, 2 and 3 are defined as for Table II; ETR 4 = is defined as in Table IV; ETR 5 = Tax rate on unremitting profits (Column 11)

Sources: Form SEC 10K. The year end for each year is September
Hence, it appears unnecessary to route royalty payments from Ireland to Bermuda via The Netherlands (Mason et al., 2010). Table (IX) shows that:

- Various measures of ETR (columns 7, 8 and 9) are far below the US statutory rate of 35 per cent. A major reason for this is the low tax rate on earnings of Irish subsidiaries.
- Google pays corporation tax on group profits (Column 3) but pays very little tax on foreign earnings (Column 2 and 5). Hence, as in the Apple case, most earnings are outside the USA, but the bulk of corporation tax payments are in the USA.

The tax strategies of Apple (“double non-taxation”) and Google (“double Irish”) are often illustrated using complex diagrams (UNCTAD, 2015, p. 194), but their main attraction has been one of relative simplicity coupled with non-disclosure because of the use of unlimited Irish companies. Hence, the tax strategy used by Google is widely replicated amongst US firms in Ireland as shown in the next section.

6. The “double Irish” and other tax strategies

6.1 Evidence for the “double Irish”

The numbers and identities of companies using a “double Irish” tax strategy are not publicly available[26]. An examination of files in Company House Dublin, identified 23 US-owned subsidiaries, with a “double Irish” tax structure[27]. Six of the 23 firms use the same business address in Bermuda, as that of law firm CDP. Twenty were subsidiaries of firms in the study group.

A number of other firms were also identified with similar organisational features (the immediate parent was “unlimited” and/or the location of the company secretary in a tax haven) but could not be conclusively identified as using a “double Irish” tax strategy[28]. A Pepsi-Cola Subsidiary “Concentrate Manufacturing Company” has a parent located at the same address as law firm CDP, Bermuda, since 1986, where the current company secretary is listed as an employee. The company secretary for Boston Scientific Ltd., Cisco Systems Internetworking and EMC International Company were also listed as employees of CDP, Bermuda.

Total pre-tax income of 20 bi-located subsidiaries identified, amounted to €15.8bn in 2011[29]. Including Apple Sales International, income amounted to €32.8bn for 2011 or 19 per cent of GDP. The total amount of tax sheltered profits using these tax strategies is likely to be much larger. The tax rate for many of these firms is not the nominal tax rate of 12.5 per cent, but zero or near zero. The exclusion of profits of these companies has a considerable effect on measured GDP.

In October 2014, the Minister for Finance announced the ending of the “double Irish” tax “loophole” from the year 2020[30].

6.2 Other tax minimisation strategies

Firms may pursue a variety of other tax minimization strategies. Intel Ireland Ltd., for example, is incorporated in the Cayman Islands (since 1994), but has its “principal place of business” in Leixlip, Ireland (CRO, Dublin, Form F7, 2014, SEC Form 10K, 2013, Exhibit 21.1).

