

Master in Economic Development and Growth

International corporate taxation and developing economies: is global tax harmonization desirable and feasible?

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Abstract: Greater capital mobility and financial integration have generated greater tax avoidance and international tax competition. This has modified negatively the tax systems of countries that keep taxing corporate profits: the system is now more inefficient, might be more regressive and tax authorities have less sovereignty. This is especially relevant for developing economies, since corporate tax revenues are vital for their public finances. This thesis sees greater tax coordination as the only solution to such problems and therefore, after describing the current state of the corporate tax in developing economies, analyses the feasibility of global tax harmonization schemes. Whereas the study recognizes the positive effects that the recent BEPS project of the OECD will produce, it also detects important weaknesses to solve current problems, and concludes that a harmonization scheme, similar to the one proposed by Giovannini and Hines (1990), would generate greater benefits for developing economies, mainly by tackling tax avoidance, reducing tax competition, and incentivizing needed reforms for their tax systems. However, through an exploratory survey of the tax system of 32 developing economies, I also foresee a number of technical and political barriers that could make harmonization, especially if it implies strict implementation of the residence-based principle, unfeasible and undesirable for developing economies.

Key words: International taxation, corporate tax, tax avoidance, tax competition, tax harmonisation

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1. Introduction

Taxing corporate profits is nowadays a controversial topic both in the academic and general public realms. In the midst of one of the most extensive globalisation processes, taxing capital has proven a difficult task for national tax authorities as corporations are more able to avoid taxes and mobilise capital, mainly because of greater financial integration due to the ICT revolution and abolishment of capital controls. On the one hand, many researchers have long analysed very critically the role of corporate taxation in such environment, with proponents for its abolition finding in present times fertile grounds to heat up their speech. For instance, one of the main arguments against corporate tax is that since it might provoke capital flight, the burden of taxation ends up falling mostly in more immobile factors, such as labour, making the tax highly inefficient. However, other researchers show more scepticism regarding the elimination of the tax and call for improvements and reforms in current tax systems in order to mainly address inefficiency issues. For example, some claim for eliminating the source and residence based mixture of national tax systems, which is very sensible to corporate tax planning, and move towards a pure residence system that would increase efficiency by being export neutral i.e. an investor is taxed equally from its domestic and foreign income.

On the other hand, it is common among the general public to see ineffectiveness of corporate taxes and the ability of corporations to escape from this burden as a significant feature of a globalised world that is bringing higher inequality within countries and benefiting multinational companies. Recent trends in tax avoidance might require increased coordination between countries for several reasons. Firstly, it generates a comparative disadvantage towards those corporations and small firms that cannot incur in such practices. Secondly, it undermines the credibility of tax systems to guarantee compliance of those taxpayers that because of their higher income are able to avoid the tax authorities. As noted by Spicer and Linstedt (1976), the perceived inequality of a tax system will affect the propensity to evade of individuals. In this last aspect, the media impact that the disclosure of off-shore transactions of individuals and corporations in Panama, the disclosure of the so-called Panama Papers, reveals how important tax justice is for societies, specially when it comes to large taxpayers. Whereas it is undesirable that tax authorities discriminate between taxpayers of different income following media pressure, it is the responsibility of governments to create a fair tax system

that limits undesirable tax avoidance practises, which in turn will make small taxpayers more prone to pay their taxes.

Thirdly, the amount of public revenues that are lost and the distortions that are generated because of tax avoidance practises are significant. According to a recent study conducted by the OECD, tax avoidance has been estimated to amount each year up to \$100 and \$200bn globally, representing between 4% and 10% of global CIT revenues, a loss that is more important in developing economies since they rely more on corporate taxes in their public finances (OECD 2015, p. 15), as we'll analyse later in this study. Also, Zucman (2013) estimates through international accountancy discrepancies that the amount of global household offshore wealth reaches \$5.9tr, 8% of the total household wealth.

In order to prevent the erosion of the corporate tax through tax avoidance and tax competition, the present work studies the feasibility of global corporate tax harmonisation and analyses recent trends in tax coordination. There's an already extensive literature that has studied the effects of tax coordination at a regional level. However, such research has a clear bias towards analysing OECD countries. This thesis contributes to our wisdom about the effects of global corporate tax coordination by taking into account the incentives of developing economies to participate and the main impacts of tax coordination schemes on their tax systems. In order to do so, I investigate on recent trends in corporate tax competition, analyse the corporate tax systems in a selected sample of 32 economies and explore the technical and political issues of tax harmonisation schemes, particularly the one designed by Giovannini and Hines (1990), and of the Base Erosion and Profit Shifting (BEPS) project. The main hypothesis of the study is that given constraints of current tax systems in an international context, corporate tax harmonisation is feasible and provides globally a more redistributive and efficient tax system for developing economies, which would benefit from coordination and not deviate from potential agreements.

I find that while the hypothesis holds regarding that it might prove desirable to move to tax harmonisation and that most developing economies would benefit from it, it is more questionable that they would agree upon such agreements and not deviate. The first affirmation is supported by the fact that corporate taxes in most of the analysed countries represent more than 50% of total income revenues and that their tax systems rely inefficiently on a very narrow tax base. Therefore, they would be very receptive towards a tax harmonisation scheme such as the one of Giovannini and Hines because it would increase public revenues through lower tax avoidance and efficiency through

broadening the tax base. Also, the data and previous research seems to confirm a downward trend in corporate statutory tax rates mainly because of tax competition. Whereas it will be shown that the BEPS project present several flaws for tackling tax avoidance, tax harmonisation, either through a pure residence or source based system, is more able not only to prevent tax planning from corporations but also prevent the erosion of tax rates and allow developing economies to rely on this tax tool.

Nevertheless, this study also finds several constraints that a harmonised system would face in order to bring developing economies to cooperate. Firstly, whereas a great number of medium income countries have already signed several double taxation treaties and harmonised rates of withholding taxes, reforming the tax system of developing economies might prove difficult given that all the countries analysed, whereas they have higher statutory tax rates than OECD countries, have a narrow tax base because they grant numerous tax incentives to foreign corporations. Giving up this tax tool, while increasing efficiency and public revenues, might come at the cost of a loss of investment. Secondly, whereas the residence based scheme of Giovanini and Hines is the most feasible because it allows preserving a high degree of national sovereignty and is robust to deviations from participants, its strict application of the residence principle and abolition of withholding taxes might traduce in a great loss of revenues of developing countries hosting foreign owned corporations. Therefore, this thesis proposes, at the expense of efficiency losses, modifications of their system that could better incentivise developing economies to participate. Thirdly, in terms of harmonising the definition of taxable income, a requirement of harmonisation models with clearing systems, I have mixing results. On the one hand, their taxing systems show great similarities globally, especially in terms of the definition of capital gains and anti-tax avoidance rules. On the other hand, harmonisation would be easier to implement regionally than across regions given similarities in depreciation rules in the regional case, particularly among Latin American and Sub-Saharan African countries. Moving to greater harmonisation in tax rules will make tax harmonisation more feasible.

This study is organised as follows. Section 2 provides a theoretical background regarding the constraints that national tax authorities face in an international setting, overviews the main theoretical arguments behind tax competition and explains how current taxation systems are highly sensible to tax avoidance schemes. Section 3 realises and exploratory survey on the evidences of tax competition in recent years and the tax systems of developing economies, establishing some differences with respect to OECD countries and mentioning some steps towards tax harmonisation that have occurred until now. In Section 4 I use the theoretical predictions and evidences of previous sections

to conduct an analysis on the feasibility and desirability of certain tax harmonisation models and the recent BEPS project, whereas in Section 5 I theorise, as means of a summary, the predicted effects of implementing the proposed models. Also, I mention general political constraints to broad tax reforms in developing economies. Finally, Section 6 concludes.

2. Theoretical background

2.1. Corporate tax systems in an international setting and its constraints

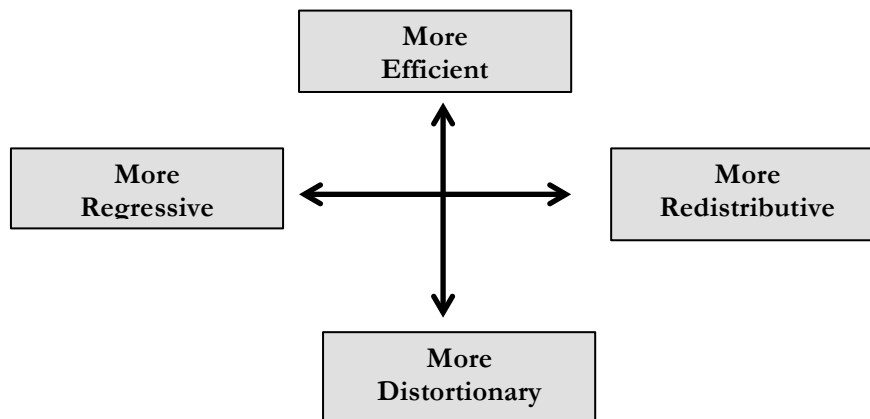
2.1.1. Design of a national tax system in closed and open economies

The design of a fiscal system directly implies a trade-off, deficiencies and strengths. Its implementation will inevitably re-arrange the economic relations between agents and modify the decision-making of economic agents. Even more, the definition of a deficiency and strength cannot be defined in a complete objective way. This is because we have limited knowledge on the comprehensive effects of tax policies, leaving ground to beliefs and theoretical predictions for being determinant in choosing tax policies. Furthermore, a tax system normally benefits more certain groups than others, whether political elite or the median voter, and therefore the desired outcome for one group might be a weakness for another.

Since there is no perfect tax system, we need to classify them according to their characteristics and their effects on income and economic decisions. In a closed economy the cardinal points where the characteristics of a model hinges around are how efficient or distortionary and how regressive or redistributive the system is between different economic sectors, social groups or generations. Figure 1 illustrates such trade-off.

However, in an international setting, with mobility of factors of production and economic agents, tax authorities face several constraints that didn't face in a closed system. In terms of taxation of capital, the abolition of capital controls and higher financial integration increase the elasticity of capital mobility towards tax rates changes and generate two main problems. Firstly, capital mobility and tax competition between countries undermine the ability to tax corporations and distorts investment decisions. This might translate to a less efficient system if capital flight implies less job opportunities and less mobile corporations hold most of the burden, leaving the latter in a comparative disadvantage and to a more regressive tax system, especially if corporate tax revenues are an important revenue to produce public goods and redistribute income. Also, the equality between saving and investment might need to hold for the world aggregate, not only for each country

Figure 1 - Cardinal points of a tax system for a closed economy



Source: own elaboration

separately, in order to not distort investment. However, different capital taxes across countries will generate international differences in intertemporal marginal rates of substitution and international differences in the marginal productivity of capital (Razin and Sadka 1991, p. 69).

Furthermore, globalisation and its effects are expected to induce governments to a crucial dilemma (Swank and Steinmo 2000, p. 646). Whereas capital and income are more mobile and there's less manoeuvre to tax given the risk of harming investment within borders, there's also a need to maintain public revenues in order to maintain the same provision of public services¹. Such dilemma might affect income distribution. For instance, we can expect that in the case that a government decides not to reduce the provision of public goods, higher taxation of immobile labour will lead to more unequal distribution of income (Sinn 1998, p. 124). This regressive effect will be magnified by the fact that the burden will lie less on high-income individuals, who have greater ability to avoid taxes using offshore tax heavens compared to low- and medium-income households. Even more problematic, Keen and Marchand (1997, p. 47) foresee that we could see increases in expenditures for attracting mobile capital at the expense of spending on public goods benefiting immobile factors, which would make the distributional problem even more acute.

Secondly, tax compliance is undermined by the ability of corporations to hide income through tax planning. In this aspect, greater avoidance opportunities create inefficiencies in the allocation of

¹ This problem will be exacerbated as tax avoidance is also conducted by large individual taxpayers and income inequality harms middle classes that cannot hide income easily compared to large-taxpayers.

² It is important to add that despite the differentiation made between FDI and profit shifting practises,

income between international subsidiaries of a corporate group, generates a waste of resources directed to design tax planning and control it and leaves those corporations unable to access tax planning in a comparative disadvantage. Furthermore, it undermines the tax objectives of the tax authority, such as using the corporate tax as a redistributive tool.

Given tax competition and tax avoidance, and the distortionary effects that they might create, some propose to eliminate the corporate tax. Before analysing deeper tax competition and tax avoidance, we should touch upon this issue and note that such prescription might be inadvisable. On the one hand, corporate tax is needed if a country allows incorporation and taxes individual income. A positive corporate tax might serve as a way to prevent individuals to shift their income to corporate income in order to avoid taxes i.e. the presence of corporate tax is explained according to the backstop theory (Mirrlees and Adam 2011, p. 409). Therefore, it is necessary to have a dual tax system in order to prevent putting in a comparative disadvantage those individuals with small-businesses or self-employed that are not incorporated. Also, corporate income, despite tax avoidance practises, might still be easier to monitor than individual income given that companies have to provide reliable and transparent information about their income to their shareholders and financial institutions providing them debt. For low- and medium-income countries, which have lower fiscal capacity than OECD countries (Besley and Persson 2013), this argument is fundamental (and in Section 3.3.2 we see it translates to corporate tax revenues being a very significant share of income taxes collected). In addition, recent studies point to a concentration of ownership of multinationals, which might be a direct cause of the increasing worldwide wealth inequality. For instance, Vitali et al. (2011) estimate that only 737 top holders accumulate 80% of the control over the value of all transnational corporations. Under the effects that higher capital mobility have triggered, it might be necessary for nations to tax corporate gains effectively in order to redistribute income at the national level. For instance, Piketty and Saez (2006) indicate that reductions in corporate tax rates in the US reduced the overall progressivity of the national tax system.

