

The impact of international tax competition on low and middle-income countries¹

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Question

What does the literature say about the links between tax and trade, and tax competition (i.e. “race to the bottom” versus efficiency) in low and middle-income countries?

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¹ This K4D Helpdesk report is the first part in a series of two reports on regional tax competition. This report has a focus on tax competition and its implications for LMICs, while the second report has a focus on regional coordination in Africa to tackle harmful tax competition.

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1. Overview

States compete with tax schemes to attract portfolio capital, profits of international operating corporations, foreign direct investment (FDI) and high income jobs. The literature on low and middle-income countries (LMICs) focusses mainly on tax competition and its impact on where multinationals pay their profit taxes and the flows of FDI. It shows that LMICs are more dependent on corporate tax revenues than high-income countries and that resource rich LMICs show a high volatility on their corporate tax revenues. Over the last three decades, both LMICs and high-income countries have lowered their statutory corporate income tax rates - smaller countries even more so than larger ones. At the same time, due to trade liberalisation, taxes on trade have also been low.

Where high-income countries could compensate for these losses (i.e. higher profits of corporations and a shift to immobile tax sources) LMICs, in particular in sub-Saharan Africa, saw their tax bases become narrower since the 1990s. It has been estimated that countries face a global revenue loss of around US\$500-650 billion annually, of which around one-third relate to LMICs. This is around 1% of a country's GDP, which increases to approximately 1.5% if other tax losses are included, like on portfolio capital. Sub-Saharan African countries suffer the highest revenue losses compared to their GDP, followed by Latin America and the Caribbean, and South Asia.

The literature shows that there is evidence of harmful tax competition (a "race to the bottom") in LMICs, in particular, in the taxation of mobile factors, observing a shift of taxes from mobile capital to immobile factors of production. By attracting foreign investment, profits and wealth that would otherwise have gone elsewhere, tax incentives have adverse cross-border spillovers on the welfare of other countries, in particular in low-income countries. It has been estimated by the IMF (2014; and, Crivelli et al. 2015) that a 1% reduction in the statutory corporate income tax rate in *all* other countries reduces the typical country's corporate income tax base by 3.7%. With corporate tax rates having fallen, on average, by 5% over the last 10 years, this implies a sizable effect, in particular for low-income countries where spillover effects are two to three times higher compared with high-income countries.

The literature shows that a 1% reduction in the corporate tax rate increases the inflow of foreign direct investment between 1.7% and 3%. Furthermore, countries become more FDI sensitive as their economies converge (e.g. economic integration). The literature also shows that tax incentives in LMICs are based on open-ended and profit-based tax holidays, which are far less effective, very costly and erode the tax base indefinitely. Moreover, the literature shows that in the context of LMICs, for corporations and investors tax rates are by far not the main factor in their decision-making where to invest. The conclusion of the literature is that LMICs are more sensitive to profit shifting: investment cannot be encouraged through lowering tax rates as they, in most cases, already take place under the special tax regime, making the standard tax rate become irrelevant. With inefficient tax collection and less capacity against transfer shifting in LMICs, a single focus on the standard corporate tax rate does not tell how much tax effectively is paid.

The literature shows that the "ideal" response to harmful tax competition (reducing corporate tax rate, lowering the incentive for profit shifting, while broadening the tax base by removing exemptions) is far more difficult for LMICs. Tax reforms on the international level and tax cooperation and coordination have been mentioned in the literature as the way forward. Finally,

tax is political and therefore it is difficult to implement measures that will harm powerful groups in society.

The literature (academic and grey) does not aggregate data on gender. This report has a special focus on LMICs, but mentions important evidence and insights from studies that focus on high-income countries that could be of interest for LMICs.

2. Definitions and trends

What is tax competition?

There is an increased awareness of the intensity of international tax competition, and the possibility of mutual harm from the attempts of each country to make its tax system more attractive than those of others. Tax competition is defined as “interactive tax setting by independent governments in a non-cooperative, strategic way” (Dietsch, 2015, p.36). For tax competition to exist there must be fiscal interdependence. This means that the fiscal policy of one jurisdiction (e.g. country, municipality) affects the tax base of other jurisdictions. Capital is the prime target of tax competition, because of its mobility.