Another subsidiary of PepsiCo, PepsiCo Global Investment Holdings was registered in Ireland but located for corporate tax purposes in The Netherlands Antilles. This subsidiary was liquidated in 2011 with assets of just over $1bn and retained profits of $400m, all
<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-tax profits ($)</th>
<th>Tax charge in income statement ($)</th>
<th>Cash tax paid ($)</th>
<th>Foreign earnings (%) of group</th>
<th>Tax charge on foreign earnings ($)</th>
<th>Foreign tax savings ($)</th>
<th>ETR1 (%)</th>
<th>ETR2 (%)</th>
<th>ETR3 (%)</th>
<th>ETR4 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>24,150</td>
<td>4,672</td>
<td>1,643</td>
<td>12,130</td>
<td>50.2</td>
<td>6.8</td>
<td>5.4</td>
<td>7.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>19,651</td>
<td>3,303</td>
<td>1,932</td>
<td>11,380</td>
<td>57.9</td>
<td>9.8</td>
<td>7.8</td>
<td>5.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>17,259</td>
<td>1,529</td>
<td>1,932</td>
<td>9,323</td>
<td>54.0</td>
<td>16.3</td>
<td>12.7</td>
<td>7.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>14,496</td>
<td>2,282</td>
<td>2,819</td>
<td>8,668</td>
<td>59.8</td>
<td>25.9</td>
<td>16.6</td>
<td>12.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>13,386</td>
<td>2,598</td>
<td>2,034</td>
<td>8,075</td>
<td>60.0</td>
<td>21.2</td>
<td>19.4</td>
<td>11.9</td>
<td>20.1</td>
<td>17.8</td>
</tr>
<tr>
<td>2011</td>
<td>12,206</td>
<td>2,368</td>
<td>1,471</td>
<td>7,633</td>
<td>58.8</td>
<td>18.5</td>
<td>17.2</td>
<td>11.8</td>
<td>22.6</td>
<td>19.1</td>
</tr>
<tr>
<td>2010</td>
<td>10,796</td>
<td>2,282</td>
<td>1,886</td>
<td>7,058</td>
<td>54.1</td>
<td>17.2</td>
<td>15.7</td>
<td>14.0</td>
<td>21.2</td>
<td>15.0</td>
</tr>
<tr>
<td>2009</td>
<td>8,281</td>
<td>1,886</td>
<td>1,214</td>
<td>4,802</td>
<td>57.3</td>
<td>15.6</td>
<td>13.3</td>
<td>11.2</td>
<td>21.3</td>
<td>14.7</td>
</tr>
<tr>
<td>2008</td>
<td>5,853</td>
<td>1,258</td>
<td>1,174</td>
<td>3,784</td>
<td>52.3</td>
<td>12.7</td>
<td>10.0</td>
<td>10.1</td>
<td>21.5</td>
<td>13.4</td>
</tr>
<tr>
<td>2007</td>
<td>5,674</td>
<td>1,174</td>
<td>883</td>
<td>3,674</td>
<td>51.2</td>
<td>11.6</td>
<td>9.8</td>
<td>9.1</td>
<td>20.5</td>
<td>12.7</td>
</tr>
<tr>
<td>2006</td>
<td>4,011</td>
<td>933</td>
<td>538</td>
<td>2,467</td>
<td>52.8</td>
<td>10.1</td>
<td>9.1</td>
<td>8.9</td>
<td>20.5</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Source: Form 10K various years

Table IX.
Profits tax and ETR for Google ($m) 2006-2015
consisting of interest income. For the period 2004-2011, the tax rate on corporate profits (tax charge in the income statement/pre-tax profit), was just under 0.09 per cent. Thus, interest payments were tax deductible to the tax payer (in some cases located in Ireland), but interest receipts were largely tax free.

A 2009 Luxembourg Tax Ruling for a Pepsico subsidiary, Pepsi Bottling Group states “the effective management and control of PBG Beverages, an Irish subsidiary of PBG Midwest Holdings S.A.R.L., was transferred from Ireland its original place of incorporation to Bermuda”. This took place as part of a complex chain of restructuring involving Irish-, Bermuda- and Luxembourg-based subsidiaries (Luxleaks Pepsi Tax Ruling 2009 Appendix 1, p. 10).

Recent evidence has drawn attention to the use of Luxembourg subsidiaries in tax reduction strategies[31]. Three firms using a “double Irish” tax strategy, were also identified in Luxembourg Tax Rulings. A ruling for one of these firms, Abbott Laboratories, details 79 separate restructurings of subsidiaries in five different countries as part of a single tax plan (Abbott Laboratories Tax Ruling 2009, pp. 10-11)[32].

It is also likely that The Netherlands functions as an equally if not more important centre for MNE tax minimization strategies. Of 19 groups identified as operating a “double Irish” tax structure, 18 also had identifiable affiliates located in The Netherlands and 11 in Luxembourg. The number of identified affiliates in The Netherlands was also larger (72 versus 36)[33]. Some firms located in Ireland are also organized as subsidiaries of parent firms incorporated in The Netherlands (for example, Dell, Hewlett-Packard, IBM and NCR).

