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What's Left to Tax? Partisan Reallocation of Trade Taxation in Less Developed Countries

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Abstract

Trade liberalization has reduced trade tax revenue in most less developed countries (LDCs). The options to replace this tax, which has historically been LDCs' primary source of tax revenue, are limited by competitive pressures in the global economy. Using time-series error correction models, we assess how partisan politics shaped the reallocation of taxes in thirty-eight LDCs from 1975 to 2009. We argue that leftist governments have a vested interest in recovering lost revenue to fund spending that benefits their constituencies but they are highly constrained by the market signaling effects of increasing taxes. We find that leftist governments retained higher levels of falling tax revenue and offset trade tax losses with progressive personal income taxes (PITs). Nonetheless, leftist governments appeared reluctant to increase revenue from corporate income or social security taxes, which impose costs on business. To make up for the trade revenue loss, leftists instead relied more heavily on regressive consumption taxes, which are the most lucrative and market-friendly supplements to preferred PIT. Leftist parties in LDCs demonstrate redistributive concerns, but their tools and the lasting effects of their reforms are limited by strong market constraints.

Keywords

taxation, globalization, partisanship, developing nations

Trade liberalization has important effects on national leaders' choices for tax collection. By necessity, nations must reduce barriers to trade, especially tariffs, taxes, and quotas, to increase their interaction with the global economy. Historically, trade taxes were the largest source of tax revenue in less developed countries (LDCs), and trade tax revenue has fallen in most LDCs as a result of this transformation (Baunsgaard and Keen 2010). Figure 1 shows that, over the period 1975–2009, trade taxes dropped from around 5 percent of gross domestic product (GDP) in the 1970s to the current level of around 1 percent of GDP in our sample of thirty-eight LDCs.[1] The resulting revenue loss put immense fiscal pressures on governments and forced these nations to reallocate their taxes to maintain preferred levels of government provisions.

Few studies have paid attention to government responses to the shifting tax burden in LDCs and their important distributive consequences (Aizenman and Jinjarak 2009). This is a conspicuous gap in the literature because there are compelling theoretical reasons to believe that LDCs will be more seriously affected by globalizing reforms than are developed nations, and that their range of policy responses will be narrower (Rudra 2008; Wibbels and Arce 2003). Moreover, the increased inequality associated with market integration is acute in LDCs, yet their tax systems are less developed, thereby heightening concerns over a "race to the bottom" in welfare provisions (Huber and Stephens 2012). Taxation is a central distributive concern in LDCs, as seen by tax protests and riots in countries as diverse as Bolivia, Ghana, Guatemala, and South Africa in recent decades.

Analyzing tax revenue following trade liberalization in LDCs thus presents an opportunity to assess whether and how constrained partisan governments are able to shape revenue policy. In advanced industrial democracies, it is widely accepted that leftist power in government significantly influences tax revenue policy during periods of market integration (Garrett and Mitchell 2001). Existing studies on the topic in LDCs are few and are typically limited to Latin America (Hart 2010; Stein and Caro 2013). Recent literature, however, has shown that partisan politics matter for government policies and policy outcomes in LDCs (Doyle 2012; Dutt and Mitra 2005; Grieco, Gelpi, and Warren 2009; Ha 2015; Ha and Kang 2015). If partisan effects in LDCs are akin to those

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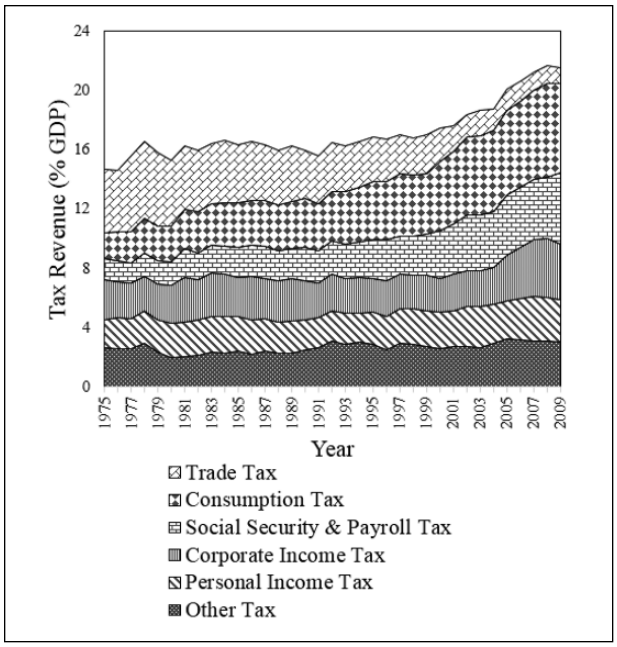

Figure 1. Changes in tax revenue (% of GDP).
GDP = gross domestic product.

observed in advanced industrial countries, leftist parties in government are expected to replace a higher percentage of revenue lost from tariffs and to do so with more progressive sources, such as the personal income tax (PIT), to please middle- and low-income constituents.