The literature signals a breaking point in the 1980s, when mobility barriers (high tariffs, strict capital controls and limited currency convertibility) were being eroded. Regional integration schemes such as the EU Single Market and the North America Free Trade Agreement (NAFTA) went hand in hand with trade liberalisation, capital decontrol and currency convertibility at the global level (Genschel & Schwarz, 2011, p.340). As capital, labour, corporations, goods and services move more easily across borders, so do corresponding tax claims on capital income, labour income, corporate profits or turnover. This invites taxpayers (individuals and corporations) to avoid heavy taxation by moving their purchases, capital or jobs to low tax countries.

National governments tend to compete on the international level for:

- **Portfolio capital:** Individuals shift some of their wealth in the form of cash deposits, equity, and security holdings offshore in order to avoid paying capital gains tax. Given that individuals are taxed on the basis of residence, it includes tax secrecy laws (e.g. Dietsch, 2015; Genschel & Schwarz, 2011).
- **Profits of multinational enterprises:** Corporations shift their profits from countries with high tax rates on corporate profits to those with low ones. Corporate inversion is another way as corporations relocate the headquarters to a low-tax jurisdiction while keeping the business largely as before (e.g. Crivelli et al., 2015; Moore & Prichard, 2017).
- **Foreign Direct Investment:** In contrast to the first two, this type of tax competition actually involves the relocation of real economic activity (e.g. IMF, 2015b; Munongo, 2017).
- **High income jobs:** For highly skilled professionals and multinationals employing them, the individual tax burden is an important factor for migration decisions, while those on below average incomes are not tax-driven in their search for better jobs and higher wages (e.g. Egger & Radulescu, 2009).

The belief that international tax competition could be harmful for countries became a global political issue in the mid-1990s when the G7 countries urged the Organisation for Economic Co-operation and Development (OECD) during their Lyon Summit in 1996 to “vigorously” pursue its

work on this issue, because “tax schemes aimed at attracting financial and other geographically mobile activities can create harmful tax competition between states, carrying risks of distorting trade and investment and could lead to the erosion of national tax bases” (OECD, 1998, p.7) – resulting in OECD Guidelines in 1998, and cumulating since 2015 in the G20-OECD project on base erosion and profit shifting (BEPS).²

Trends in LMICs

The literature mentions the following trends regarding tax competition in low and middle-income countries:

- Consumption taxes (particularly VAT) are the most important source of tax revenue in most African countries. By contrast, revenue from import duties has declined since countries opened for free trade in the 1990s (AfDB, 2017, p.64-65).
- LMICs are more dependent on corporate tax revenues than high income countries, measured as proportion of total tax revenues, which means that their overall fiscal performance is more vulnerable to pressures on these receipts by tax competition (IMF, 2014, p.7). In 2017 approximately 14% of total tax revenue came from corporate income tax, with Nigeria, Cameroon and Mozambique having the largest share of corporate income tax (ATAF, 2017, p.32).
- Most countries in Africa rely heavily on tax revenue from a small number of multinational corporations. A small number of large taxpayers account for over 50% of the total revenue of Zambia, Swaziland, Nigeria, Mozambique, Liberia and Burundi (ATAF, 2017, p.87).
- Data of 99 countries worldwide shows that 65 have cut their headline rate of corporation income tax by an average of 7% between 2006 and 2016 with the average statutory rate falling from 27.45% to 20.73%.³ Statutory rates of corporation tax are a good indicator to signal tax competition, however, the literature shows that they are unreliable to the levels of corporate tax actually being paid. Moves to reduce corporate taxes, through tax breaks, tax holidays, and aggressive tax planning strategies could result in far lower real and effective rates (e.g. IMF, 2015b).
- Abramovsky et al. (2014, p.568) also show that there was a fall in the statutory corporate income tax rate in their sample of 41 low and middle-income countries (Latin America, Africa, Europe and Asia) from 31% in 1996 to 26% in 2010. Studies found that corporate income tax rates fell by more in smaller LMICs than in larger ones (e.g. Abramovsky et al., 2014; IMF 2014), concluding that LMICs followed high-income countries to reduce tax rates as they are under pressure to reduce tax rates (Abbas & Klemm, 2013, p. 596).
- In contrast to high income countries, LMICs in the sample of Abramovsky et al. made tax bases narrower, showing that they were not able to compensate for the revenue loss. Moreover, tax bases became narrower between 1996 and 2007, particularly in sub-Saharan Africa (Abbas & Klemm, 2013, p.602).