Finally recent extensive reliefs for locating intellectual property in Ireland have been introduced, consisting of capital expenditure relief on certain intangible property, a tax credit of 25 per cent on R&D expenditures and a tax credit for buildings and structures used for R&D (Arthur Cox, 2015)[34].

Implementing complex tax strategies involving chains of subsidiaries in multiple jurisdictions results in considerable firm expenditures. These user costs are reflected in the growth of the tax avoidance industry as discussed in the next section.

7. Reaction

7.1 The growth of the tax avoidance industry

Tax legislation is complex. Introducing tax concessions aimed at one sector while attempting to preserve the existing tax base adds to this complexity. Firms wishing to avail of fiscal incentives must necessarily use the services of skilled professionals. Firms providing such services have grown large and powerful, in both lobbying for and influencing changes in the tax code. The UK Committee of Public Accounts state “the large accountancy firms sit on tax advisory panels and also second staff to government to provide technical advice when tax legislation is amended or created" (Public Accounts Committee, 2013c, p. 7). They also “appear to use their insider knowledge of legislation to sell clients advice on how to use those rules to pay less tax” (Public Accounts Committee, 2013c, p. 9). Sikka and Wilmott (2013, p. 431) describe the four big accounting firms as operating “factories devoted to manufacturing schemes to enable wealthy clients and multinational corporations to avoid direct and indirect taxes”.

7.2 The OECD reform programme (BEPS)

As a result of public and Government concern, the OECD developed proposals (OECD, 2013) aimed at reforming the international tax system in particular as it affects MNEs. The OECD state that the challenge of the digital economy is: “To ensure that profits are taxed where economic activities take place and value is created” (OECD/G20 2015b, p. 3). They state that
their work “has reinvigorated the fight against harmful tax practices” (OECD, 2014a, p. 6) and has reduced “the distortionary influence of taxation on the location of mobile financial and service activities”, thus encouraging “fair tax competition” (OECD/G20, 2015c, p. 7).

It is likely that some reforms will reduce harmful tax practices, for example, the automatic exchange of information[35]. Other proposals in relation to transfer pricing rules will be less effective, for example, retaining the “arm’s length principle” which is described as “the cornerstone of transfer pricing rules” (OECD 2015d, p. 9). This is because identifying “arms length transactions” may both be impossible and inappropriate, in particular in the case of MNEs operating in sectors that are highly concentrated or IP intensive.

The OECD proposals are voluntary, subject to interpretation and may change as a result of future data analysis (OECD, 2015c, p. 13) and a full review in 2020 (OECD, 2015e, p. 10).

A major focus of the BEPS project is on treaty change to prevent harmful tax practices (OECD, 2015c, see, for example, pp. 5-6). However with the exception of one firm “located” in Luxembourg, all countries where Irish incorporated companies are tax resident, have no tax treaty with Ireland, for example, Bermuda, Cayman Islands, Isle of Man, Jersey. Irish legislative changes mean firms could continue to use a “double Irish” tax strategy by locating for tax purposes in a country which has a double tax treaty with Ireland (see footnote 12). Shire Pharmaceuticals provides an example of the separation of country of incorporation, which is Jersey (no employees) and corporate tax residence, Ireland, with less than 2 per cent of corporate employees. The USA is the main location of revenues, income and employees (Public accounts Committee, 2014, Q 134-Q139).

OECD proposals assume that BEPS actions can be clearly separated from non BEPS actions. Hence the OECD consider that no/low tax resulting from tax policies designed to “encourage business development” or “R and D tax credits” should not be attributed to BEPS (OECD 2015a, Action 11, p. 26, p. 75, p. 119). In practice this separation may not be possible.

7.3 Tax incentives and the European commission
Similar to the OECD, a key motivation of EU policy is to prevent “unfair tax competition”. A second key objective is to ensure “income is attributed to where value is created” as in proposals for a common tax base (European Commission, 2016b, p. 2). The recently approved Directive on Tax rulings is also designed to “deter tax authorities from offering selective tax treatments to companies” (European Commission press release on Tax Transparency 6 October 2015). The EU Competition Directorate has been investigating tax rulings of member states since 2013 on the basis that tax rulings have resulted in granting “selective tax advantages” which constitute state aid (Almunia, 2014)[36].