Nonetheless, it is an open question whether leftists in LDCs will be able to shape policy in preferred ways due to limitations on tax instruments and the strong influence of foreign investors on economic policy making. LDCs collect lower tax revenue relative to GDP and struggle to collect PIT, the only large-scale progressive tax (Bird 1992). Still, the demand for government expenditures has grown with trade liberalization, particularly from leftist constituencies (Ha 2012; Huber and Stephens 2012). Leftist governments in LDCs thus confront a dilemma: how can they raise tax revenue to meet increased demand for social expenditure given that their capacity to collect progressive taxes is limited?

This study investigates how decreasing trade tax and leftist representation in government have shaped changes across tax categories (as a % of GDP) using pooled time-series error correction models (ECMs) of thirty-eight LDCs from 1975 to 2009. We argue that leftist governments seek to please lower- and middle-income constituents by replacing tax revenue lost from trade and to do so particularly from progressive taxes. However, they are reluctant to increase taxes that send negative signals to international investors. We find strong evidence that leftist governments stymie the loss of revenue associated with liberalizing reforms. Leftists replace lost revenues through progressive PIT, and through consumption taxes (CTs), which are regressive but lucrative, and unlikely to cause capital flight. Leftist governments avoid market-unfriendly social security and payroll taxes (SSPTs) and corporate income taxes (CITs). We find that partisan effects on PIT and CT grow even stronger under the pressures of declining trade revenue. Importantly, the effect of partisan ideology appears to be most substantial in short-term adjustments to revenue loss from trade liberalization. The diminishing impact of partisan ideology over time indicates the likely mechanism by which leftist governments change revenue outcomes—through enforcement and administrative reforms rather than permanent structural changes (Slemrod 2015). Overall, we find that government partisanship is a significant predictor of tax outcomes in LDCs, but the policy tools and long-run effects reveal the constraints on the left.

Our study contributes to the existing literature in several ways. First, using a large sample of LDCs across all regions over an extended period of time, we investigate how and to what extent governments in LDCs replace the revenue lost from trade liberalization. Unlike most studies of LDCs, we analyze a range of tax revenues, including the total tax take (% of GDP) and the disaggregated tax categories. Second, we examine the often-neglected effects of partisan ideology in LDCs. In doing so, we modify theoretical expectations from the literature on advanced industrial democracies to better fit the distinct economic conditions and political constituencies in LDCs. Third, using our modeling specification, we suggest the likely mechanisms by which these changes come about.

Trade Liberalization and Tax Revenue

Taxation has been central to debates on government responses to openness because market integration requires lower barriers to trade and limits governments' options to increase capital taxation. In recent decades, most LDCs have reduced trade taxes to encourage trade, promote economic growth, and increase national welfare. Most LDCs have also lowered capital taxation to provide a friendly revenue environment to retain market assets and attract foreign investment (Pinto 2013).

Because most LDCs relied heavily on trade tax revenues, recent trade liberalization put revenue pressure on them as compared with industrialized countries that reduced trade taxes in previous periods of market liberalization. According to Laffer (1970), when trade tax rates are cut and trade barriers are removed, trade volumes should instantly increase, thereby offsetting the revenue loss and increasing overall trade tax revenue. However, liberalizing LDCs do not typically see increased trade

volume that comes close to generating previous trade tax revenue levels (Rodríguez and Rodrik 2001). For example, Malaysia cut its tariffs in half (14% down to 7%) from 1988 to 2001 and saw trade revenue decline by 71 percent (4.23% to 1.22% of GDP). Similarly, Mauritius cut its tariffs by 91 percent (from 35% down to 3%) from 1995 to 2009 and its trade tax revenue declined by 92 percent (6.69% to 0.53% of GDP). This decline happened in most LDCs and similarly across different regions and income groups of LDCs (see Supplements 2, 3, and 4). In the long term, trade tax losses may be offset by increased trade flows and by their spillover effects on other taxes such as CIT and CT. However, in the short term, many LDC governments have lost money from trade liberalization, and some of this revenue must be replaced by other sources.

Yet, LDCs cannot easily replace declining trade tax revenue with other taxes because in open market competition they need to provide a friendly revenue environment. Industrialized countries can sustain relatively high levels of taxation because they compete for capital based not simply on taxes but also on factors such as infrastructure, human capital, and political stability (Wibbels and Arce 2003). LDCs rely heavily on tax rates to attract foreign investment given that they lack these other appealing endowments. As such, the shrinking tax base from lost trade revenue has exacerbated existing revenue constraints in most LDCs (Baunsgaard and Keen 2010; Flores and Nooruddin 2016).