2.1.2. International corporate tax competition: theoretical predictions

International tax competition might pose an immediate threat to the corporate tax. Whether it might drive to its abolishment is uncertain. The dominant view regarding capital mobility and taxation is that of neoclassical approaches assuming perfect capital mobility, which directly implies equalisation of the return to capital investment globally, since a country with higher returns than others would immediately attract investment from the latter. The model of Zodrow and Mieszkowski (1986) is usually used as the baseline model in the literature for illustrating tax competition under this

assumption. Furthermore, as further simplification the model assumes that each region's public good supply is financed by tax capital employed within borders. This model, like many others, such that one of Wilson (1999), who includes full employment and only industrial capital, end-up concluding that we should not observe any taxation of income from capital investment in a small open economy that relies on source-based corporate taxes. Since the tax base is sensitive to foreign maximisation of welfare (Oates 1999, p. 1136), attracting capital through tax reductions is optimal. Furthermore, such models usually claim that any tax on capital will be fully shifted to immobile factors (Gordon and Bovenberg 1996, p. 1057), with labour bearing most of the burden. Other authors point that even with residence-based taxes, in these models small countries might enforce taxes on foreign-source capital income and end up tax immobile factors (Sørensen 2000, p. 432).

The size of the country will prove fundamental in a welfare analysis of tax competition in such models. Countries of the same size will face equal welfare losses under a non-cooperative equilibrium, but as a country is smaller relatively to other countries, the former is gradually better off under tax competition and taxing their taxes since the gains from increase in capital inflows the loss from fewer public revenues. In a tax competitive environment this can be labelled as the advantage of "smallness" (Genschel and Schwarz 2011, p. 341; Wilson, 1999). On the contrary, large countries will moderate their cuts in rates as their level of investment in their country influences the international return to capital. An increase in rates will create a relative smaller capital flight effect given that a reduction in capital in these countries will induce an increase in the global overall return of capital before-tax. Furthermore, a big-sized net capital importer country might want to restrict imports through increases in taxes in order to lower the rate of return in the world market (Gordon and Hines 2002, p. 19).

However, competitive pressures might not be that acute if we relax certain assumptions of the models commented previously. For instance, there is controversy regarding the assumption of perfect capital mobility, and also about the effects of the latter on determining the magnitude of tax competition. There's extensive evidence that runs against theoretical models that assume that returns to capital investment are equated internationally. One of the main critiques comes from what has been called the Feldstein-Heroic puzzle, which indicates that there exists a high cross-country correlation between saving and investment i.e. an additional dollar in savings in a country create almost another dollar in investment in the same country (Feldstein and Horioka 1979). However, while some studies have demonstrated the robustness of this correlation, well explained in Gordon and Bovenberg (1996, p. 1057), such puzzle might disappear as the correlation is weakened in

economies that are more integrated financially, such is the case of Europe in the 2000s (Blanchard and Giavazzi 2002, p. 181).

But the evidence against perfect capital mobility is, at least from what we can learn from studies before the 2000s, still robust when we look real-interest-rate differentials (Mishkin, 1984) and the high degree of specialisation of individual portfolios in domestic securities (French and Poterba 1991). Furthermore, using neoclassical assumptions, Stiglitz (1983) demonstrates that capital markets are imperfect because otherwise investors could avoid all taxation. In this sense, Gordon and Bovenberg (1996, p. 1058) argue that exists asymmetric information between investors in different countries, with foreign investors having relatively poor knowledge about domestic markets compared with domestic investors, and thus making the former more vulnerable.

If perfect capital markets are hardly backed-up by the empirical literature, the idea that in a small open economy all the corporate tax burden falls on immobile production factors might be as well exaggerated. Gravelle and Smetters (2001) show us that, even if we assume perfectly integrated capital markets, expectations of who bear the burden depend radically on the assumptions we make in our models. In their model, the inclusion of imperfect product substitution acts as a barrier to capital mobility and domestic labour will only bear small amount of the tax. Also, Serrato and Zidar (2014) find for US counties that heterogeneous productivity across firms limits the mobility of business and lowers the incentive to move their production given small changes in taxes. This means that the degree of profitability of a firm in a country will also affect the degree of sensibility to tax changes. Their results of these authors warn us in the same way as the Feldstein-Horioka puzzle: the debate of tax competition shouldn't just focus on the degree of openness of an economy, given that other factors affecting investors might reduce the effects generated by tax differentials.

We should briefly mention other factors that, even assuming perfect capital mobility, reduce competitive pressures. Firstly, if we acknowledge that increasing returns to scale and agglomeration forces play an important role in the economic development of a country, as posited by the New Economic Geography (Krugman and Venables 1995), we should expect countries that host clusters to be more able to resist international pressure to cut tax rates, and countries without such clusters more eager to cut them. In such case, we can expect large and developed countries to represent the former, and small or underdeveloped countries to cover the latter. Furthermore, factors such as good public infrastructure, a well-educated labour force and social and political stability might contribute to reduce the sensitivity of FDI to tax. Also, as long as these factors are tax financed, high taxes might attract

FDI (Genschel and Schwarz 2011, p. 349). Secondly, countries hosting extractive industries that represent great part of their economic activity might see optimal to set a higher corporate tax if it hasn't put previously a direct tax on the products extracted. Thirdly, there exist domestic constraints such as institutional restrictions and political incentives to keep the corporate tax. For instance, left-wing voters might see tax reductions on corporations as something that works against the tax progressivity of the system or politicians might prefer to tax foreign investors instead of domestic voters. Even more, the dilemma between reducing taxes and losing revenue can prevent or delay policy adjustment to competitive pressures (Genschel and Schwarz 2011, p. 342), making the process slower than what could be expected in static models that doesn't take into account political processes. Lastly, but highly important for my thesis, higher international tax avoidance through financial innovation and liberalisation, which makes less costly to shift income between jurisdictions through financial transactions, might make real investment decisions less sensitive to tax rate differentials between countries and release some pressure on statutory rates (Mintz and Smart 2004, p. 1166)

Before moving forward, I would like to make an important differentiation between the effects of tax competition on statutory tax rates and effective tax rates. In the case of the statutory rate, we expect tax competition to exercise an unambiguous downward pressure. On the one hand, as pointed by several authors (Sørensen 2000, p. 434; Devereux et al. 2008, p. 1211), reduction in the statutory rate protects a country from profit-shifting activities. On the other hand, broadening the tax base by eliminating deductions and incentives is normally an optimal choice (Haufler and Schjelderup 1999, p. 320), especially given that the statutory rate has higher visibility than the tax base (Genschel and Schwarz 2011, p. 352). Because of the latter effect, the change in effective rates coming from tax competition is ambiguous. A country can expand its tax base because direct investments often include an element of location-specific pure profit, making capital owners unable to fully shift the burden of taxation onto other factors of production (Sørensen 2000, p. 434). Furthermore, as integration increases foreign ownership of domestic capital stock, the domestic effective rates might increase but the effect be compensated by reduced taxes on savings, therefore exporting the burden to foreign investors (Huizinga and Nielsen 1997, p. 163; Sørensen, p. 434).

Nevertheless, we should note that tax competition unambiguously limits the national sovereignty of a country. Forced to broaden the tax base for maintaining revenues, they have to give up deduction rules that might incentivise companies to make investments that governments had before seen as crucial for the nation. So even with effective tax rates not changed by tax competition,

the latter still produces a dilemma on governments, who might give up powerful regulatory tools. In Section 3.3. we will see they are fundamental for developing economies.

2.1.3. Profit-shifting practises

The decisions of international investors and the ability to construct tax avoidance structures are partly product of national differences in corporate taxation. As with tax competition, through changes in rates and legislation, one country produces positive or negative externalities onto other countries.

There are two main taxing principles in corporate taxation. On the one hand, a residence based system tax profits according to the residence of the corporation. Therefore, the objective is to tax the worldwide profits of a domestic company, no matter the origin of the profit, and to exempt foreign companies. In contrast, source-based systems make liable of paying taxes to any company that has generated its income from domestic sources. In the literature it is considered that given the complexity of the effects of taxation on investment decisions, one optimal decision from tax authorities is to set taxes that are export neutral i.e. when a saver and investor face have the same tax liability from its savings and investment independently from the source of its income. Given differences in international rates, residence based taxation is considered to achieve this by not discriminating profits according to the source of income.

To the extent that corporate taxation is effectively source-based, companies have two options of (legal) tax arbitrage. They can either shift profit by generating new economic activities in low-tax countries or shift book profits there and fictitiously report that the profits were generated in a low-tax jurisdiction. The former strategy involves changes in FDI: companies directly move production to low-tax countries. The second strategy involves transfer pricing, thin capitalization and other tax planning techniques that require the establishment of subsidiaries in low-tax jurisdictions.² Transfer pricing refers to the setting of charges in intra-group transactions. By over (under) charging affiliates in high (low) tax countries for inputs received from affiliates in low (high) tax countries, multinational groups can reduce the taxable profits of these affiliates and thus lower the tax burden of the multinational group as a whole. In order to prevent this, countries might impose transfer pricing rules in order to prevent the amount of profit shifting. Such rules will be more or less effective depending

² It is important to add that despite the differentiation made between FDI and profit shifting practises, companies can only engage in profit shifting to the extent that they have subsidiaries in low-tax countries that can serve as receiving ends. This requires FDI in holding companies or other financial services operations. Hence, FDI and profit shifting are intimately linked (Genschel and Schwarz 2011, p. 346).

on the product being analysed. For instance, profit shifting is easier to implement if it involves immaterial goods such as patents and brands given that transfer pricing rules cannot reflect upon established market prices (Grubert 2003).

Thin capitalization practises imply that companies exploit differences in statutory tax rates across countries and rules on deductions on interests paid by miss-allocating debt. For instance, in the case of outbound investment, a parent firm in a high-tax country borrows in behalf of the subsidiary in a low-tax country and inflates the equity of the latter. Hence, interest paid on the debt is deductible in the high-tax jurisdiction whereas it also swells the profits of the parent in the low-tax jurisdiction, and thus increases after-tax profitability of the corporation. In the case of inbound investment, a subsidiary in a high-tax jurisdiction substitutes its equity by a loan produced by a related firm in a low-tax country instead of borrowing the money where it is located. In this way, the group is deducting taxes from the interests paid to a related party, lowering its pre-tax income, whereas the income received in the low-tax jurisdiction is taxed at lower rates (OECD 2015c, p. 16). Fraudulent allocation of expenses might also occur related to other sources of income, such as R&D expenditures, as long as there exist rules that allow deductibility in expenses and tax rates differ between countries (Gresik 2001, p. 8).

As an empirical measurement, in terms of thin capitalisation studies have showed that an increase of one percentage point in a source country increases the debt ratio of subsidiaries in that country by at least 0.2 percentage points (Genschel and Schwarz 2011, p. 348). Also, other set of studies has indicated that the profits of subsidiaries in low-tax countries are normally higher than in high-tax countries. For instance, De Mooij and Ederveen (2008, p. 684) find that one percentage increase in the corporate tax reduces profits reported by multinational companies by 2%. Also, among many indicators that the BEPS project provides, they find that top global multinationals tend to have higher profits in low tax jurisdictions (OECD 2015d, p. 56).

Once understood some basics of profit-shifting behaviour, we can explore why residence-based systems at present times might be failing to prevent it. One problem is double taxation. Given that domestic companies might have to pay taxes in foreign jurisdictions because of their operations there, the domestic country might provide some tax relief from double taxation to the domestic company in order to avoid imposing prohibitive taxes on corporations. The most common tax reliefs in terms of double taxation are found in the form of tax credits or exemptions. In the case of credits,

countries impose a limit of the credit, normally until the point where the credited tax exceeds the domestic tax. In this way, countries also avoid subsidizing foreign investments.

However, all countries also grant credits up to a limit, normally until the credit is equivalent to the taxable income in the residence country. Under a limited credit system a residence-based system might become a de-facto source-based system. This is because once the credit limit is reached, and a multinational is in what is called excess credit, it faces an overall taxation of its profits that is based on its source. This implies that in excess credit investment decisions will take into account the tax rates of a foreign jurisdiction. In such case, the tax credit limit would be undermining the intention of taxes to be export neutral. Furthermore, one of the problems at excess credit is that income from domestic and foreign investment is taxed at different rates, and again, as with source-based taxation, it incentivises profit-shifting behaviour (Giovanni and Hines 1990, p. 13). For instance, firms might incur in cross crediting by using excess tax credits generated in one activity or country to offset domestic taxes due in another country, which in turn breaks efficiency sleeked through export neutrality (Gravelle 2004, p. 777).

Another common tax instrument used by tax authorities are withholding taxes on income paid. The most common withholding taxes across countries are imposed on dividends distributed, and interests and royalties payments. These taxes might be justified on the grounds that given avoidance practises withholding taxes provide an opportunity to tax income when it emerges. However, countries normally impose them on income remitted to non-residents, indicating also an opportunistic behaviour from governments to tax foreigners. Such withholding taxes, in opposition on taxing only once corporate profits, might induce distortions if it induces corporations to retain earnings or discourages foreign purchases of domestic stocks. However, as long as the withholding dividend taxes are applied equally to both residents and non-residents and are paid, Sinn (1991 p. 33) also shows that dividend taxes are neutral when – and because – corporation pays dividends.