² See for more information on BEPS: <http://www.oecd.org/tax/beps/beps-about.htm>

³ From Andrew Baker's post (5 June 2017) on the Political Economy blog of the University of Sheffield: <http://speri.dept.shef.ac.uk/2017/06/05/tax-spillover-development-and-global-governance/> (issued on 20/04/2018)

- In some countries growth in tax revenue from corporate income tax between 2011 and 2015 declined further: e.g. in Nigeria, Liberia, Zambia and Seychelles. On the contrast, Mozambique, Tanzania and Togo saw the highest increase in growth over 19% in the same period (ATAF, 2017, p.66).
- Corporate income tax revenues as a percentage of GDP in African countries are relatively high. Even in countries where the *overall* tax-to-GDP-ratio is low, the corporate income tax ratio was not far below the average during the 2011-2015 period (ATAF, 2017, p.65).
- Mozambique boasts the highest corporate tax-to-GDP-ratio of sub-Saharan Africa at 6.1% in 2015, attributable (at least in part) to having the highest corporate income tax rate of 32%. The lowest ratio was to be found in Rwanda (0.84%). In Nigeria the corporate income tax rate is slightly lower than in Mozambique (30% instead of 32%), however, the tax-to-GDP-ratio was far lower at less than 2%. The reason was that the highly volatile petroleum profits tax, which is part of the corporate income tax in Nigeria, affected the overall corporate tax revenue over the period 2011-15 (ATAF, 2017, p.65). The African Development Bank also signals that resource rich countries have high volatile Corporate Income Tax revenues (AfDB, 2017, p.64).
- Crivelli et al. (2015, p.21) use panel data for 173 countries over 33 years and estimate global revenue losses at around US\$650 billion annually, of which approximately one-third relates to LMICs. Another study of Cobham and Janský (2018, p.207) estimates a global tax revenue loss of US\$500 billion annually. The majority of the reduction in the total estimate relates to OECD countries, meaning that they found an even greater differential in the intensity of losses suffered by lower-income countries.
- Both Crivelli et al. (2015, p.23) and Cobham et al. (2018, p.220) show that countries in sub-Saharan Africa suffer the highest revenue losses compared to GDP followed by, Latin America and the Caribbean, and South Asia. Both also show that the low-income countries suffer the highest loss compared to their GDP.

3. The impact of tax competition

Lessons from the efficiency versus race to the bottom debate

The optimal tax theory measures the trade-offs that exist between different policy goals (e.g. generating tax revenue for redistribution vs lowering corporate taxes to increase investments, profits and growth). However, it does not include the institutional framework that determines individuals' responses to tax policy changes, which the literature argues should itself be part of the optimisation, especially for opportunities to evade or avoid tax in the context of international taxation (Dietsch, 2015, p.166). Dietsch, therefore, mentions that if these are treated as parameters rather than as variables, the resulting *local optima* will recommend a level of progressivity as efficient that is below the level of progressivity in the global optimum where they are treated as variables (2015, p.166).

It has also been emphasised in other literature that efficiency alone is too narrow a criterion to evaluate the impact of tax competition (Sinn, 2001, p.9). Taxation should not be analysed independently from the surrounding economic and institutional environment as tax revenues fund public infrastructure, education and schools, legal systems, and much more. Corporations and

investors often rely heavily on these public goods, and higher taxation can be growth enhancing if it supports the stronger provision of public goods.

The literature has predicted a shift of taxes from mobile capital to immobile factors of production and hence a “race to the bottom” in the taxation of mobile factors. This supports the prevailing view that tax competition is harmful and leads to sub-optimally low tax rates on the mobile production factors (Dzialo, 2015, p.39). The literature (although most of them focussing on high-income countries) seems to underline that international tax competition could impose harmful implications on jurisdictions, for example on their fiscal autonomy, tax base and regressive fiscal regimes for redistribution. For example, for OECD countries, Devereux et al. (2008, p.1213) found that a 1% decrease in the statutory corporate income tax rates of *others* generates, on average, a cut of 0.7% in response.

Abbas and Klemm (2013) measured that there is evidence of a “partial race to the bottom” instead: countries have been under pressure to lower tax rates in order to lure and boost investment. In the case of standard tax systems they show that statutory and effective tax rate reductions did not result in significant revenues losses over the sample period (1996-2007), because of base-broadening, the growth of corporate sector and their profits, and formalisation of economies (2013, p.613). However, this is with the important exception of sub-Saharan Africa, where governments struggled to keep up tax revenues after lowering tax rates.