Decisions that tax rulings constituted illegal State aid have been made in relation to the Belgium Government, Luxemburg in relation to Fiat and The Netherlands in relation to Starbucks (European Commission Press Release, 11 January 2016). In these latter cases, tax repayments will amount to €20-30m. More recently, the Commission required Ireland to reclaim a far larger sum of €13bn in illegal State aid plus €6bn in interest, (a total of almost three times annual corporate tax receipts) from Apple (European Commission, 2016b). Preliminary findings of illegal State aid have also been made in relation to Amazon and McDonalds in Luxembourg and further investigations of other companies are possible[37].

Pre-publication of the Commission findings the Governments of all four countries issued similar statements to the effect that they expected to be exonerated. In relation to Apple, the Irish Minister for Finance stated that “Ireland is confident that there is no state aid rule breach in this case”. Even though Ireland would benefit from any tax payments the Minister
also stated that “we will defend all aspects vigorously”[38]. Post publication of the Commission findings all four countries appealed the Commission decisions to the European courts. Starbucks and Fiat have also appealed and Apple has stated that it will also do so.

There are a number of reasons given why the Irish Government is appealing the Apple decision, for example, “to challenge the encroachment of EU state aid rules into the sovereign Member state competence of taxation”[39]. However, the principle of sovereignty in taxation runs counter to the principle that it is illegal to give State aid to selected companies – a principle that the European Court of Justice has a track record of supporting.

In relation to the Commission Apple decision, the Commission (European Commission 2016b) state:

Specifically, Revenue endorsed a split of the profits for tax purposes in Ireland: Under the agreed method, most profits were internally allocated away from Ireland to a “head office” within Apple Sales International. This “head office” was not based in any country and did not have any employees or own premises. Its activities consisted solely of occasional board meetings. Only a fraction of the profits of Apple Sales International were allocated to its Irish branch and subject to tax in Ireland. The remaining vast majority of profits were allocated to the “head office”, where they remained untaxed.

ASI and AOI were regarded by Revenue as not tax resident in Ireland (European Commission, 2016a, p. 50) because:

ASI and AOE had a trading activity in Ireland through their respective branches and were managed and controlled outside Ireland.

The “central management and control test” is applied on “the basis of fact and precedent” (Revenue, 2013, p. 1). These “facts” cannot be the location of fixed assets or employees, Board meetings were mostly conducted in the USA (Senate Subcommitte Report, 2013, p. 22-24), but board meeting minutes do not indicate that the Board of directors performed “active and critical roles”; the postal address in company documentation was given as Ireland (European Commission, 2016a, p. 133).

One difference between Apple tax strategy and companies using a “double Irish tax strategy” is that the latter group of companies had an identifiable address, for example, in Bermuda.

The OECD/BEPS initiative emphasises multilateral action which is also favoured by US MNEs and Government (USA Treasury, 2016, p. 19). The US Government considers that the Commission state aid cases “sets aside years of multilateral efforts” to reform international taxation (USA Treasury, 2016, p. 25). Governments accused of unfair tax practices may also support multilateral action as they argue that tax avoidance issues arise because of the reluctance of governments to collectively harmonise tax rates (Traynor and Bowers, 2014). An associated argument is that countries critical of low tax regimes are being hypocritical because of their own very favourable tax regimes.

In contrast some countries (Australia and the UK), have introduced unilateral legislative changes to combat “artificial arrangements” to avoid tax. In the case of the UK, this resulted in a small and much criticized increase in tax payments by Google (Strauss, 2016). Firms expect further unilateral action via legislation (Deloitte, 2014, p. 2). Unilateral action has also taken the form of challenging tax structures through the courts (PWC, 2012[40]. Such actions reflect a desire not only to minimize “artificial” reductions in the corporate tax base but also intra-country disputes as to the allocation of the tax base. The US Government has criticised EU State aid cases because US companies are disproportionately targeted and the novel use of powers may result in reduced US taxes (USA Treasury, 2016, pp. 4-5).
8. Conclusion
This paper provides detailed evidence of the use of tax minimisation strategies by US MNEs with substantial operations in Ireland. The paper shows that group effective tax rates using cash tax payments as the numerator are for most years lower than those published. Using a wider definition of the tax base to include accounting depreciation provisions, results in even lower measures. Foreign earnings for the study group varied between 54.3 and 67.8 per cent of total earnings, but accounted for between 26.5 and 33.9 per cent of the tax charge in the income statement. Thus, even though most profits are earned outside the USA, most corporate tax is paid in the USA. This finding has considerable implications for tax policy and equity in intra-country tax allocation.