Another controversy rises with deferral policies that allow paying taxes only when subsidiaries repatriate profits to the parent company via dividends, royalties or interest payments. While this rule helps to avoid paying home taxes on foreign earnings that are reinvested in the subsidiaries, it creates an incentive for corporate groups to park foreign earnings abroad (Gresik 2001, p. 6). According to Giovannini and Hines (1990, p. 13), by allowing foreign subsidiaries to pay only as long as dividends are not repatriated, deferral defeats the main purpose of the residence principle. In this sense,

Gravelle (2004, p. 775) considers that abolishing deferral could be positive in the extent that it reduces the incentives to shift income to tax havens.

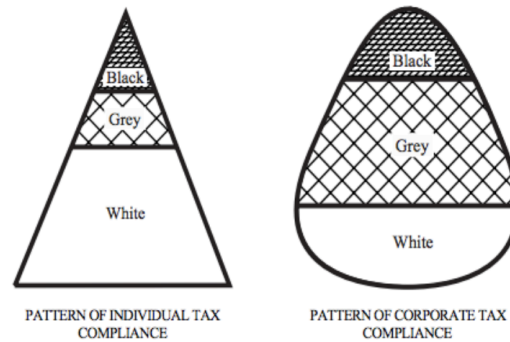
Also, one of the main problems when granting tax credits and giving rebates to individuals for capital taxes paid by their corporations, is that there exists an informational asymmetry about the types of investments of domestic companies in foreign countries. This is in turn reinforced when foreign countries implement secrecy rules in their countries in order to attract profits by impeding the domestic country to know the amount of taxes that these companies are liable for (Gordon and Hines 2002, p. 15; Gresik 2001, p. 4). However, the information problem is less severe than in the case of individual taxation since there are in place strict accounting requirements that corporations have to follow (Genschel and Schwarz 2011, p. 346). This truer if both the tax authority and corporations rely on IT resources, increasing accountability of the former in their tax liabilities towards tax authorities, who are able to examine the sources of corporate income much faster (Nibbe 2015).

Overall, in the sense that governments face constraints when taxing corporate profits at the international level and residence countries also tax income of foreign corporations, no country follows a pure tax structure, and each individual country host a mix of source and residence-based principles (Genschel and Schwarz 2011, p. 344). The most plausible argument is that countries impose a tax structure that maximises their objectives according to the corporate structure under which domestic and foreign investments occur (Gresik 2001, p.23). Given constraints to the government taxing power mentioned above, Giovannini shows that we might not reach export neutrality under residence-based taxes, making them maybe not efficiently superior to source-based taxes. In such cases, we might not rule out source-based taxation as an efficient tax system (Giovannini 2013, p. 212).

Finally, we have to establish a clear differentiation between individuals and corporations in terms of their characteristics as taxpayers and their incentive to avoid taxes. In comparison with individual income taxes, we can expect more aggressive tax planning by companies than by individuals. This is because the latter might interfere its pure income motivation with nationalistic sentiments and morality regarding its obligations as a taxpayer. On the contrary, the main nature of a corporation, especially that ones controlled CEOs that have to be accountable to shareholders around the globe, is to increase the profitability of their company. Significantly, the Tax Director of FTSE 100 claims "the payment of tax is regarded as just another business activity by large corporates" (Tuck 2013, p. S122). This differentiation between taxpayers is crucial since the objective of a tax authority has to be to maximise voluntary compliance (McCarten 2004, p. 3) and minimise tax evasion and

avoidance, and in order to do so has to acknowledge that each group of taxpayers have different characteristics and tax compliance behaviours, presenting each one a different risk to the revenue base.

Figure 2 - Tax compliance structures.



Source: Braithwaite (2003, p. 180)

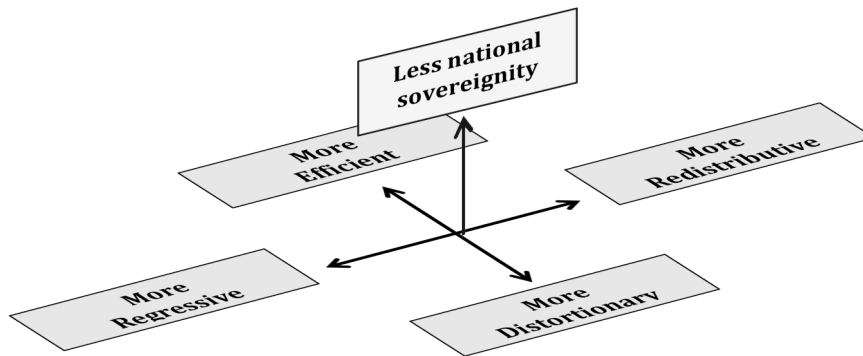
According to Figure 2 of Braithwaite (2003, p. 180), tax compliance at the individual tax can be represented by a pyramid structure. The white area represents those most willing to comply, and they require a cooperative tax authority in order to generate trust. Those in the higher levels of the pyramid represent the ones less willing to cooperate, who require a more coercive and aggressive tax authority. However, in the case of corporate tax compliance tax authorities have to face an egg-shaped structure with a majority of companies in a grey area, which includes those not willing to comply but who exercises tax planning to avoid taxes rather than to evade. As pointed by Braithwaite (2003, p. 179), the strategy of tax authorities must be to push companies in the grey area to the white one through both conventional means, such as law reforms, and through his proposals, which imply more democracy and internationality.

2.1.4. Inclusion of national sovereignty in the tax system design

As Braithwaite, in this study I similarly argue that cooperation in corporate taxation, through harmonisation and sharing information, is fundamental. Those countries that decide to keep taxing corporate profits are advised to correct the distortions that international capital mobility generates, not only by tackling tax avoidance but also putting barriers to tax competition. The crucial decision governments have to undertake is regarding the degree of sovereignty on taxation that are willing to gave up. Therefore, we might expand Figure 1 to a 3D coordinate system where national sovereignty

is included. This is illustrated in Figure 3. Given the political resistance to give up explicitly national sovereignty, this issue will prove crucial when analysing the feasibility of tax harmonisation in Section 4.

Figure 3 - Cardinal points of a tax system for an open economy



Source: own elaboration

3. Evidence of tax competition and overview of corporate tax systems of developing economies

3.1. Evidence of tax competition

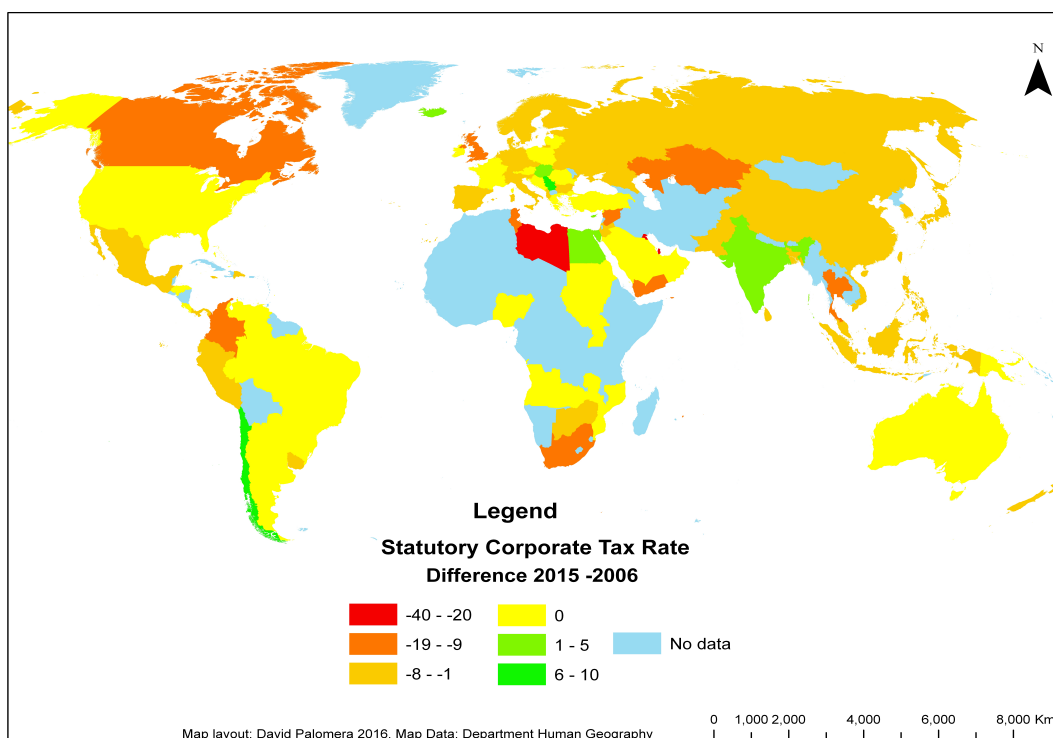
It has been widely accepted that since the 1980s until recent days there's has been sharp global reductions in statutory tax rates. Several studies show that the average statutory tax rates for both small and large OECD countries reduced their rates between 1985 and 1999. In case of the former, which in Sørensen (2000, p. 436) is defined as countries with a population of less than 20 million³, the reduction was of 17.2 per cent. As for the large countries, with more than 40 million, the rate diminished less dramatically, an 8.2 per cent. Gravelle (2004) calculates the changes in rates from 1981 and 2010 by weighting the rates with the GDP of each OECD country and shows how the rates continued to diminish until now but that the reduction was more acute for small countries. With the unweight measure the rates demised from around 48 per cent in 1981 to 26 per cent in 2010, whereas for the weighted measure the rate was 50 per cent in 1981 and around 31 per cent in 2010.

³ His definition might not be accurate given that a size of the country might depend on other factors than population. What defines the size of country is more its overall endogenous ability to affect international rates of return to capital, and not only external variables.

The same phenomenon has occurred among developing economies, as showed in Keen (2012, p. 3), with lower and upper middle income countries departing from lower median rates in 1980 (around 40 per cent), and reaching a median similar to high income countries, around 26 per cent, in 2010. Is interesting to note that in his study that low-income countries arrived in 2010 with median rates higher than the rest of countries, close to 30 per cent. How we will see in Section 3.3., such difference is much smaller in terms of effective tax rates since given the amount of incentives that developing economies grant.

In order to get a grasp of the most recent trends, especially after the Great Recession, Figure 4 provides a global view of the changes in statutory rates from 2006 to 2015. Consistent to the theory and previous trends, rates have overall remained unchanged or diminish, but seldom we see increases in rates. Also, the map confirms that this have occurred in both developed and developing countries, being the only two exceptions in the latter case Chile and India, who increased their rates 5.5 and 3.5 per cent, respectively.

Figure 4 - Difference in statutory corporate tax rate from 2006 to 2015



Source: Deloitte (2015), FFI (2016), FITA (2015), Gaziano (2016), KPMG (2015), MTRA (2016), PWC (2015), PKF (2015)

In the empirical literature, the reasons behind such tax reductions are still cause of debate, with studies pointing to tax competition and others to underlying trends in intellectual trends. Given the validity of both arguments and their evidence, probably is a mixture of both. In the case of tax competition, as we have seen, reductions were bigger in the case of small countries, in accordance to the their bigger marginal benefits of cutting taxes in the face of tax competition. Also, studies provide evidence of an increasing positive correlation between corporate tax rate and the size of countries (Genschel and Schwarz 2011, p. 357).

In terms of capital controls, Rodrik (1997) finds that they have a negative relationship with effective tax rates on capital. In this sense, Gordon and Jun (1993) shows that Australia and Sweden decreased considerably the top individual marginal tax rates right after the elimination of capital controls. Devereux et al. (2008) test empirically the strategic interaction that supposedly should exist in case of tensions emerged from tax competition. Through estimating reaction functions of each country taxes in response to changes in the rates of the foreign country, they find that whereas countries compete over the statutory tax rate to attract mobile profit, there's weaker evidence that supports competition at the effective marginal tax rate to attract capital. Furthermore, they find that strategic interaction is stronger when countries don't have capital controls, which according to them doesn't support alternative versions such as intellectual trends or yardstick competition (Devereux et al. 2008, p. 1213).

Geography might as well reinforce the degree of tax competition. Overesch and Rincke (2009) exploit the quasi-experiment nature of the breakdown of the communist regimes of Eastern Europe. They find that Western European countries at the border with the ex-communist bloc cut more their rates than the average. However, they attribute such effect to the wage differentials between the two blocs and not to strategic interaction of key parameters of national tax schemes (transition countries in East Europe didn't have a competitive tax system until 1995) (Overesch and Rincke 2009, p. 1350).

However, other studies analysing effective tax rates before the 2000s present opposite results in terms of the effects of capital liberalization. For instance, Swank (2002, p. 254) encounters that capital liberalization is positively related to the effective tax rate on capital, whereas Swank and Steinmo (2002, p. 650) and Quinn (1997) report that liberalization of capital controls is unrelated with a decrease with the tax burden. Since at the same time that statutory rates were being cut in developed nations the tax base was being broadened through reductions in incentives, Swank and Steinmo (2002,

p. 650) state that there has not been a reduction of the tax burden on capital.