A race to the bottom is more evident among special regimes, most notably in the case of sub-Saharan Africa, creating effectively a parallel tax system where normal relationships break down and where rates have fallen to almost zero (Abbas & Klemm, 2013, p.602). To give an example, the reports of the Tax Justice Network and ActionAid International of 2012 and 2016 show that governments in East African countries provide a wide range of tax incentives, such as tax holidays, notably in export processing zones, and reduced standard rates in order to attract foreign direct investment. It concluded that such tax benefits promote harmful tax competition, which leads to the race to the bottom in the region.

In such circumstances, the literature clearly shows that increasing tax rates do not boost revenue, not even in the short term as profits shift to the special schemes, either because investment takes place there, or through some profit shifting schemes. Investment cannot be encouraged through lowering tax rates either, as they already take place under the special regime making the standard tax rate becomes irrelevant (Abbas & Klemm, p.608). Overall, for LMICs it emerged through Abbas and Klemm’s regression analysis that higher tax rates adversely affect domestic investment and FDI, but do raise revenues in the short run.

Targeted incentives that directly reduce the cost of capital, such as accelerated depreciation schemes, investment tax credits, and super deductions, have been used with some success in high-income countries, but are less popular in LMICs (IMF, 2015a, p.20). In contrast, the special regime of open-ended and profit-based tax holidays that are used in low-income countries are less effective, are very costly and can erode the tax base indefinitely. Therefore, IMF argues for a rigorous cost-benefit analysis of tax incentives (IMF, 2015a, p.20).

The situation sub-Saharan African countries (and in general in low-income countries also in other regions) can be explained by the increasing pressures that tax competition exercises on their public purses, because LMICs do not have the administrative resources to stabilise their revenues. Therefore, what is observed in LMICs is closer to the economic prediction of a “race to the bottom” (Dietsch, 2015, p.48).

Although most literature analyses corporate income tax in relation to tax competition, there is also evidence of international tax competition for other kinds of taxation. For instance, many countries offer special tax reductions to foreign professionals temporarily working in the domestic economy in order to attract specialised human capital and the multinational companies employing it (Genschel & Schwarz, 2011, p.359). There is no evidence in the literature that countries compete on the international level at the same scale on excise taxation and standard VAT (Genschel & Schwarz, 2011, p.347). Due to trade liberalisation, countries have lowered their import and export duties significantly through multilateral and bilateral trade arrangements.

Measuring tax spillovers

Much of the literature has focused on how a country's tax system affects its own tax base (to identify, for instance, revenue-maximising tax rates). Tax spillover effects received less attention, in particular for LMICs. However, the interest in tax spillover effects on LMICs has significantly increased since the publication of the influential 2014 International Monetary Fund (IMF) working paper that introduced a new tax spillover framework. Tax spillover refers to the impact of one country's corporate taxation rules and practices on other countries. The basic notion is that the structure and practices of one corporate tax regime can spill across national borders effecting macroeconomic performance elsewhere and the distribution of wealth across countries. The IMF analysis has triggered an emerging debate about tax spillovers and how to measure it (Baker & Murphy, 2017, p.15).

The IMF distinguishes two types of spillover (IMF, 2014, p.13): **base spillover** is the impact of one country's tax policy on the tax bases of other countries. This can arise through either an impact on real activities (through investment and the like) and/or through the shifting of paper profits. **Strategic spillovers** is the impact on a country's policy choices of tax changes abroad: tax competition, in its broadest sense (changes in corporate taxation at home in response to changes abroad). There can also be important indirect strategic effects. In particular, pressures to reduce the corporate income tax rate create pressures to reduce the top personal income tax rate too, to prevent avoidance of the latter through incorporation (IMF, 2014, p.13).

The IMF spillover analysis has identified several spillovers in corporate taxation including: trade and capital flows, tax treaties, and the domestic tax regime, including tax incentives. The research notes that tax spillover effects have a "significant and sizable" impact in reducing corporate tax bases and rates (IMF, 2014, p.1). A 1% reduction in the statutory corporate income tax rate in all other countries reduces the typical country's corporate income tax base by 3.7%. With corporate tax rates having fallen, on average, by 5% over the last 10 years, this implies a sizable effect (IMF, 2014, p.19). The spillover base effect is largest for LMICs. Compared to OECD countries, the base spillovers from others' tax rates are two to three times larger, and statistically more significant (IMF, 2014, p.20).

