

Tax revenues, development and the fiscal cost of trade liberalization (1792-2006)

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This research puts the recent evolution of tax revenues in developing countries in historical perspective. Using a novel dataset on total and trade tax revenues covering **130 countries from 1792 to 2006**, we compare the fiscal cost of trade liberalization in developing countries and in today's rich countries at earlier stages of development. We find 140 episodes of trade liberalization; these episodes led to larger and longer-lived decreases in total tax revenues in developing countries since the 1970s than in rich countries in the 19th and early 20th centuries. The fall in total tax revenues lasts more than ten years in half the developing countries in the sample which experienced an episode of trade liberalization.

TRADE TAXES ARE TAX REVENUES

Trade taxes are a crucial tax handle for countries at an early stage of economic development. Revenues from import and export taxes represented more than 30% of total tax revenues in Low-Income Countries (LICs) in the 1970s and in today's High-Income Countries (HICs) in the 1830s. Today's rich countries however levy very little taxes on trade (trade tax revenues represent less than 0.5% of GDP) and the overall pattern that emerges from the data is one of decreasing reliance on taxes on trade as countries develop (see Figure 1). Why is this the case? Probably because taxes on international trade are easy to levy while a more sophisticated government tax capacity is needed to levy broader-based domestic taxes (Gordon and Li, 2009; Besley and Persson 2011, 2013; Auriol and Walters, 2012). Tax capacity is a government's ability to accurately observe and monitor economic transactions on its territory and take away some of these transactions for its own use. To levy broad-based taxes such as the VAT or income taxes a government must observe most economic transactions; to levy trade taxes it only needs to monitor a few large economic flows that are typically highly visible and concentrated geographically in major trade hubs.

Historically, **we indeed observe that rich countries gradually lowered tariffs as they developed modern tax administrations** which made it possible to raise tax revenues through other means (see for example Ardant, 1972). The United Kingdom in the first half of the 19th century illustrates this evolution. In 1842 over a third of the UK's tax revenues came from export and import duties. Prime minister Robert Peel implemented a large over-the-board decrease in tariffs and financed the budget overhaul by re-introducing the income tax and mobilizing the country's modern tax bureaucracy built during the Napoleonic Wars. The extra tax revenue raised was more than expected, allowing for further tariff reforms starting in 1846, the famous repeal of the Corn Laws (Bairoch, 1989).



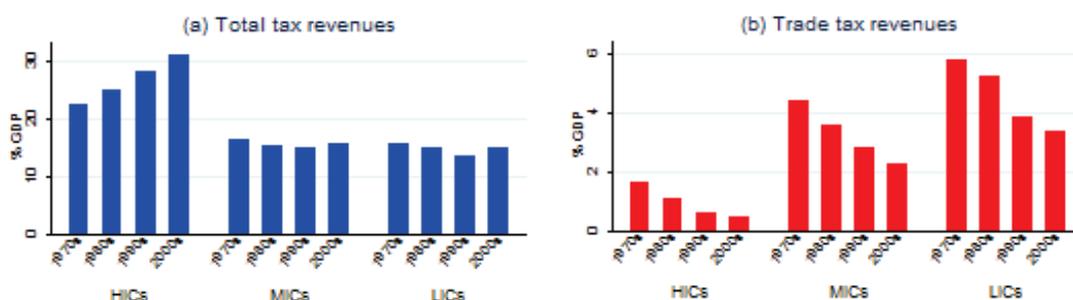
A PUZZLE IN THE RECENT EVOLUTION OF TAX REVENUES

We should therefore observe countries lowering tariffs and opening to trade over time as they develop a tax administration, a phenomenon sometimes called the "tax transition". This could explain part of the well-documented stylized fact of an increase in tax-to-GDP ratios as countries become richer (the so-called "Wagner's Law"): as countries switch from levying trade taxes to more efficient broad-based domestic taxes the efficiency cost of the tax system decreases, allowing for higher tax ratios.

Our research shows that whilst both these stylized facts hold in the long run – when we consider the fiscal history of today's rich countries since the late 18th century –, the history of developing countries since 1970 is puzzling (when we refer to today's developing countries we include all countries that are a LIC or a Middle-Income Country – MIC – in 2006). **We document a decrease in tax-to-GDP ratios in developing countries since 1970**, in apparent contradiction with Wagner's Law (see also Baunsgaard and Keen, 2010). *Figure 1* presents the evolution of the share of total tax and trade tax revenues over GDP in HICs, MICs and LICs since the 1970s. In the top panel (*Figure 1a*) we see that tax ratios decrease in both MICs and LICs. HICs, in contrast, experience a continuous increase in tax ratios over time. The bottom panel (*Figure 1b*) offers a potential explanation for this fall in tax ratios. It shows the evolution of trade tax revenues in the three country groups.

The decrease in the share of trade tax revenues over GDP in MICs (2.2 GDP points) and LICs (2.5 GDP points) is large enough to explain the observed fall in tax ratios in both country groups. The fall in trade tax revenues may come from changes in trade policy but it could also be the consequence of a fall in trade volumes, a shock to the exchange rate or a major destructive event that leads to a collapse in both trade and domestic tax collection. We find however that roughly 70% of the episodes of decrease in trade tax revenues we identify can be traced back to tax reforms (1). Our research's aim is to explore to what extent the simultaneous fall in trade and total tax revenues can be labeled a 'fiscal cost of trade liberalization'.