Finally, intellectual trends and domestic policy maker's traditions are considered fundamental as a cause of cuts in statutory rates by some researchers. In the case of traditions of tax authorities, Gravelle (2004, p. 910) claims that for the U.S., one of the countries that reduced considerably its rates since the 1960s, there's a common philosophy that whenever individual tax rates are cut, taxes for corporations are also cut. Also, she states that depreciation policy reforms, mostly aimed to providing investment incentives and generate counter-cyclical stimulus, have the tendency to reduce effective tax rates, independently of pressures from tax competition (Gravelled 2004, p. 911). As for international intellectual trends, Swank (2006) posits that the strategic interaction between countries on rates exists, but that this is mainly driven by the diffusion of neoliberal tax policy ideas, and that the pressure to compete for mobile assets anchors further diffusion of neoliberal tax policy (Swank 2006, p. 847). This seems consistent with the same downward tendency of top individual income tax rates in the OECD, being reduced from a rate of 65 per cent in 1985 to a 46 per cent in 2009 (Genschel and Schwarz 2011, p. 356), making clear that in previous decades has been a general tendency to reduce income tax rates. Since 1990s and the rises in capital flows it has been well established that internationalization requires a change in the tax policy regime, with an intensification of arguments invoking efficiency-oriented reforms from centre-right politicians, business, and neoliberal economists (Swank and Steinmo 2000, p. 648).

3.2. Taxation principles and withholding taxes of selected developing economies

The analysis of the tax regimes of the selected developing economies yields us with similar results to studies analysing OECD countries and the theoretical predictions. In Table 1 we can see that most countries follow a worldwide principle when taxing resident companies and grant credits for double taxation relief. Only five countries of the 32 analysed do not give tax credits for foreign taxes paid. Also most of them tax the source income of foreign companies, indicating a maximisation of tax revenues by employing all instruments available. This is even truer when seeing that most of them also apply withholding taxes to interests, dividends or royalties paid to non-residents and, to a lesser extent, residents (Table 2). It is interesting that the region where is less discrimination between residents and non-residents is Africa. Importantly, we see that discrepancies between the tax rates are considerable. Nevertheless, as we can see in Table 3, most of these countries have also signed numerous double taxation treaties (DTT).

Table 1 - Taxation principles and double taxation relief without treaty

Region	Country	Resident companies	Non-resident	Double Taxation Relief Without Treaty
Latin America	Argentina	Worldwide	Source	Credit with limit
	Brazil	Worldwide	Source if carries certain sales activities.	Credit with limit
	Colombia	Worldwide	Branch: worldwide. No branch: source	Credit with limit
	Ecuador	Worldwide	Source	Exempt
	Paraguay		Source	None
	Peru	Worldwide	Source	Credit with limit
	Uruguay	Source (except for foreign financial income of companies owned by Uruguay taxpayers)		None
	Venezuela	Worldwide	Source (even without permanent establishment)	Credit with limit
Asia	China	Worldwide	No establishment: source. establishment: worldwide	Credit with limit
	Bangladesh	Worldwide	Source	
	India	Worldwide	Source	Credit
	Indonesia	Worldwide	Source	Credit with limit
	Kazakhstan	Worldwide	Source	Credit with limit
	Lebanon		Source	None
	Pakistan	Worldwide	Branch: Source	Credit with limit
	Philippines	Worldwide	Source	Credit with limit
	Thailand	Worldwide	Source	None
Eastern Europe	Bulgaria	Worldwide	Source	Credit with limit
	Romania	Worldwide	All income derived from Romanian taxpayers	Credit with limit
	Serbia	Worldwide	Source	Credit with limit

Table 1 (continued) - Taxation principles and double taxation relief without treaty

Region	Country	Resident companies	Non-resident	Double Taxation Relief Without Treaty
Africa	Algeria		Source	None
	Angola	Worldwide	Source	None
	Burundi	Worldwide	Source	None
	Ghana	Worldwide	Source	Credit with limit
	Morocco		Source	Credit with limit
	Mozambique	Worldwide	Source	Credit with limit
	Namibia		Source	Credit with limit for certain income
	Nigeria	Worldwide	Source	Credit (with limit)
	Rwanda	Worldwide	Source	Credit limited only to countries with double taxation relief
	Tanzania	Worldwide	Source	Credit with limit
	Uganda	Worldwide	Source	Credit with limit
Zambia		Source	Credit with limit	

Source: PWC (2015) and PKF (2015). Note: Blank spaces denote lack of information

Table 2 - Withholding taxes imposed by selected developing countries

Country	Residents			Non-residents		
	Interest	Dividend	Royalties	Interest	Dividend	Royalties
Argentina	28		6	15/35		21/28
Brazil				15 (25 tax haven)		15 (25 tax haven)
Colombia				33	14/33	33
Ecuador	0/2		8	15/35	0/13	0/22/35
Paraguay				30	15	30
Peru				5 (related party loan: 30)	6.8	30

Table 2 (continued) - Withholding taxes imposed by selected developing countries

Country	Residents			Non-residents		
	Interest	Dividend	Royalties	Interest	Dividend	Royalties
Uruguay				0/12	0/7	0/12
Venezuela	5	34	5	4.95	Progressive, up to 34%	Progressive, up to 34%
China				10	10	10
India	20/10		10	5	20	10
Indonesia	15	15	15	20	20	20
Kazakhstan				15	15	15
Lebanon				10	10	7.5
Pakistan	10	12.5		10	12.5	15
Philippines				30	30	30
Thailand	15	10	5/15	15	10	15
Bulgaria				10	5	10
Romania		16/10		16	16/5	16
Serbia				20	20	20
Algeria					15	24
Angola	15/10	10/0	10	15/10	10	10
Burundi	15	15	15	15	15	15
Ghana				8	8	10
Morocco				10	15	10
Mozambique		20		20	20	20
Namibia				10	20	30
Nigeria	10	10	10	10	10	10
Rwanda	15	15	15	15	15	15
Tanzania	10	5/10	15	10	5/10	15
Uganda	15	15/10	6	15	15	15
Zambia	15	15	15	15	15	20

Source: PWC (2015) and PKF (2015). **Note:** In case of different rates applied to individuals and corporations it has been chosen the rate applied to the latter. Blank spaces denote exemption from withholding taxes.

Sub-Saharan African and Latin America countries have signed fewer treaties than other regions. Asian countries have signed numerous treaties, especially India and China, two countries that have been a focus of international investments in the last years. Eastern European countries have also signed considerable treaties, probably due to their closeness and investment relations with the EU since the fall of the Soviet Union. The number of treaties signed overall gives us two main insights. On the one hand, coordination in terms of double taxation relief have proliferated which indicates communication and ability to reach consensus between tax offices in developing economies with the rest of the globe and the possibility of reaching agreements between countries. In this sense, DTT might work in favour of greater coordination and harmonisation in the future.

On the other hand, in terms of withholding taxes treaties, which are normally subject to the DTT, it is very common among developing countries having signed multiple with various countries. Furthermore, across treaties is common that withholding taxes range between 0 and 15% for interests, dividends and royalties paid. In this sense, the international community have reached a certain degree of harmonisation in withholding taxes.

Table 3 - Number of Double Taxation Treaties signed in 2015

Country	DT Treaties	Country	DT Treaties	Country	DT Treaties
Argentina	18	Indonesia	44	Burundi	None
Brazil	34	Kazakhstan	49	Ghana	9
Colombia	11	Lebanon	29	Morocco	42
Ecuador	14	Pakistan	70	Mozambique	10
Paraguay	1	Philippines	49	Namibia	11
Peru	8	Thailand	39	Nigeria	12
Uruguay	13	Bulgaria	70	Rwanda	3
Venezuela	32	Romania	85	Tanzania	9
China	103	Serbia	58	Uganda	7
Bangladesh	30	Algeria	20	Zambia	23
India	93	Angola	None		

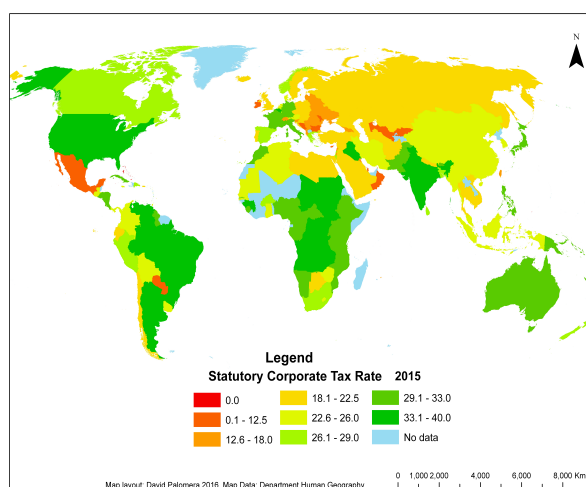
Source: PWC (2015)

3.3. Differences in corporate tax systems between developed and developing economies

3.3.1. Regional patterns in statutory tax rates and tax incentives

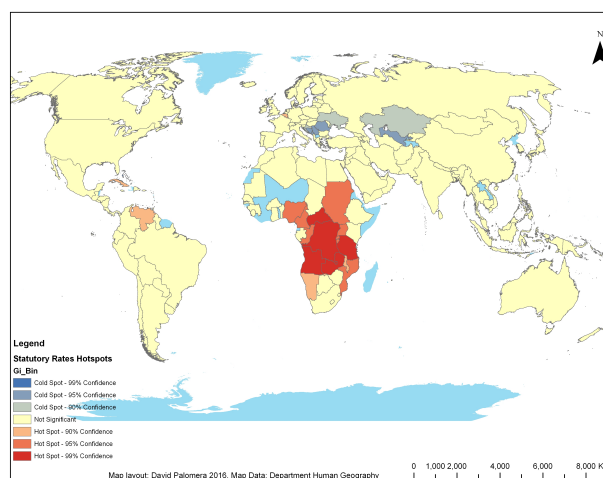
In terms of tax rate harmonisation, it is important to take a look at regional patterns in terms of statutory tax rates. Here we will analyse central government rates, but it should be noted that few countries also grant competencies to local authorities, such is the case of Brazil or U.S. Figure 5 shows that in present times no region remains with rates higher than 40 per cent, at the exception of the United Arab Emirates, with a 55 per cent. The region that has a majority of countries with higher rates than the rest of the world is sub-Saharan Africa, with the exception of some southern countries such as South Africa. In Figure 6 we can see that the difference of the rates of these countries compared to the rest of the world is statistically significant when performing hotspot analysis using Getis-Ord G_i^* z-scores.

Figure 5 - National Statutory Corporate Taxes



Source: Deloitte (2015), FFI (2016), FITA (2015), Gaziano (2016), KPMG (2015), MTRA (2016), PWC (2015), PKF (2015)

Figure 6 - Hotspot Analysis of Statutory Corporate Tax Rates at the world level using the Getis Ord G_i^* z-scores



Source: Deloitte (2015), FFI (2016), FITA (2015), Gaziano (2016), KPMG (2015), MTRA (2016), PWC (2015), PKF (2015)

As for Europe, major countries of the EU still have rates close to 30 per cent but they are in stark contrast with other EU countries that present lower rates such as the UK, Sweden or Portugal. The lowest rates are found in Ireland and Switzerland, with rates of 12.5 and 17 per cent respectively. On the contrary, there seems to be a type of de-facto harmonization in tax rates in East Europe,

presenting on average relatively very low rates. Furthermore, as we can see in Figure 6, we can reject the null hypothesis that region's low rates are a product of a random distribution of tax rates.

As for Latin America, it has comparatively high rates but there are also other countries with low rates and seems far to behave as an harmonised region, with Chile, Ecuador and Paraguay having considerably lower rates than Argentina, Brazil and Venezuela. In Asia doesn't seem to be any pattern of convergence to a certain rate. In sum, we might conclude that, with exception of Central Africa and Eastern Europe, there are not regional patterns in terms of equalising statutory tax rates.

Differences in statutory tax between developed and developing countries are partly the cause of the latter taxing a narrower tax base. In contrast with recent trends of developed economies to reduce tax incentives in line with base-broadening reforms (Clausing 2007, p. 123; Devereux et al. 2002;), the corporate tax system of developing countries is plagued by tax incentives and tax holidays offered by governments for certain types of investments. As we can see in Table 4, countries offer a wide range of incentives that narrow the tax base considerably. A very common type of incentive is the creation of tax holidays or allowances for companies working in zones that the governments want to develop economically, which in the table are named "special zones". Also, it is common across all countries to give different incentives to certain sectors, especially for the ones related to manufacturing, extraction and tourism. From this analysis we can clearly be certain that even if developing countries have higher tax rates than developed economies, the former still employ different incentive tools in order to attract investment that can lead to an overall tax liability of zero. Furthermore, in certain countries tax exemptions might last a long time. For example, in Angola, a country with high statutory rates, companies can benefit from deductions during 10 years.

Probably, one of the explanations behind the great range of tax incentives and tax holidays in an environment of high statutory rates has its roots in the aim of governments to collect revenue while at the same time boosting investment in certain economic areas. In this sense, Tansy and Zee (2001, p. 8) attributes higher differentiation in terms of taxation along sectorial lines of developing countries due to the "legacy of past economic regimes that emphasized the state's role in resource allocation".