In this sense, the whole concept of tax spillovers revolves around the idea that the practices and policies elsewhere can be harmful for the revenue raising activities of governments in LMICs and the overall performance and size of their economies. A follow-up study (Crivelli et al., 2015, p.23) further suggests that LMICs face harmful tax competition, with signs that these may operate less through effects on real investment decisions than through profit-shifting. The revenue losses through avoidance activities are associated with tax havens and the research suggest they are of more concern for non-OECD members: the estimates put them in the order of over 1% of GDP in the long run; a large amount, far larger relative to their total tax take than is the case in OECD members, and harder for them to replace from other sources (Crivelli et al., 2015, p.23).

Another study on the spillover of profit shifting in LMICs shows that a 10% decrease in foreign affiliates' tax rates increases the likelihood that corporations report zero profits by around 3.5% in LMICs, but only by around 1.5% in high-income countries (Johannesen et al., 2016, p.4). Regressions indicate that increasing either income per capita or the quality of governance by one standard deviation reduces the effect of a 10% decrease in foreign affiliates' tax rates on the propensity to report zero profits by roughly 1%. Likewise, they found that the tax incentives for profit shifting matter the most on the intensive margin of profit reporting in low-income countries. They conclude that low-income countries are highly exposed to cross-border profit shifting and may help explain why they, often in spite of desperate revenue needs, do not raise corporate taxes rates (Johannesen et al., 2016, p.4).

Furthermore, the United Nations Conference on Trade and Development (UNCTAD, 2015) shows that the average rate of return on foreign direct investment in LMICs decreases rapidly with the share of investment deriving from offshore financial centres, which is suggestive of profit shifting. And another study on US corporations shows a clear decrease in effective tax rates over time. On average, cash effective tax rates of US corporations have decreased by approximately 0.4% per year over the past 25 years, representing a cumulative decline of approximately 10%, showing that particularly large multinational firms, are increasingly able to reduce their effective tax rates, a clear suggestion of profit shifting (Dyreng et al., 2016, p.442).

The basic conclusion from the literature is that profit shifting is more sensitive to corporate taxation than FDI. Immaterial goods such as patents and brands are particularly amenable to strategic transfer pricing because proper market prices do not exist for them (Grensch & Schwarz, 2011, p.351). A recent line of research shows further that sophisticated anti-avoidance rules targeted multinational firms limit profit shifting; however, such rules rarely exist in LMICs where the regulatory and bureaucratic capacity is limited (Johannesen et al., 2016, p.1).

The linkage between tax rates and FDI

The part above concludes that there is evidence for harmful tax competition in LMICs with signs that these may operate less through foreign direct investment than through profit-shifting. The reason why is that taxation is only one factor in the locational calculus of multinational companies (Munongo et al., 2017, p.165). A firm may decide to locate in a country which levies a relatively high effective average tax rate, but at the same time grants extensive opportunities to shift profits to other, low tax locations (for instance in the form of weak transfer pricing regulations). Hence, to analyse the impact taxes exert on the investment decisions of firms, and thus also to empirically analyse tax competition issues, one should ideally use a measure of effective taxation that fully takes into account opportunities to shift profits (Leibrech, 2010, p.617).

Empirical work in the Balkan found tax incentives to be effective in foreign direct investment attraction, given that with globalisation and regional integration, locations are becoming more and more similar (Šimović & Žaja, 2010 – from Munongo et al., 2017). Furthermore, the literature conclude that though tax incentives might be important in attracting FDI they are more effective when combined with other non-tax factors (e.g. IMF, 2015, p.12). Some specific results from research are:

- Macroeconomic conditions, infrastructure and strong institutions were found to be important non-tax factors that improve the attractiveness of an economy to FDI (Munongo et al, 2017, p.162).

- More specific to low-income countries, tax levels are less of a constraint on investment than a range of other investment climate concerns, including the quality of public infrastructure (roads, ports, electricity, water and broadband) and public institutions (the legal system), and the predictability of the tax system (Kinda, 2014, p.17).
- FDI is eight times stronger for countries with good investment climates (James, 2013, p.5).