There are risks to firms using complex tax strategies because they may be deemed to be illegal (as in the Apple case) and to an industrial policy dependent on attracting FDI. Tax regimes within a country may change because of external requirements or because of changes in tax regimes in other countries negating tax concessions, with a consequent risk of FDI relocation (Buck, 2016).

The European Commission is likely to be the main driver of tax regime change in Ireland and other countries, because it has considerable fining powers and rulings, although subject to appeal, are legally enforceable. This is in contrast to OECD proposals. These changes may in turn cause affected companies, their advisors and some governments, to seek replacement incentives. One example is substantially enhanced R&D incentives in Ireland (Department of Finance, 2015; Arthur Cox, 2015). Proposals for greater inter-country exchange of information on tax rulings (OECD, 2015f, p. 14; European Commission, 2015b) and for country by country reporting (OECD, 2015e; annex III) may be the most significant reform in the long run, but to be really effective, country–by-country reporting should be publicly available.

Even though tax incentives are widely regarded as a tool for attracting FDI, the relationship between tax policy and foreign investment flows is complex. De Mooji and Ederveen (2003) from a survey of empirical evidence find corporate tax and foreign direct inflows are negatively related but with substantial variation (p. 682). The OECD point out that most studies of tax effects ignore tax planning strategies (OECD, 2008, p. 3). Other difficult issues in empirical research relate to the definition of tax liability, for example, average or marginal tax rates (OECD, 2008) and the effect of double taxation treaties (Blonigen, 2000, p. 13); and the data used which often relates to financial flows and not necessarily real investment (de Mooji and Ederveen, p. 674). A particular problem with using data bases such as Amadeus is the large number of US subsidiaries, for example, in Ireland that are “unlimited companies” and do not file annual accounts.

UNCTAD (2015, p. 17) conclude that “tax does not so much drive locational decisions as it drives the modalities of the investment and the routing of investment flows”. However, some investments in low cost locations “are highly sensitive to tax”. These are investments that are a key part of a global value chain, where profit switching transfer pricing is important and where low/no taxes on international transfers are a key factor in location decisions.

These latter aspects may partly explain why Ireland has been relatively successful in attracting FDI. For example, employers PRSI rates in Ireland for 2013, are the second lowest in the EU and contributions at 3 per cent of GDP are the eighth lowest in the OECD. FDI in Ireland has relatively low local linkages. Domestic expenditures in Ireland for IDA supported firms are relatively low at 17.3 per cent of sales for 2013, compared with 38.9 per cent for 1996 [41].

Tax incentives while they may be successful in attracting relatively footloose international firms, they may erode the tax base of neighbouring countries through the use of tax incentives in unanticipated ways. The net result of low corporate tax policies is “a dangerous race to the bottom”, which will make the taxation of mobile taxation by any nation impossible (New York
The burden of taxation thus shifts to activities and individuals that are unable to avoid tax.

At the same time, increased profits in low tax countries because of PSTP, result in increased tax revenues. Taxes on corporate income as a per cent of total tax amounted to 12.4 per cent for Luxembourg, 8.4 per cent for Ireland compared with 4.9 per cent for Germany for 2013[42].

A tax-based industrial policy is not likely to result in an innovative, research-led economy. A tax-based industrial policy is more likely to lead to an emphasis on tax reduction. Those skilled in knowledge of the tax system become influential in management decisions[43]. The tax avoidance industry and those firms specialised in understanding the tax system and selling tax services become large and powerful and may exert considerable influence in formulating tax policy and legislation.