Table 4 - Tax incentives of selected developing economies

Country	Corporate Tax Related Incentives	Country	Corporate Tax Related Incentives
Argentina	-	Bulgaria	Tax holiday for manufacturing, with some restrictions. Special purpose investment companies, collective investment schemes and national investment funds not subject to CIT
Brazil	Exports, implementation industrial units in specific regional areas, and R&D	Romania	Accelerated depreciation allowed, deductions for R&D and special zones
Colombia	To specific industries	Serbia	Tax holidays for investments of a minimum quantity
Ecuador	Mining and oil, R&D, basic industries (cooper, steel foundry, petrochemical, cellulose, construction, repair of naval vessels)	Angola	Tax benefits (reduction 50% CIT and exemption dividends) for 10 years depending on the investment project area of implementation.
Paraguay	Large tax breaks for investments and special zones	Burundi	-
Peru	Deductions for R&D and special zones	Ghana	Numerous tax incentives towards certain sectors and areas
Uruguay	Reduced rates for investments in fixed assets and special zones	Mozambique	Exemption for reinvested gains in fixed assets
Venezuela	Deductions for certain investments	Namibia	Accelerate depreciation for some manufacturing investments and incentives for exporters
Bangladesh	Numerous tax holidays and investment incentives such as accelerated depreciation	Nigeria	Numerous incentives for investments and exports and tax holidays in special zones
India	Deductions for certain investments and tax holidays in special zones	Rwanda	Tax holidays under certain requirements

Table 4 (continued) - Tax incentives of selected developing economies

Country	Corporate Tax Related Incentives	Country	Corporate Tax Related Incentives
Pakistan	Tax holidays in numerous economic areas	Tanzania	Deductible expenses (200%) and tax holidays for companies exporting more than 80% production
China	Numerous tax holidays depending of type of investment	Uganda	Tax holidays in special zones
Indonesia	Accelerated depreciation, tax loss compensation and reduction net income from investment for certain sectors and zones	Zambia	Tax holidays for certain investment licenses
Thailand	Deductions (200%) for various type of expenses	Lebanon	Exemptions for holding and offshore companies and incentives for activities related to economic development.
Philippines	Tax holidays for firms registered in BOI or PEZA and in special zones	Algeria	Investments in certain sectors and areas that require development.
Kazakhstan	Tax holidays for certain investments and special zones	Morocco	Exemption exporters and other companies and special zones

Note: Blank spaces denote no explicit specification of tax incentives. **Source:** PKF (2015) and EY Worldwide Corporate Tax Guide (2015).

Furthermore, incentives might be generated from international pressures from foreign corporations, which have the technology, productivity advantage, and knowledge to exploit certain investment opportunities. Furthermore, such companies already benefit from tax avoidance practises. A clear illustration of such problematic can be found in Malawi. According to the managing director of the Australian mining industry Paladin, operating in Malawi, the company needed a reduction of its tax liability given the costly investments to exploit uranium in the territory (Etter-Phoya 2015). On the one hand, the company was granted a tax break in the royalties that they should pay for extracting natural resources. On the other, the company avoided withholding taxes through reducing the

capitalisation of the Malawi subsidiary by receiving a loan from a subsidiary with no employees in the Netherlands, in charge of receiving the interest payments.

3.3.2. The weight of the corporate tax in developing countries' public revenues

Four main characteristics determine the amount of revenue that a developing economy can collect. Firstly, granting of numerous tax incentives for certain economic sectors and types of investment, which narrows considerable the tax base. Secondly, it's low investment in fiscal capacity i.e. their lack of resources for collecting tax revenues, specially if coming from direct income taxation (Besley and Perrson 2013). Thirdly, the lack of financial intermediaries and the considerable smaller size of the informal economy prove fundamental for tax authorities in developed countries for accessing information of individual and corporate income (Kleven et al. 2009; Pomeranz 2013). Fourthly, the inefficient use of public resources from certain governments and high levels of corruption that make taxpayers less willing to see their income wasted in things that doesn't benefit them (Levi 1998, p. 91; Slemrod 2003)

For these reasons, tax revenues and income taxes over GDP in medium- and low-income countries have a much lower weight compared to developed economies and governments face enormous constraints to provide essential public resources that the literature have proven conductive to economic growth. Under such context, tax revenue collected from small amount of individual and corporate large taxpayers is fundamental. Table 5 shows this feature of these tax systems for some developing economies, where a small percentage of individuals might provide half or more of the total tax revenues collected by large taxpayer units.

On the other hand, Figure 7 displays the relative weight of corporate tax revenues in the public finances of developing economies. Almost for all countries these revenues represent more than a 9 per cent of their total revenue coming from taxes, with an average for such countries of 16.4 per cent. This figure almost doubles that one of the average of OECD countries, indicating a greater relevance of such revenues for non-developed economies. Furthermore, over all direct taxes collected, corporate tax revenues also almost doubles its importance for developing economies than for developed ones, representing almost a half of all direct tax revenues for the former and a quarter for

Table 5 - Concentration of tax collection in selected countries (year 2000)

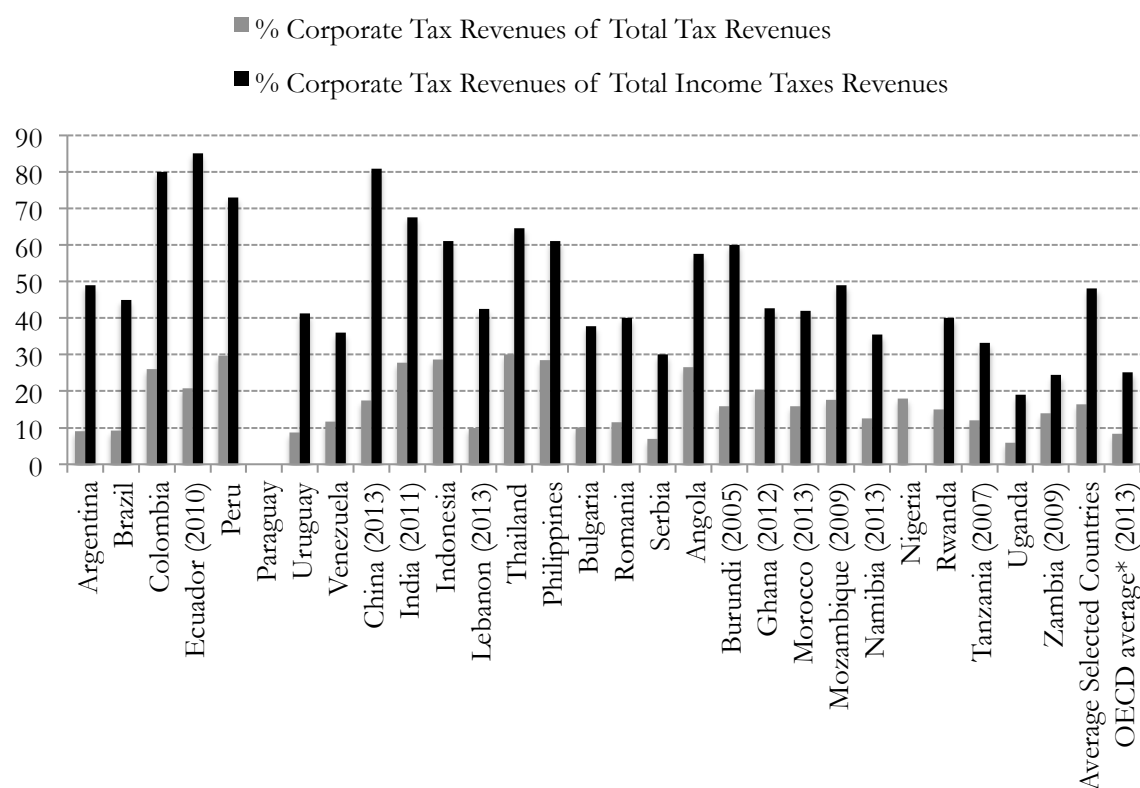
Country	Number of large taxpayers	% Of total taxpayers	% Of tax revenue
Argentina	3665	0.1	49.1
Benin	812	1	90
Bulgaria	842	0.1	51.4
Hungary	369	0.1	42.1
Kenya	600	0.4	61
Peru	2450	0.9	64.9
Philippines	833	0.2	36

Source: Benon et al. (2002)

the latter. In this sense, this points towards greater incentives of developing economies to tackle tax avoidance compared to OECD countries, at least as long as the former countries are not able to increase their ability to tax income from individuals. We can also detect that there whereas there's no clear regional pattern for this sample of countries, East Asian countries and India have the highest figures, making them potentially more sensible towards tax avoidance compared to other developing regions.

Even more, given that a great amount of revenue relies on large taxpayers, which have higher resources for tax planning compared to smaller taxpayers, they will require a higher degree of monitoring by specialised tax authorities and international coordination (McCarter 2008, p. 8) i.e. for developing economies it proves more fundamental that corporations in the black area of the egg in Figure 2 are pulled towards the grey area. This has been acknowledged by international institutions, which together with local authorities have recommended and fostered the creation of separated Large Taxpayers Units that are devoted solely to efficiently tackle tax avoidance and foster better taxing practises for this segment of taxpayers (Benon et al. 2002). As long as there's a lack of intermediaries capable of providing information of individual incomes, access to bank records of firms and public publication of their income statements might prove fundamental for these units.

Figure 7 - Weight of Corporate Tax Revenues over total tax revenues and income tax revenues for selected years between 2005 and 2014



Note: * Excluding Hungary, Chile, Mexico, Poland, Portugal and Slovak Republic. The data was collected for 2014 but for other years it has been included next to the country name. The average of the selected countries is done for different years whereas the data for OECD countries average come all from 2013. Despite the inaccuracy of such comparison, the data still is useful to depict differences between developed and developing countries. Also, included in tax revenues are social contributions, which in the case of developing economies normally it represents a small or insignificant share of total tax revenues. **Source:** own elaboration from data of Articles IV of the IMF, C&AG (2011), Eurostat (2016), Gómez-Saibini and Morán (2014), Fjeldstad and Heggstad (2011), FIRS (2015), Beaugrand (2004), Lam and Wingender (2015), OECD (2015), Rutasitara et al. (2010), UN (2013), URA (2015), and USAID (2009).

4. Analysis of possible solutions to tax avoidance and tax competition

In the analysis section I analyse a possible solution to tax avoidance and tax competition pressures that could improve the efficiency of tax systems in developing economies and increase public revenues. However, I point to the main problems for the feasibility of the tax scheme proposed, together with potential corrections that could increase the incentives of developing countries to participate in tax harmonisation. Finally, I conduct an analysis of the BEPS project as its the more ambitious tax coordination program in the last years.

4.1. A tax harmonisation model

Tax harmonisation in both statutory rates and rules are the best solution to tackling both tax avoidance and tax evasion as it allows for greater coordination for tackling tax avoidance from corporations, equates rates and so it diminishes profit-shifting opportunities, and internalises the global negative externalities that tax competition generates.

The paper "Capital flight and tax competition: are there viable solutions to both problems?" of Giovannini and Hines (1990) provides us with a model of international coordination – designed for the European Community – that strictly follows the residence principle and offers a possibility to solve both international corporate tax competition and tax avoidance. The model works as follows:

1) A certain group of countries agree upon a uniform corporate tax rate under the source-based principle to which corporations are liable.

2) At the same time, each country set up its own corporate tax rate for individuals, which it has to be always below the agreed uniform corporate tax rate.

3) After a country taxes the corporation in its country, it redistributes the revenues across the participant countries through a clearing system according to the residence of shareholders and their percentage of ownership of the company. In terms of the clearing system feasibility, it offers enough flexibility in the method chosen and since it would require records for every corporation annual income statement it can be expected that the system would not exceed few million entries annually.

4) Finally, each country provides rebates to their residents equal to the difference between the uniform tax rate and their own corporate tax.

Under this scheme, corporations face the same rate across countries and see undermined their tax planning opportunities, while at the same time countries maintain a high degree of sovereignty (Giovanni and Hines 1990, p. 32). However, withholding taxes would have to disappear according to the authors. In terms of efficiency, export neutrality would be reinforced since foreign-owned corporations would be excluded from the tax base, while home governments would tax the foreign earning of their domestic residents (Giovannini and Hines 1990, p. 29).

In order to the system be effective, the definition of corporate income should be harmonised among states, such is depreciation allowances, treatment of capital gains and deductible expenses. In

terms of incentives, the system would allow countries to give incentives in the form of direct payments, with a subsequent tax on profits, which would include the incentive. In case governments give subsidies by putting lower taxes than the uniform rate, these would have to make up the difference between what all corporations must pay and the taxes collected from the firms they subsidize. As for double taxation, under such system foreign income within the participating countries would be exempt by the country of corporate residence, whereas foreign income outside the participating countries will be taxed at the uniform rate. Finally, a credit with limit would be allowed for foreign income taxes paid by resident owners.

Also, corporate income would be taxed at an accrual basis, avoiding distortions from present systems, which by allowing deferral distort the decisions of corporations about the location and timing of distributed dividends and interest or royalties payments. Every individual would file their own rebates through vouchers provided by corporations. Under such system, corporate and individual taxation would be better integrated and governments could start granting credits to individuals for taxes paid by their corporations to foreign governments (Giovanni and Hines, 1990, p. 17), instead of just allowing credits for corporations.

There are several reasons that make the proposed system feasible and beneficial for developing economies. An important strength of the system is that it doesn't require total global coordination in order to be functional. The system maintains the general regime currently in place for foreign income, including credit limitations, using the uniform rate established by the harmonised area. Therefore, the system could be implemented in different regions of the world, allowing new entrants as long as they fulfil the requirements of the model.