Figure 1 : Evolution of Total and Trade Tax Revenues since 1970 by Level of Development



Notes: Each bar represents a mean taken over the 29 High Income Countries, 28 Middle Income Countries and 30 Low Income Countries for which data on total and trade tax revenues is available in all decades. Each country is given equal weight in the mean. Countries are categorized by their level of economic development in 2006, see the text for a description of the data used and the country income groups

THE FISCAL COST OF TRADE LIBERALIZATION

The fiscal cost of trade liberalization is the extent to which countries are able to recover the trade tax revenues lost from liberalizing trade by increasing tax revenues from other sources. We construct a novel dataset on tax revenues since the late 18th century by combining different historical and contemporary sources and develop a new methodology to measure the fiscal cost of trade liberalization. Between 1792 and 2006, we identify 140 episodes of trade liberalization, defined by a large (more than 1%) and prolonged fall in trade tax revenues over GDP. These episodes are experienced by 110 countries among the 130 countries in our sample (2). **Trade taxes fall by more than 3 GDP percentage points on average during these episodes.** We find that poorer countries experience deeper episodes – bigger sizes spread out over shorter periods – and are more likely to experience episodes since 1970.

We then consider the evolution of total tax revenues after the trade liberalization episode to see when and whether they come back to their pre-episode level; we use this as a proxy for the fiscal cost of trade liberalization. We find that 49% of countries have recovered the lost tax revenues 5 years after the start of the episode but we never observe a fiscal recovery in over 25% of the countries. *Table 1* presents our results in more detail.

Table 1 The Fiscal Cost of Trade Liberalization

	1792-1969					1970-2006			
	(1) Entire Sample	(2) All countries	(3) HICs	(4) MICs	(5) LICs	(6) All countries	(7) HICs	(8) MICs	(9) LICs
% Episodes with no fall in total tax revenues	47.1 (50.1)	55.3 (50.4)	50.0 (57.7)	64.0 (49.0)	33.3 (50.0)	44.1 (49.9)	100.0 (0.0)	47.7 (50.5)	38.2 (49.0)
% Episodes with no fiscal recovery	27.9 (45.0)	7.9 (27.3)	0.0 (0.0)	8.0 (27.7)	11.1 (33.3)	35.3 (48.0)	0.0 (0.0)	34.1 (47.9)	38.2 (49.0)
Actual recovery time (years)	5 (8)	7 (10)	6 (6)	4 (5)	16 (15)	4 (6)	1 (0)	4 (7)	5 (6)
Potential recovery time (years)	21.1 (13.5)	40.0 (41.9)	.	17.0 (18.4)	86.0 (.)	19.6 (8.0)	.	16.3 (9.2)	21.9 (6.3)
Number of episodes	140	38	4	25	9	102	3	44	55
Number of countries	110	30	4	22	8	85	3	39	46

Notes: Mean (standard error). The table presents descriptive statistics on fiscal recovery for all episodes of decreases in trade tax revenues. The number of observations refers to the number of observations in our dataset for the period and country income group under consideration. Column 1 presents results for the entire sample of episodes. In columns 2 to 5 (respectively 6 to 9), we present results considering only the period 1792-1969 (respectively 1970-2006). HICs (columns 3 and 7), MICs (columns 4 and 8) and LICs (columns 5 and 9) are defined using the country income group at the start of the episode. Episodes are obtained on data smoothed using a HP filter with a smoothing parameter of 6.25.

We highlight here one main conclusion: episodes of trade liberalization have very different consequences for countries at different levels of development. Strikingly, countries which were already HICs at the start of the episode are always found to recover the lost tax revenues. Moreover, HICs which experienced an episode after 1970 never experienced a simultaneous decrease in total tax revenues whilst 50% of the MICs and 60% of the LICs did (3). Finally, over one-third of developing countries which experienced an episode after 1970 are never observed recovering the lost tax revenues. This does not seem to be the consequence of our observing developing countries for a shorter amount of time: the last three lines of Table 1 show that these patterns remain the same when we consider recovery only amongst countries that we observe for a given number of years.

(1) The data does not allow us to disentangle systematically the extent to which the decrease in trade tax revenues comes from a decrease in export tax revenues or in import tax revenues.

(2) 77 countries experience only one episode, 31 experience two, Ireland experiences three and Chile four.

(3) Seven countries experience an episode when they are HICs: Venezuela (1958), Switzerland (1963), the Netherlands (1966), New Zealand (1968), Trinidad and Tobago (1980), Portugal (1987) and Slovenia (1992).

As discussed further in our paper (Cagé and Gadenne, 2014), our results are robust to the choices made in defining an episode of trade liberalization. Results are also qualitatively unchanged when we consider only episodes that we can link to changes in trade policy (roughly 70% of them), in line with the idea that we are capturing the fiscal cost of trade liberalization policies. Importantly, we also find similar results when evaluating the episodes' impact on government expenditures instead of total tax revenues. **This suggests that the fiscal cost we identify was not compensated for by an increase in development aid from trade partners** and did lead to a fall in government's capacity to deliver public goods and services.

POLICY IMPLICATIONS

This research does not attempt to discuss the potential net welfare gain or cost of trade liberalization. On the one hand, given concerns about corruption levels in developing countries (see for example Olken and Pande, 2012) the decrease in tax revenues associated with trade liberalization may be optimal. On the other hand, public finance constraints could explain persistent differences in growth rates across countries (Aizenman and Jinjarak, 2007).

However, it is important to note that the fiscal cost of opening up to trade experienced by developing countries could be eroding support for further trade liberalization. Trade taxes still represent 3.4% of GDP on average in 2000-2006 in the 30 LICs in our sample, nearly one-fourth of total tax revenues. These are precisely the countries in which the international community calls for increases in domestic revenue mobilization. This research suggests that increasing these countries' capacity to tax could, by lessening governments' dependence on trade taxes for revenues, make them less reluctant to embrace free trade.



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