The challenge for researchers and policymakers is to develop and implement industrial policy measures not dependent on tax incentives and tax minimisation strategies. Increased regulation and prohibition of “aggressive” tax strategies also implies change in management strategy and firm organisation. The implications for location of FDI is an important avenue for future research.

Notes

1. See Bureau of Economic Analysis, majority-owned foreign affiliates, Table II.D.1, available at: http://bea.gov/international/usdia2013p.htm
4. Including Apple and Google.
6. See Central Statistics Office, 2015a, p. 4 for an estimate of the effect of inversions on the stock of US FDI in Ireland. Separately from this effect, reported GDP increased by 26.3 per cent in 2016 (Central Statistics Office, 2015b), largely because of increased profits of MNEs.
7. See Appendix Table. These firms were selected from the Industrial Development Authority lists (available at: www.idaireland.com/business-in-ireland/company-listing/).
8. Source:- available at: www.top1000.ie/companies. This may include some working at a particular site but used by a separate company.
9. Derived from filings in CRO, Dublin. Annual Reports and 10K forms generally do not list all subsidiaries. US Bureau of Economic Analysis data refers to 659 US affiliates operating in Ireland in 2012, excluding firms with assets, sales or net income of less than $25m. Assuming all 659 affiliates are independent firms, there are likely to be several thousand US subsidiaries operating in Ireland.
10. For example, Form 10K Abbott for 2007 (p. 35) states Abbott “remitted $4.3bn of foreign earnings under the American Job Creation Act of 2004 and recorded additional tax expense of $245m”. This increased the reported tax rate by 5.3 per cent. Pfizer annual report (2006, p. 49) states $1.7bn in an extra tax charge was due in 2005 associated with the repatriation of $37bn of foreign earnings under the Job Creation Act. This increased the reported tax rate by 15.4 per cent to 29.4 per cent for 2005.
11. The influential Ruding Report (1992, p. 17) defines the marginal effective tax rate as “the marginal effective tax wedge divided by the required pre-tax rate of return”, where the marginal effective tax wedge is defined as “the difference between the required pre-tax and the post-tax rates on a prospective marginal investment over its lifetime”.

12. See European Commission (2016c) and European Commission Taxation Working Papers no. 55 and 56, in relation to the proposed introduction of CCTB and CCCTB.


15. Markle and Shackelford (2011) calculate ETR from financial statements for 82 countries and over 11,000 corporations. They use various measures of ETR including those based on cash tax payments and adjusted accounting profit defined to include depreciation and R & D expense (see pp. 497-8 and footnote 7).

16. For example, Pfizer reported “indefinitely” invested overseas earnings of $74bn for 2014. Unremitted earnings, “that will not be indefinitely reinvested overseas” amount to an estimated $60.5bn, giving a total of $134.5bn of unremitted earnings. Apple had $131.25bn unrepatriated profits in 2015, of which $91.5bn were described as “indefinitely” invested overseas.

17. Several large US firms, (Allergan, Covidian, Medtronic) have “inverted” to Ireland as part of a tax minimization strategy.

18. The US Senate Permanent subcommittee on Investigations (2012, p. 4) describes “repatriation strategies” of Hewlett-Packard involving continuous short term loans of $6-9bn from foreign affiliates to the US parent, which were not subject to any form of tax. Linebaugh, (2013) has further examples.

19. For an example, see Abbott Laboratories, Form 10 K 2013 note 2.

20. Kleinbard (2011a,b, pp. 721-722), estimates that for 2004, only $18.4bn in tax was paid on $166bn of repatriated earnings ($47bn in dividends, $48bn in subpart F income and $59bn in royalties). Kleinbard states the effective tax rate on regular repatriations is “very low”, but if there were a very large repatriation in any one year a “substantial residual US tax liability” would be incurred (Kleinbard, 2011a,b, p. 726). The IBM annual report (2014 p. 126) states “the company periodically repatriates a portion of [unrepatriated] earnings to the extent that it does not incur an additional US tax liability.” The tax strategies of Pfizer, resulting in US losses but foreign profits, indicates that repatriated profits are the main source of US corporate tax revenues (Bergin and Drawbaugh, 2015).