Given that the effective tax rates are determined by countries separately, both developed and developing countries could maintain a high degree of national sovereignty while solving distortions of the system used nowadays, such as integrating both corporate and individual taxes and eliminating withholding taxes, taxing income just at once. In this sense, efficiency would be increased given equal treatment to all type of profits, no matter if the shareholder is foreign or resident, and how are remitted (we have to recall that a great majority of countries only apply dividend taxes to non-residents). Also, the system would generate much greater cooperation between tax offices and simplification of the international corporate tax system, allowing tax authorities with low-resources to work more efficiently and concentrate their efforts to enhance their tax systems. Besides, when working towards a common goal it is easier to enhance coordination in other areas, such as directing foreign aid to investment in training personal and IT, which could generate greater improvements in

other areas of taxation, such as in individual income taxation, and create higher public revenues and changing the current paradigm of low fiscal capacity in developing economies. In terms of tax competition, working through this type of system prevents the detrimental effects of race-to-the-bottom effects and enhances cooperation between countries.

Finally, it would be desirable to move towards a system that incentivises a tax scheme that broadens the tax base and doesn't encourages competition for attracting capital through tax rates and tax incentives. This system would only allow incentives in the form of subsidies and would broaden the tax base of developing economies, probably increasing considerable their tax revenues while creating a more efficient tax system that doesn't discriminate between foreign companies and local companies.

4.2. Problems that the harmonisation model generate

Both technical and political problems make the proposed tax scheme and other harmonisation schemes difficult to implement. I recognise five main inconveniences that might discourage the participation of developing economies: disparities in the definition of taxable corporate income, abolishment of tax incentives withholding taxes, effects of a clearing system, effects on shareholder decisions, and the strict implementation of the export neutral principle.

4.2.1. Definition of taxable income

One of the most important aspects of the definition of taxable income is depreciation allowance. It is also one of the most problematic issues in terms of harmonisation because its structure might very rigid and resilient to changes since it steams from the economic structure of a country and the economic planning of governments. However, its harmonisation is needed if a clearing system is in place. This is because as long as there are different rules, one country could have an opportunistic behaviour take advantage of the system by receiving high revenues from the clearing system from countries putting in place low depreciation allowances, while attracting capital with high depreciation rates. Whereas before the system Brazil would have seen an immediate reduction in tax revenues because of increasing the deduction allowed for depreciation, in the new scheme the reduction is much lower since part of the reduction is borne by the Argentinean government, making more appealing for both countries to increase depreciation rates in order to attract capital. However, since they will still loss revenue, the final decision of governments, of whether to increase incentives

after entering in the system, is ambiguous and would be subject to different factors, such as the national share of ownership of the companies, the amount of the rebates or the capital that could be attracted because of the incentives.

In Table 6 are shown the main characteristics of the depreciation rules applied by the tax authorities of our selected countries. Most countries use the straight-line method but also most of these allow other methods upon the approval of the tax authorities. Also, declining-balance is also common for some assets. The rates differ considerably between countries, but for the regions that we have more countries, such as Latin America and Sub-Saharan Africa, we can see there is a high degree of harmonisation. Therefore, in terms of definition taxable income, the model could be first easier to apply within regions than across them. Given that rates differ considerably globally, it might prove difficult to implement a system that requires harmonisation in depreciation rates. Also, it is very common to grant accelerated depreciation, normally as an incentive for industries related to certain economic activities, such as mining or renewable energy, among others. Furthermore, some authorities allow very high rates for the first year of the declining-balance method, indication of using depreciation as an important incentive tool. As long as this type of incentives is used, the more difficult will be to agree upon harmonised depreciation rules. Also, Tazni and Zee (2001, p. 9) points to deficiencies of the structure of depreciation rules, such as excessive asset categories and rates not in accordance to the obsolescence rates of different asset categories. As long as these deficiencies are corrected in the future according to international standards, in this area harmonisation will be easier.

As for other issues of tax income definition, problems are less acute. In terms of treatment of capital gains and losses carried forward there's already considerable harmonisation, as we can see in Table 7. Capital gains are commonly treated as ordinary income, the years that losses can be carried forward range almost for all the countries between 3 and 6 years, and losses cannot be carried back (except for some countries that allow it for long-term contracts). As for interest deductions (see Table 8) there are considerable differences in terms of the fixed ratios rules but given their role for preventing profit shifting, under an harmonised system that tackles effectively tax avoidance these rules could be easily harmonised as well. Also, as we will see later, if the BEPS project is implemented by developing economies, differences in interest deductions will also become less of a problem. Also, in Table 8 we verify that the arm's length principle as a transfer-pricing rule clearly dominates and that some countries follow OECD recommendations, which also includes the arm's length principle. Clearly, there are homogenous accounting practises around the globe that would facilitate the movement towards homogenous treatment of taxable corporate profits.

Table 6 - Depreciation rules, approximate rates and accelerated depreciation

Country	Usual Method ¹	Approximate Rates (straight-line)					Accelerated Depreciation
		Buildings	Machinery and Equipment	Furniture	Computers	Vehicles ²	
Argentina	Straight-line	2	10/20	10	10	20	No
Brazil		4	10	10	10	20	Yes
Colombia	Straight-line and Declining-balance	5	10	10	20	20	No
Ecuador	Straight-line	5	10	10	33	20	-
Paraguay	Straight-line	2.5	10	10	25	20	No
Peru	Straight-line	5	10	10	25	20	Certain activities
Uruguay	Straight-line	2	10	Variable		10	Yes
Venezuela	Straight-line	Percentage necessary to recover the cost during the time used for production					No
China	Straight-line	5	10	20	20	20	Machines and equipment
Bangladesh	Straight-line	10/20	20	10	10	20	Yes
India	Depending nature of asset	5/10	15-80	10	60	40	Certain areas or activities
Indonesia	Straight-line and Declining-balance	5/10	12.5/5	25/12.5	25	12.5	Certain areas or activities
Kazakhstan	Depending nature of asset	10	25	15	40	15	Yes
Lebanon	Depending nature of asset	2 to 20	8/25	8/25	20/50	10/15	No but high rates in some cases
Pakistan	Declining-balance	Initial: 10/30 Annual: 5/10	Initial: 40/90 Annual: 10	Annual: 10/25	Annual: 30	-	No
Philippines	Any method	5	-	-	-	-	Certain activities
Thailand	Any method if "reasonable"	-	-	-	33	5	Certain activities
Bulgaria ⁴	Straight-line	4	30	15	50	10/25	No

Table 6 (continued) - Depreciation rules, approximate rates and accelerated depreciation

Country	Usual Method ¹	Approximate Rates ² (straight-line)					Accelerated Depreciation
		Buildings	Machinery and Equipment	Furniture	Computers	Vehicles ³	
Romania	Straight-line	3/2	-	7/10	-	16/25	Yes
Serbia	Straight-line and Declining-balance	2.5	10/30	10	30	10/15	Certain activities
Algeria	Straight-line	5	10/20	10/20	10/20	20/25	Yes (Certain areas or activities)
Angola	Straight-line	4	-	125/16.67	33	25	No but high rates in some cases
Burundi	-	-	-	-	-	-	-
Ghana	Capital allowance	10	20	20	40	20/30	Yes
Morocco	Straight-line and Declining-balance	4/5	10/15	20	10/25	20/25	No
Mozambique	Straight-line	2/10	12.5	10	25	20/25	Yes (Certain activities)
Namibia	-	-	-	-	-	-	-
Nigeria	Straight-line	10/15	50/95 first year	25/20		50/95 first year	Yes
Rwanda	No depreciation allowances but certain "tax depreciation" allowed						
Tanzania	Depending nature of asset	5	12.5	12.5	37.5	25	Yes (Certain activities)
Uganda	Depending nature of asset	5	12.5	20	40	20/35	No
Zambia	No depreciation allowances but certain capital allowances allowed						

Notes: ¹It is common that countries allow other type of depreciation methods. In general other methods can be used upon the approval of the tax authority. ²Blank spaces represent lack of data. ³The vehicles included are normally at maximum those of a truck. In case of bigger vehicles, such as vessels, usually its depreciation rate is also included. ⁴Maximum rates applied. Sources: Bangladesh Bank (2015), BDO (2016), Deloitte (2014), DGI (2015), FindPK (2013), Global Investment & Business Center (2011), Lehman, Lee and Xu (2015), PKF (2015), PWC (2015), U.S. State Department (2015).

Table 7 - Capital gains treatment, carried losses allowed

Country	Treatment		Country	Treatment	
	Capital Gains	Carried Tax Losses Allowed		Capital Gains	Carried Tax Losses Allowed
Argentina	Ordinary	5 years but only offset on same kind of income	Thailand	Ordinary	5 years
Brazil	Ordinary	Indefinitely (not more 30% income)	Bulgaria	Ordinary	5 years
Colombia	Ordinary	Indefinitely	Romania	Ordinary	5 years
Ecuador	Ordinary	5 years (not more 25% of year's profit)	Serbia	Ordinary	5 years
Paraguay	Ordinary	Not allowed	Algeria	Ordinary	4 years
Peru	Ordinary (5% to certain gains)	4 years; indefinitely (50% of annual income)	Angola	Ordinary with exceptions	3 years
Uruguay	Ordinary	5 years	Burundi	Ordinary	5 years
Venezuela	Ordinary	3 years (no more 25%)	Ghana	Separately	3 years and carry back for long-term contracts
China	Ordinary	5 years	Morocco	Ordinary	4 years
Bangladesh	Ordinary	6 years	Mozambique	Ordinary	5 years
India	Ordinary Income	More than 4 years	Namibia	Ordinary	Indefinitely
Indonesia	Ordinary	5 years	Nigeria	Separately	Indefinitely
Kazakhstan	Ordinary	10 years with exceptions	Rwanda	Ordinary	5 years
Lebanon	Separately	3 years	Tanzania	Ordinary	Indefinitely and carry back for long-term contracts
Pakistan	Separately	6 years	Uganda	Ordinary	Indefinitely
Philippines	Separately	5 years	Zambia	Ordinary	5 years

Source: PWC (2015) and PKF (2015)

Table 8 - Interest deduction and thin capitalisation and transfer pricing rules

Country	Rule Deduction		Country	Rule Deduction	
	interests ¹ / Leverage allowed	Transfer Pricing		interests ¹ / Leverage	Transfer Pricing
Argentina	Thin Capitalisation - 2:1	Arm's length principle	Thailand	No rules (but certain limits might apply)	Arm's length principle
Brazil	Thin Capitalisation - 2:1	Other	Bulgaria	Thin Capitalisation - 3:1	Arm's length principle
Colombia	Thin Capitalisation - 3:1	OECD model	Romania	Thin Capitalisation - 3:1	OECD model
Ecuador	Thin Capitalisation - 3:1	OECD model	Serbia	Thin Capitalisation - 4:1	Arm's length principle
Paraguay	No rules	No specific rules	Algeria	Deductible - No rules	Arm's length principle
Peru	Thin Capitalisation - 3:1	Arm's length principle	Angola	Non deductible	Large taxpayers - Arm's length principle
Uruguay	Rules for entities located abroad	OECD model	Burundi	Thin capitalisation	Arm's length principle
Venezuela	Thin Capitalisation - 1:1	No specified	Ghana	Thin Capitalisation - 3:1	OECD model
China	Thin Capitalisation - 5:1 financial/2:1 other	Arm's length principle	Morocco	No rules (but certain limits might apply)	Arm's length principle
Bangladesh	Deductible - No rules	OECD model	Mozambique	Thin Capitalisation - 2:1	Arm's length principle
India	No rules but can be disallowed by tax officer	Arm's length principle	Namibia	Thin Capitalisation 3:1	OECD model
Indonesia	Thin Capitalisation 4:1	Arm's length principle	Nigeria	Thin Capitalisation - 3:1	OECD model
Kazakhstan	7:1 financial/4:1 other	Arm's length principle	Rwanda	Thin Capitalisation - 4:1	OECD model

Table 8 (continued) - Interest deduction and thin capitalisation and transfer pricing rules

Country	Rule Deduction		Country	Rule Deduction	
	interests ¹ / Leverage allowed	Transfer Pricing		interests ¹ / Leverage	Transfer Pricing
Lebanon	No rules	No rules but has to be arm's length principle	Tanzania	Thin Capitalisation 7:3	Arm's length principle
Pakistan	Thin Capitalisation 3:1	Arm's length principle	Uganda	Thin Capitalisation - 1.5:1	Arm's length principle
Philippines	No rules	Arm's length principle	Zambia	Thin Capitalisation - No defined rule	Arm's length principle

Note: ¹ If not specified, interest deductions allowed. "OECD model" refers to tax authorities following the transfer pricing rules of the OECD, which also includes the arm's length principle. **Source:** PWC (2015) and PKF (2015)

4.2.2. Abolishment of tax incentives and withholding taxes

With respect to abolishing tax incentives, whereas it is desirable, it would create great strain on developing nations since they rely heavily on them to attract capital. With dim resources, it would mean a considerable fiscal effort to replace the tax deductions in place by direct subsidies. Despite international institutions advocating for broadening the tax base, it is difficult to grasp how to incentivise them to do that as long as corporations are able to pressure governments for such incentives. However, international debate that touched upon harmonised systems would be able to put these issues in the agenda and find ways to compensate developing nations from the competitiveness loss of reducing tax incentives. Future research on alternative methods of attracting capital other than tax breaks will prove fundamental.