On the linkage between tax competition and FDI the literature mentions the following results:

- A meta-analysis by De Mooij and Ederveen (2008, p. 389) found that a 1% reduction in the corporate tax rate increases the FDI inflow by roughly 3%.
- Feld and Heckemeyer in another meta-analysis (2008, p. 51) put this value somewhat lower at 1.7%.
- An IMF study (2015a, p. 18), showed that by increasing the user cost of capital, corporate taxes have on average an adverse impact on domestic investment and FDI. Malaysia streamlined and reduced corporate income tax to a level comparable to other South-East Asian countries, which contributed to a surge in investment. Similar responses were observed in Germany, Ireland, the Netherlands, and Uganda.
- Some studies also suggest that the tax-sensitivity of FDI has increased over time (De Mooij & Ederveen, 2008; Feld & Heckemaier, 2008) and is higher in Europe than in the rest of the world due to economic integration (Feld & Heckemaier, 2008).
- The UNCTAD data shows that roughly 30% of global FDI goes to tax havens, such as Ireland, Luxembourg, Bermuda, Mauritius or the British Caribbean dependencies. Often these investments serve to set up financial services companies that operate as receiving ends of profit shifting operations out of high-tax jurisdictions (Genschel & Schwarz, 2011, p.349).
- Revenue neutral policy simulations using the endogenous growth model indicate that reducing tax on capital income by 5% (while increasing the consumption tax to keep fiscal revenue unchanged) adds approximately 0.2% to long-run economic growth (IMF, 2015a, p.15).
- Tax holidays, especially popular in LMICs, tend to favour readily mobile ('footloose') activities rather than long-term investment (IMF, 2015b, p.20).

In conclusion, effectively attracting FDI needs public spending, so narrowing the tax base works with tax incentives for low-income countries could be contra-productive. However, when FDI is actually attracted, it is not always increasing overall investments. Evidence for 40 Latin American, Caribbean and African countries between 1985 and 2004 suggests that changes in the length of tax holidays systematically increased FDI inflows. These FDI inflows did not, however, increase total investment, nor did they increase economic growth. This suggests full displacement of domestic by foreign capital (Klemm & Van Parys, 2012, p.412).

Merz et al. (2017, p.24) show that for the German outbound financial sector, both regulation and tax incentives matter significantly in their decision-making in FDI over a time span of 13 years. It also found that a change in tax and regulation policy of one country affects the location probabilities of other countries. Another study of Metz et al. (2016) found that reported profits of multinational banks respond to host country tax incentives. Subsidiaries with higher host country tax levels have significantly smaller pre-tax profits (Merz et al., 2016, p.66). Interest-bearing activities are less tax responsive compared to other activities. In particular, trading gains are

highly tax sensitive. The magnitude of the tax sensitivity of reported profits by financial corporations is significantly larger compared to effects found in studies for non-financial multinationals (Merz et al. 2016, p.66). Thus, both their 2016 and 2017 results suggest that banks have enhanced tax-planning opportunities.

The linkage between tax rates and trade

There is far less literature on the linkage between taxation and trade. The literature available on LMICs is more about how trade liberalisation could affect tax revenues (i.e. lower import and export tax revenues), instead of how tax competition affects trade flows. Wilson (1987, p.850) launched the concept of trade in tax competition by introducing many countries in the analysis of tax competition. He estimated that low tax rate countries will end up producing capital intensive goods, and that the high tax regions will produce labour intensive goods. This distorts the original comparative advantages structure between jurisdictions before the introduction of tax incentives which reduces the overall welfare of the trading partners, because production in capital intensive sectors is shifted to inefficient producers owing to lower tax rates.

The studies that work on tax competition and trade mainly show that the costs of cross-border goods trade and trade imperfections have implications for tax competition. One study shows that small imperfections on the trade side of the model translate into imperfect mobility of capital. In other words, transport cost in the product sector makes capital sticky, i.e. resistant to change. This allows governments to increase their tax rate without costs until the efficient solution is reached (Becker & Runkel, 2012, p.191).