22. This increase in overseas tax payments means that Apple is now “the largest tax payer in Ireland”, Letter from Tim Cook to Apple customers, April 30, 2016, available at: www.apple.com/ie/customer-letter.

23. Reasons given for non-disclosure are “confidentiality” and the “small number of companies involved” (Minister for Finance Parliamentary answer 25 June 2013).


27. Twenty-one of these firms are listed in Stewart, 2014, Table IX.


29. Two firms (Sandisk Manufacturing and Facebook (Ireland) Holdings) were both “unlimited” with no financial information available.

30. Residency rules were changed to require all companies registered in Ireland to also be tax resident” Department of Finance (2015), Budget Statement. The Finance Act 2014 (section 38) states “Subject to subsection (2), a company which is incorporated in the State shall be regarded for the purposes of the Tax Acts and the Capital Gains Tax Acts as resident in the State”. Subsection (2) provides an exemption which is likely to be important in future tax minimisation strategies. KPMG (2014, p. 9) state: “If a company is regarded as resident in another country under the terms of a tax treaty between Ireland and that other country, it will not be considered to be resident in Ireland”.


32. Bahamas, Cyprus, Gibraltar, Luxembourg and the Netherlands. Tax rulings involving Covidien (a company which has “inverted” to Ireland but managed from the USA) also detail extensive and complex restructurings (available at: www.icij.org/project/luxembourg-leaks).

33. Firms are less likely to disclose subsidiaries, especially those operating in countries with low/no corporate tax, McIntyre et al, 2015, pp. 16-17.


35. The European Commission is also preparing a directive on automatic exchange of information on advance cross and pricing arrangements with all other member states (European Commission, 2015b, p. 2).


39. The US Treasury (2016) has also published a detailed critique of Commission state aid cases.

40. See, for example, Ahmed, M. and Sanderson, R. Apple agrees to pay €318m fine to close Italian tax case, Financial Times, December 30 2015; Jane Politi and Vanessa Holder, “Google agrees €308m. Settlement with Italian Tx authorites, Financial Times May 5, 2017.


42. Source: OECD Revenue Statistics, 2015, Table 12.

43. There are over 24,000 members of the main professional body of accountants in Ireland in 2015. Of this total 63 per cent work in business and 66 per cent work in Ireland. Source: Chartered Accountants Ireland, annual report, 2015, p. 12. See also Clancy et al., 2010, par. 3.14.
References

Almunia, J. (2014), Statement by Vice President Almunia on opening of three investigations on transfer pricing arrangements on corporate taxation of Apple (Ireland), Starbucks (Netherlands) and Fiat Finance and Trade (Luxembourg), Brussels, 11th June.


Deloitte (2014), OECD’s BEPS initiative – a global survey, Global Tax and Legal, September.


Oxfam (2016), “Ending the era of tax havens why the UK government must lead the way”, available at: www.taxjustice.net/2016/03/14/oxfam


Further reading


## Table A1.
US companies with subsidiaries in Ireland included in study

<table>
<thead>
<tr>
<th>Name of group</th>
<th>Name of group</th>
<th>Name of group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbott laboratories</td>
<td>eBay</td>
<td>Macafee</td>
</tr>
<tr>
<td>Abbvie</td>
<td>EMC</td>
<td>Microsoft</td>
</tr>
<tr>
<td>Adobe systems</td>
<td>Gilead sciences</td>
<td>Medtronic</td>
</tr>
<tr>
<td>Amazon</td>
<td>Google</td>
<td>NCR</td>
</tr>
<tr>
<td>Analog</td>
<td>Hewlett–Packard</td>
<td>Oracle</td>
</tr>
<tr>
<td>AOL</td>
<td>IBM</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Apple</td>
<td>Intel</td>
<td>San Disk</td>
</tr>
<tr>
<td>BMC software</td>
<td>Facebook</td>
<td>Symantec</td>
</tr>
<tr>
<td>Boston scientific</td>
<td>Forest laboratories</td>
<td>Synopsys</td>
</tr>
<tr>
<td>Cisco</td>
<td>LinkedIn</td>
<td>Yahoo</td>
</tr>
</tbody>
</table>