Another drawback from the model is that it advocates for the elimination of withholding taxes between participating countries. This would be ideal inside this model, given that as we mentioned in Section II, this type of tax is the result of the inability in the present system to tackle tax avoidance. In a model that tackles tax avoidance effectively it would be optimal to eliminate this type of tax as to eliminate potential distortions in holding foreign shares. However, this tax might represent a key element of the national sovereignty of countries to tax income and the effects of its abolishment would create serious concerns for tax authorities. Also, the efficiency gain could be much lower than the amount of revenue loss given that dividend taxes are an important source of income (Sinn 1991 p.

35). As for other benefits of withholding taxes apart from the revenue they generate, they it might be an efficient tool for avoiding payments to tax haven intermediaries (Gordon and Hines 2002, p. 16), and its abolishment should be replaced to as efficient measures to prevent this type of payments.

4.2.3. Clearing system

The model also requires the inclusion of a clearing system. This is necessary given that since corporations are only taxed at source it is necessary that the rebates given by governments be backed up with the correspondent revenue as well. For instance, when the Brazilian government taxes a company whose 50% of shareholders are Argentinians, it will have to send 50% of the revenues to the Argentinian tax authority, which in turn will give the corresponding rebates to its residents. The clearing system generates two problems. Firstly, as we have seen with the depreciation allowances, it can create opportunistic behaviour from governments.

Secondly, the problem is that developing economies hosting MNCs mainly owned by foreigners, such is the case of African countries exploding its natural resources, would have to remit most of their corporate tax revenue to developed economies. For instance, an authority that is collecting the 20% of the profit revenue at source from a foreign subsidiary would not collect any taxes under such system if foreigners hold all the ownership. Indeed, more than the clearing system itself, this is the main political problem a pure-residence based harmonisation will face. The decision by developing economies to join the system will be a balance between the tax being collected under the current system with considerable tax avoidance, and the potential tax revenue that could be collected under the proposed model.

4.2.4. Effects on investment decisions

Beyond the factors that affect directly developing economies, another potential distortion of the system would come from individuals that would have uncertainty to exchange stocks in the short-term in order to get the rebates and could create a lock-in effect, making the financial system less flexible (Giovanni and Hines 1990, p. 37). However, the authors correctly point that this might bring a positive effect on stock markets by reducing its volatility. For developing economies greater stability of the financial market might prove fundamental in order to receive long-term investment and be less vulnerable to speculative behaviour. Nevertheless, the overall effect on the investment decisions to developing countries is highly uncertain, since it could also discourage foreign investment given the increased risk of having uncertainty of the income losses from selling the stocks.

Another important factor to take into account is that a pure-residence system incentivise shareholders to move their residence towards low-tax jurisdictions. Indeed, this effect is already present in current systems since countries usually tax foreign income (Desai and Hines 2002), as is the case of almost all developing economies studied here. However, as mentioned in beginning of Section 2, individuals tax liabilities go together with non-economic factors and would be less mobile than companies. Also, as we could grasp in section 2.2., it is widely accepted that there exists a home bias of security holdings in current international diversification of income (Gravelle and Smeters 2001, p. 18).

4.2.5. Political problems that higher efficiency might bring

The main reason of Giovannini and Hines for establishing a pure residence-based taxation through a clearing system relies on their view of source-based taxation as rent extraction more than taxation for redistributive purposes. According to them, if the aim of a government is to redistribute income among their citizens, this should not include the income of foreign individuals. They accept that a foreign corporation should pay for the public infrastructure that a government provides, but that a tax of 35% of the profits hardly justifies such expenditure. Also, according to Hines (2007, p. 5) the system would satisfy national ownership neutrality, allocating capital ownership efficiently and benefit global productivity. There are two fundamental problems under such principle. Firstly, as we have seen, all countries tax some income at source, implying important revenues coming from this source. Therefore, moving to pure-source based harmonised system might be more desirable for developing economies. On the one hand, it will preserve export neutrality. On the other one, it is also justified to tax corporations because of the resources used in the country, being governments able to set their rate they think more adequate. Nevertheless, it has been widely accepted that it is a very unfeasible scenario given the incentives of participating countries to abandon the scheme. This is because the highest the harmonised rate, the highest the elasticity of capital to a one small change of the corporate tax of one country, making highly profitable for a country to abandon the harmonised rate.

Secondly, their argument, by assuming perfect competitive markets, has one fundamental flaw. Mainly, that often the price paid by corporations for the exploitation of services or resources in developing economies represents the true market value of such resources. International corporations can distort market prices in developing economies or can exploding natural resources at lower costs than what would happen in a developed economy. They have the knowledge, technology and efficient organisational structure to run-out of business local providers, control a monopoly or oligopoly of the

market in which they participate, and set higher prices from what a competitive market should be. It is undesirable for developing economies that a handful of companies that became highly competitive given the human capital, government incentives, internal markets and other factors provided by developed economies, are able to exploit high rents in developing economies through monopolistic power and undermine the ability of local companies to compete with them. Whereas there's not efficiency argument that might justify extracting more income from international corporations in order to develop the national industry, it might prove a strong political argument that undermines the movement towards a pure residence-based system.

4.3. Modifications that might be required in the harmonised model

Given the problems inherent to the clearing system and abolishment of some taxes that might harm developing economies we might require an harmonised scheme, maybe similar to the one established by Giovanni and Hines, that partially relies on source-based taxation. This would allow developing countries to still tax the profit of foreign shareholders, at the cost of preserving global export neutrality and affecting efficiency, but allowing a higher feasibility of the model. One possible solution is to incentivise developing economies to participate by including variations in the clearing system that could allow them to keep part of the revenue collected. For instance, certain amounts of the income that should be cleared from a low-income country to a high-income one could be set aside and destined to increase the resources of tax authorities in developing nations, helping them to tax more efficiently individual income. For instance, for each currency unit collected in a developing economy a fixed amount could stay in the country until an acceptable amount of population is above the poverty line. This could be justified in terms of the resources that developing economies give to MNCs to generate their economic activity, and more justified as a tax of 35% of the profits of corporations. Nevertheless, the imposition of fixed quotas will generate political and technical problems that will be needed to overcome in relation to the most equitable distribution of income.

Another possible modification from the Giovannini and Hines model is to tax non-residents from high-income countries through withholding taxes on dividends through keeping current double taxation treaties. In this way, developing economies would keep an important source of revenue and redistribute profits generated from the resources provided by their country. Furthermore, it would keep the national sovereignty of developing economies for granting incentives to attract foreign capital. However, this would come to making the scheme less efficient and distortion the investment decisions of shareholders, making them to choose to invest in jurisdictions that impose the lowest withholding taxes. Therefore, there would re-emerge competitive pressures on this tax, ending with

rates inefficiently low that are unable to collect enough public revenues. However, given that tax avoidance problems would be efficiently tackled and competitive pressures alleviated, the gains might be greater than the gains in the current system.

Another method to overcome the gigantic effort that might be needed to move to this scheme, it might prove useful to simplify and test it only to a certain number of corporations above a certain equity size, where tackling tax avoidance would be the most lucrative and whose power to bend political policies to their will is the greatest given the great capacity to mobilise capital across the globe. Applying the system only to a certain number of corporations might create further distortions such as splitting equity through the creation of corporations outside the corporate group. Also, countries below the equity limit would have a comparative advantage so the system could be highly discriminatory against big corporations.

4.4. The BEPS project

4.4.1. Description

In recent years OECD countries have pushed forward actions to avoid tax base erosion through the Base Erosion and Profit Shifting (BEPS) project. By members of the organisations this project has been characterised as the more comprehensive change in tax rules since the creation of the corporate tax. The clear mandate of this project is to move towards sourced based taxation principles to "ensure that profits are taxed where economic activities take place and value is created" (OECD 2015a, p. 4), and it pretends to renew international tax rules through higher cooperation between countries in terms of sharing information, changing domestic laws and practices, and creating new treaty provisions. However, such rules are recommendations, rather than tax laws. In order to compensate for the lack of mandatory rules, OECD offers to countries rules that require cooperation between two countries, but also defensive rules, which are a second-best option in case one country faces that the other one doesn't cooperate. In the sense that the BEPS project is recommendations, the mandate is to increase the efficiency and redistribution of national tax systems whereas minting almost full national sovereignty on corporate tax issues.

The BEPS project is composed of 15 Actions. Here we will briefly overview the most relevant for this study, as well as their benefits and deficiencies. To begin with, Action 2 sets up recommendations for linking countries rules to tackle hybrid mismatch arrangements, which relate to

aggressive tax planning practises that exploit different tax deduction rules between countries. This action include a primary rule, where countries take into account deductions already granted or not granted in the counterparty jurisdiction, and a defensive rule, that require deductible payments to be included in income or it might deny directly duplicated deductions depending on the nature of the mismatch (OECD 2015b, p. 12). Also, it recommends not granting dividend exemptions for payments that are treated as deductible by the payer.

Action 3 recommends changes in controlled foreign company (CFC) rules that better prevents companies from setting foreign subsidiaries just for profit-shifting purposes, whereas at the same time preserving the international competitiveness of parent firms in jurisdictions where these rules are applied. Both of these actions would just require the implementation of developing economies without making any radical change of their current systems. This would mean the creation of completely new rules for developing economies given that, as we can see in Table 9, a great majority of the studied countries doesn't apply CFC rules

Table 9 - Application of CFC rules

Country	CFC rules	Country	CFC rules	Country	CFC rules
Argentina	No	Indonesia	Yes	Burundi	No
Brazil	Yes	Kazakhstan	Yes	Ghana	No
Colombia	No	Lebanon	No	Morocco	No
Ecuador	No	Pakistan	No	Mozambique	No
Paraguay	No	Philippines	No	Namibia	No
Peru	Yes	Thailand	No	Nigeria	No
Uruguay	No	Bulgaria	No	Rwanda	No
Venezuela	International fiscal transparency Rules	Romania	No	Tanzania	Yes
China	Yes	Serbia	No	Uganda	No
Bangladesh		Algeria	No	Zambia	No
India	No	Angola	No		

Source: PWC Tax Summaries (2015)

Action 4 advocates for implementation of fixed ratio rule in order to prevent tax avoidance through escaping restrictions on the deductibility of interest – the fixed ratio rule recommended

hinges around 10% and 30% – and additionally an optional group ratio rule that takes into account the net interests/EBITDA ratio of an entity compared to its worldwide corporate group. Also, the positive aspect of this recommendation is that it allows to combine these rules with existing rules of arm's length tests, withholding taxes on interest payments or rules which disallow a specified percentage of the interest expense of an entity and therefore can be more easily applied.

Nevertheless, most developing countries still use fixed debt/equity ratios (see Table 8), whereas BEPS project recommends using entity's interest/earnings ratio. This recommendation is due to, firstly, the shortcoming of the former, which doesn't put in place restrictions on amount of interest rates charged within the multinational and doesn't prevent companies to manipulate the levels of equity in a particular entity. Secondly, because of the benefits of the later, which directly measures the ability of the entity to meet its obligation to pay interest, especially if the EBITDA or assets are used as a proxy for earnings (OECD 2015c, p. 45).

As for Actions 8 to 10, they keep the arm's length principle for detecting transfer pricing practises, a principle that as we have already seen is followed by a great majority of the countries analysed (See Table 8). Furthermore, the BEPS recommends modifications in transfer pricing issues related to intangibles, to the contractual allocation of profits to the risks related to transaction, and to other high-risk areas. In the actions it's also mentioned a mandate by the G20 Development Working Group to provide knowledge, best practises, and tools for developing countries to implement such actions (OECD 2015d, p. 11). Finally, and very importantly, Action 12 recommends mandatory disclosure rules in order to provide tax authorities early information regarding potentially aggressive and abusive tax planning schemes, and to deter the taxpayer for entering into a scheme (OECD 2015f, p. 9), whereas Action 13 aims increase transfer pricing information by generating country-by-country reporting. Both Actions aim to increase international transparency, increase country cooperation and prevent tax schemes.

4.4.2. The BEPS project and developing economies: strengths and weaknesses

Concerning developing countries, there are clear benefits from the BEPS project but, at the same time, issues that make them highly vulnerable from aggressive tax planning of corporations will remain present. As positive aspects of the agreements, they provide modern technical tools for tackling aggressive tax planning, such as thin capitalisation and transfer pricing, and should benefit all countries with that rely on corporate tax revenues, specially those with higher corporate tax rates

more sensible to tax planning, and irrespectively of the income of the country or resources of the respective tax authority.

Secondly, the BEPS project will enhance coordination not only among OECD countries but also to all developing countries that are interested in participating. In this sense, the director of the Centre for Tax Policy Administration of the OECD claims that some developing countries are already interested in implementing the recommendations and to participate in this "change of paradigm" (OECD Tax, 2015, 18:00). For instance, China is already implementing the recommendations regarding the arm's length principles of transfer pricing behaviour.

One of the main benefits for developing nations are Actions 12 and 13, which include the design of mandatory disclosure rules and country-by-country reporting of transfer pricing documentation, respectively. They will allow developing countries to gather global information of tax planning scheme of the MNCs operating in their countries. Also, given the complementary nature of these Actions with Actions 2, 4, 8, 9 and 10, it is easier that a developing country might be able to implement BEPS as a complete fiscal package. Furthermore, with Action 13 are also included already available reporting standardised documents, which will make easier for tax authorities with fewer resources to inform other tax authorities. Increasing free exchange of information between governments and tax authorities would also create incentives to abolish withholding taxes in the future, as corporate income is easier and accurately taxed.