The common idea is that trade costs shield markets from foreign competitors so that it becomes attractive for firms to locate in the larger market where the majority of customers resides. Governments in large markets can use this location advantage to attract foreign firms and charge higher tax rates, while smaller countries have to compete with lower tax rates. One study (Egger & Seidel, 2011) found that imperfect labour markets increase tax base sensitivity to marginal changes in capital income taxes. This means that a symmetric increase in the labour market rigidity of two identical countries renders tax competition more severe and reduces equilibrium tax rates for all levels of trade costs.

A similar effect materialises if trade barriers are reduced. Furthermore, the impact of rigid labour markets and that of trade liberalisation on equilibrium tax rates are interdependent. Stronger trade barriers render the capital tax base less responsive and, hence, capital tax rates more responsive to changes in labour market rigidities. Country size matters for government behaviour. Capital income taxes are higher in larger countries which is preserved if both economies possess the same degree of labour market imperfection. If the larger country has the more rigid labour market, it turns out that this imperfection depresses tax rates more for high levels of trade costs (Egger & Seidel, 2011, p.735).

Finally, another study (Aghion et al., 2016, p.47) showed the importance of corruption in the overall effects of taxation. The overall effects of taxation on growth and innovation depend upon how taxation's incentive effects weigh against the public goods effects, but that high local corruption weakens the positive effect of taxation on growth and innovation. Reducing corruption provides the largest potential impact for welfare gain through its impact on the uses of tax revenues.

4. Implications for regional integration

No literature could be found that explicitly shows the impact of regional integration for tax competition for LMICs. There are studies on regional integration and tax competition mainly focusing on Europe. The so-called New Economic Geography framework predicts that certain jurisdictions have agglomeration advantages. Because of these advantages, firms that settle in these jurisdictions can expect higher profits. Therefore, jurisdictions that offer more agglomeration advantages can afford to levy higher tax rates (Hafner, 2015, p.46). When tax competition increases in the process of economic integration, mobile factors can be expected to gravitate to regions where taxes are low or the provision of public goods is high. Capital is more likely to move to regions or countries where taxes are low and risk-adjusted profits are high (Hafner, 2015, p.46).

The evidence of harmful tax competition has increased attention on tax cooperation/coordination in the literature. The literature highlights that by working together LMICs could avoid open-ended tax holidays (tax base incentives) that erode the tax base indefinitely, providing instead targeted and transparent incentives (cost reducing incentives) that reduce the cost of capital, such as accelerated depreciation schemes, investment tax credits, and super deductions, can promote investment (IMF, 2015a, p.37). Tax incentives need to be well-targeted and based on clear eligibility criteria. Targeting serves two related purposes: identifying the types of investment that a government seeks to attract; and reducing the fiscal cost of incentives. It also shows that measures to cooperate internationally on profit shifting are more likely to be implemented as measures against luring foreign direct investment (Dietsch, 2015, p.195).

The literature also shows that with a primarily focus on just tackling harmful tax competition on mobile capital, LMICs will only gain 1-2% of their GDP (mainly coming from profit shifting of international operating corporations and some from hidden wealth from rich individuals) while an overall 10% GDP gains can still be achieved on domestic tax base with a focus on the capacity of tax collection, non-mobile sources of tax revenue (e.g. VAT, property tax, excises on tobacco and alcohol), lack of transparency and administrative corruption (e.g. Forstater, 2017; Moore, 2017).

There are some explicit mentions in the literature to come to international coordination, for example the call for the establishment of an International Tax Organisation (ITO), which should harmonise the tax rules, but not the tax rates (Dietsch, 2015, p.81) or an International Tax Coordination Agency (ITCA) that regulate the flows between tax jurisdictions (FitzGerald, 2012, p.18).

Overall, tax coordination/cooperation offers opportunities to address spillovers, but also involves the risk of inducing other harmful responses. Most forms of international coordination, however, are only of limited scope and scale. This raises some fundamental issues that require careful consideration when assessing the impact of tax coordination (IMF, 2015b, p.30):

- Coordination with respect to some tax incentives can intensify tax competition in other provisions.
- Coordination among a subset of countries can intensify tax competition with outsiders.
- International tax rules adopted by advanced and emerging economies may affect the intensity of tax competition among low-income countries.

Finally, tax is political and therefore it is difficult to implement measures that will harm powerful groups in society. It has been shown that reforms in areas such as property tax and reducing tax exemptions have often proved resistant to technical assistance and advice, suggesting that the barrier is in the political settlement rather than a lack of technical capacity or best practice advice (Forstater, 2017; Moore, 2017).

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