Nevertheless, according to Tax Justice Network, a drawback of Action 13 is that multinationals will only be required to file reports with its home country tax authority, making access difficult for small and developing countries and putting them on comparative disadvantage (Tax Justice Network, 2015). Thirdly, Action 15, with the creation of a multilateral treaty instrument, could allow for a simplification of the numerous bilateral treaties in place nowadays and make it easier for countries without any bilateral agreement, such as Angola and Burundi, to better access in negotiations regarding double taxation relief and withholding taxes harmonisation.

However, the BEPS project is not designed to change the paradigm of developing economies and might not have a great positive impact on the revenues collected from corporate tax. To begin with, the BEPS project doesn't tackle fundamental problems of the competitive pressure of the international corporate tax system of developing economies. On the one hand, developing economies will keep narrow the tax bases in order to attract capital from companies, who put pressure on

governments to reduce their tax liability. Companies, given their flexibility to move capital across borders, will still be able to arrange the tax schemes that better suits them. On the other hand, BEPS project officials should acknowledge that such outside pressures from corporations might have as a direct consequence the non-application of the Actions mentioned above. Using the example of Malawi in Section 3.3.1., the application of the fixed rule of Action 4 might have proven problematic for the Malawi government, given the negotiating power of the MNC. Also, even if the Netherlands applies such rule, is in the jurisdiction of the Malawian government to restrict the indebtedness of the Paladin subsidiary in Malawi.

Still in terms of implementation, in case only OECD countries implement Action 4 recommendations, this will not have any repercussion in developing countries with higher tax rates than OECD countries (which is very common), whereas countries with lower tax rates will see their revenues reduced. The first case arises given that the profit shifting in that case is generated by companies in low-tax countries substituting loans for equity of subsidiaries in high-tax countries (i.e. inbound investment), exploding the amount of interest deductions that resident companies in developing countries receive i.e. decreasing pre-tax profits in these countries. In the second case, lower tax jurisdictions benefit from profit-shifting practises as the loan is incurred in the high-tax jurisdiction (i.e. outbound investment) and they don't have to provide interests deductions to the subsidiary in its boundaries (see Section 2.3. for an explanation of inbound and outbound investment practises). As for the elimination of the equity/debt rule, it is necessary to assess if the new rule proposed by BEPS requires higher levels of computation and therefore higher resources for tax authorities in developing economies.

Also, we find two fundamental flaws on the Actions regarding its nature – recall they are recommendations –, and the movement towards source based taxation. In the case of the former, while as I have mentioned information sharing between tax authorities is a positive aspect, it is necessary a legal body that allows to punish MNCs shifting their profit towards tax havens. In its absence, it will not be possible to prevent them to do so, despite OECD officials claiming the opposite (OECD Tax, 2015, 51:05). As for moving to source based taxation, as we have seen in section II, as long as tax rates differ across countries, source based taxation will be highly sensible to profit-shifting behaviour, more than with residence-based taxation given the few constraints MNCs have to manipulate their source of their income. Obviously, it is difficult to assess if BEPS programme is better than the present system given the wide-range of the recommendations, the degree of future implementation of the countries involved, and the new double taxation issues that

might appear with the new rules. However, as long as tax rates differ between countries and countries don't work towards harmonisation of rates we can be mostly certain that the tax planning opportunities for MNCs are considerable. Nevertheless, the OECD is clear when saying it will not work towards harmonisation goals (OECD Tax, 2015, 24:06), and therefore aims to preserve national sovereignty at the expense of redistribution and efficiency issues. Whereas stressing the limitations of governments' technical and legal capacities, it doesn't take into account the incentives of governments in this area of taxation (Dhammika 2014, p. 4)

Finally, in the BEPS project is not recognised as a problem the possible tax competition to attract mobile capital that might lead to a race-to-the-bottom of the statutory tax rates. In order to preserve the benefits of corporate taxation it is required to move to an international taxation system that allows countries to engage in practices that release pressure on statutory rates. But BEPS project preserves the status quo of the international taxation system. For instance, it doesn't consider putting back capital controls in order to control foreign portfolio investments of multinationals nor other more interventionist enforcement methods that might be required to reach the desired levels of efficiency and income distribution of countries.

5. Final discussion

5.1. Predicted effects of the implementation of the schemes proposed

In Table 10 I provide a summary of the effects that each system would have on the global corporate tax system, as well as some stylised examples of what could happen to different type of countries: developing economies with high and low statutory corporate tax rates (named D.H. and D.L., respectively) and OECD countries. The magnitude of the effects, represented as the number of positive or negative signs, are just intuitive given that this thesis only relies on a qualitative analysis. In the future, a quantitative analysis of such effects for developing economies would be highly important for the literature on tax harmonisation.

Given the maintainance of the main characteristics of the current system of corporate taxation, proposal of recommendations and constraints of developing nations to implement them, I predict that the BEPS project will only generate a moderate increase in efficiency and public revenues through tackling tax avoidance (column 5). Nevertheless, those developing economies that receive investment given its low-tax rates and the opportunities for tax avoidance, might see a decrease in investment and therefore the revenue effect is ambiguous.

All harmonised systems increase the efficiency of the global tax system through lowering drastically tax avoidance and respecting the export neutrality principle. The only exception is the Giovannini and Hines (G&H) model with withholding taxes, that at the individual level would distortion investment decisions in terms of investing abroad. Also, the residence-based model of G&H has the main benefit of motivating a base-broadening reform (column 6), also for OECD countries that still grant tax incentives and accelerated depreciation schemes, in opposition to a source-based system, that doesn't require harmonisation in the definition of taxable income (column 9). As for the effects on national sovereignty, the less intromissive systems are, firstly the BEPS project, and secondly the G&H model with withholding taxes, whereas source-based harmonisation and reallocating income according to fiscal needs would require a high degree of intromission from a central coordinators.

In terms of the fragility of maintaining the level of coordination that the system requires, the G&H models require a clearing system that could provide opportunistic behaviour, such as increasing incentivising investment through increasing depreciation rates, as we have explained in Section 4.2.1. Furthorme, allocating revenue through a clearing system (column 8) could create political tensions that could make the system highly controversial and difficult to implement or maintain.

Finally, public revenues are expected to increase for all harmonisation systems but there are might be important differences between countries and systems. For both types of developing economies, giving up withholding taxes could provide a revenue loss not compensated by the gains in less tax avoidance and less pressure from tax competition under the G&H model. Maintaining such taxes or reallocating income would more probably give revenue benefits to such countries, at the expense of OECD countries in the latter scheme. As for the source-based system, I have predicted higher increase in revenues for developing economies than OECD countries compared to residence-based systems given that the latter would not receive the income from foreign earnings of their local shareholders, whereas the contrary would happen for the former, who would maximise revenues they receive from abroad. Nevertheless, an important distinction between capital importer and capital exporter countries should be made here. As developing economies increase their income and start exporting capital, the benefits of a source-based system, in comparison to residence-based, might be lower. Also, the effects of allowing less tax avoidance might also affect investment in developing economies with high taxes and decrease their revenues further.

Table 10 - Summary of results and approximation of the predicted effects of implementation of proposed coordination systems

	Type country	Current system	BEPS project	G&H Scheme	G&H with withholding taxes	G&H with revenue reallocation	Source-based
Tax avoidance		High	-	---	---	---	---
Export Neutrality		Low	=	+++	Individual: =, Corporate: +	+++	+++
Tax base Narrowness	D.H.	High	=	--	--	--	=
	D.L.	High	=	--	--	--	=
	OECD	Low	=	-	-	-	=
National Sovereignty		High	=	--	-	---	---
Fragilities system		None	=	Clearing system	Clearing system	Clearing system +	+ Deviation more beneficial as more participants
Public Revenue Gain	D.H.	Low	+	Ambiguous	++	++	+++
	D.L.	Medium	Ambiguous	Ambiguous	+	++	+++
	OECD	Low	+	+++	+++	++	++

Note: D.H. and D.L. stands for developing economy with high or low statutory corporate tax rates, respectively. The effect is estimated comparing with the current system, with a positive sign means an increase, and a negative sign a decrease. The number of signs determines the estimated magnitude of the effect. **Source:** own elaboration.

5.2. Further political constraints for tax harmonisation

Until now we have focused on technical issues and political arguments regarding public revenues and capital attraction. However, some further remarks on other political constraints should be done. First of all, in terms of tax competition, if the result of the downward trend is mainly due to intellectual trends, rather than competitive pressure stemming from increased capital mobility, then it might be more difficult to reach harmonisation, as it is not in the agenda of governments. Therefore, the BEPS project might prove one of the optimal solutions for fixing the tax avoidance problems of the current system.

In terms of asymmetry between developed and developing economies, history has taught us that developed nations, specially in terms of trade, have usually looked more for its self-interest rather than in finding economic plans that might benefit both developed and developing economies. Consequently, even if a harmonisation scheme is technically feasible, developing economies might be reluctant to enter in an agreement with developed economies and might first work towards common goals among them (which has maybe proven equally difficult, such as the Latin American case). At the individual country level, the example of the European Community shows us that even in highly integrated economic areas tax harmonisation is highly complicated given lack of political will and resistance of local governments towards tax systems that come from abroad (Giovannini 1990, p. 485). For instance, taxation is one of the few areas in which each member retains veto power (Keen 1993). Given these political factors, any system of harmonisation requires to be designed by all the parts involved and be inclusive during the political process so as to create the less possible political resistance. As long as there exists high political resistance, defensive rules as the ones designed by the BEPS project might be the more realistic solution to the tax avoidance problem.

As noted by McCarten (2004, p. 23), comprehensive reforms in states with weak capacity to implement whole government reforms might face limited institutional capacity and generate unbearable opposition from any stakeholder, therefore impeding the good outcomes of the reform. In this sense, governments of nascent democracies, such as in a great number of African countries, experiencing sharp in falls of public revenues might have higher chances of experiencing a re-emergence of high levels of civil unrest – even if such decline in public revenues is temporal – that undermine the trust on democratically elected governments and creates a breeding ground for insurgency and violence. Therefore any reform might be treated with cautions, whether it implies reducing statutory tax rates

while broadening the tax base, implementing the BEPS project's actions, or a comprehensive harmonisation reform.

Finally, this thesis has not analysed the re-emergence of capital controls as it is completely disregarded by international institutions and intellectual trends. Nevertheless, its benefits in terms of financial stability and tax avoidance control can be considerable, especially for low-income countries. As seen in section 3.1., the sharp reductions of tax on capital came hand-to-hand with the abolishment of capital controls in some countries, and whether as a direct relationship between both or dominant intellectual trends, its positive effects in terms of tax competition and tax avoidance cannot be disregarded by international authorities. Already noted by important economists (Stiglitz 2000), its abolition might have serious weaknesses. In this sense, given the limits of the BEPS project and the technical and political problems of tax harmonisation, the possible re-emergence of capital controls in a highly globalised world might be an interesting research area in policy making, specially if analysing them as a relevant tax tool.

6. Concluding Remarks

This study has served us to analyse the current state of the corporate tax in developed economies through a selected sample of 32 developing economies in order to assess their ability to move to greater international coordination and/or harmonisation and their incentives to do so. We have seen that given the tax avoidance opportunities current systems make available, the pressures to reduce tax rates given capital mobility and intellectual trends, the enormous weight of corporate tax revenues on total tax revenues, and numerous tax incentives for attracting capital, current corporate taxation systems in developing economies might be highly distortionary and deficient for achieving desired redistributive aims. Therefore, aiming to higher tax coordination and tax broadening reforms should be a top political priority for these governments. If countries have to compete over attracting capital and maintain corporate taxes, it would be desirable that is not in detriment on ability to guarantee tax compliance, leaving the burden of taxation on a narrow tax base, and that it doesn't generate a race-to-the-bottom in corporate taxes.

Also, given the high level of revenues coming from the corporate tax, the need of higher tax cooperation couldn't be hardly overemphasised. Developing economies are in desperate need for investing resources in fiscal capacity investment. On the one hand, it could imply greater provision of higher public services and reduce aid dependency. On the other hand, we can expect that greater fiscal capacity would make governments more accountable to its citizens. This is because as a tax authority is

more able to tax residents, the latter became more concerned on the way their money is expended. Higher tax compliance from big multinationals will not bring these changes, given their concentration of power and disregard to the needs of the median voter. However, as more revenue is generated from lower tax competition and tax avoidance, better resources will be disposable to make the necessary investments in fiscal capacity, as long as there're the political economy forces in place that encourage such investments (Beasley and Persson 2013).

However, we found many of the main technical and political constraints that make tax harmonisation a difficult task in present times but the boundaries established here are diffuse. Given the qualitative analysis of this study it is sensible to potential constraints in terms of precision of predictions, and we require a quantification of such constraints that could provide further insights on this topic. For instance, we need a quantification of the revenues that withholding taxes represent for developing countries in order to understand their weight and the effects of their abolishment. Also, one of the main caveats of the analysis presented here is the size of the sample analysed – I have excluded Caribbean countries and many from Middle East, and Latin American and Sub-Saharan African countries have a considerable weight relative to other regions –, the general nature of the analysis, and the approximations realised in order to provide cross-country comparison. Further research could realise a comprehensive case study on the effects of tax harmonisation on the tax systems of a developing nation in order to have a more detailed description of the nature of the problem.

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