Importantly, trade liberalization in LDCs has also coincided with more demand for social spending (Nooruddin and Simmons 2009). As market liberalization has increased income inequality and instability in LDCs (Huber and Stephens 2012), their citizens also increasingly support social protection (Bellinger and Arce 2011). As such, LDCs face the direst globalization "dilemma"—citizens ask more from the state precisely when the state has fewer resources to meet those demands. How will LDC governments reallocate tax resources to fund social protection? We argue that this policy choice is strongly influenced by the ideological orientation of political leadership in LDCs.

Partisan Politics, Trade Liberalization, and Tax Collection

In the study of advanced industrial nations, partisan politics is considered a significant explanatory factor driving revenue policies. According to "power resource theory," the strength of leftist parties and organized labor significantly determines the size and impact of redistributive policies, including taxation (Esping-Andersen 1985). In the power resource theory perspective, it follows that leftist parties facing declining trade revenue should try to retain overall resource levels and advance progressive taxation to compensate constituents harmed by trade liberalization (Beramendi and Cusack 2009).

Yet, the role of leftist parties has been given less attention in discussions of fiscal outcomes in LDCs because their party systems are considered to be less programmatic, more clientelistic, and less able to press for costly social protections (Bratton, Bhavnani, and Chen 2012; Mainwaring and Torcal 2006). However, an increasing number of studies find that partisans' fiscal policies in LDCs follow similar ideological patterns to those found in industrialized nations. Left and right parties in LDCs have taken consistent ideological stances on income inequality (Ha 2012; Huber and Stephens 2012), poverty (Orenstein 2008), monetary policy (Ha and Kang 2015; Mukherjee and Singer 2008), social spending (Ha 2015), and tax policy (Chu, Davoodi, and Gupta 2000). Taxation is a salient policy area upon which leftist parties can make direct appeals to constituents in LDCs (Stein and Caro 2013). Redistribution, including tax revenue, is central to leftist agendas in LDCs.

While we may accept that many parties in LDCs are trying to represent their respective constituencies on matters of distribution, expecting the same approaches and outputs from leftist parties in LDCs as those seen in industrialized nations may obscure important effects (Pinto 2013). This divergence may result both from different demands made by voters at lower levels of income and from the different supply of government policies available to partisans in weaker economies. As constituencies' preferences and needs are strongly affected by economic structures, lower-income levels should imply distinct policy mandates for political parties in LDCs.

Furthermore, capital scarcity should temper our expectations about the level of compensation leftist governments can provide. With low capital stock, parties in LDCs are particularly sensitive to market signaling and must tailor policies to reflect the interests of global finance to avoid disruption to their economies (Haggard and Maxfield 1996). Currency traders in international financial markets consider leftist governments less credible (Garrett 1998). Thus, leftist governments in LDCs are more likely to face capital flight and speculative attacks, which can prompt financial crisis that disproportionately harms lower-income constituents (Lee and Rhee 1998). Leftist governments may have a mandate to both send positive signals to international markets and increase social protection at the same time (Baker and Greene 2011). Structural reforms and market pressures in LDCs have imposed limits on policy options to redistribute, leading scholars to ask, "What's Left for the Left?" (Kingstone and Young 2008). Accordingly, to assess the role of leftist parties, we must consider what tax policies are feasible in the context of globalized LDCs.

Theoretical Motivation: What's Left to Tax?

We argue that partisan governments in LDCs evaluate three dimensions of taxation: underlying fiscal capacity, market signaling, and political constituencies. First, due to low tax capacity across nearly all LDCs, certain taxes are more difficult to collect. Their choices also reflect fundamental constraints on tax administrations established by preexisting tax structures and past investments in tax capacity (Flores and Nooruddin 2016). Second, the political and economic costs of taxing capital may outweigh the revenue benefits in countries with low capital stock and dependence on foreign resources for economic growth. Third, leftist parties desire to replace tax revenues lost from trade to finance social spending and allocate the taxes to benefit their middle- to low-income constituencies.

The major tax categories—PIT, CIT, SSPT, and CT—vary on these three dimensions. PIT is the most difficult tax to collect (Rogers and Weller 2014). Revenue from PIT is low in nearly all LDCs and cannot provide enough money to offset trade revenue (Bird and Zolt 2004–2005). PIT is appealing to the left, however, because it is progressive even in LDCs with high evasion rates (Chu, Davoodi, and Gupta 2000; Lora 2006). Importantly, a large percentage of lower-income workers in LDCs does not meet the minimum income requirements for PIT or works in untaxed informal sectors (International Labour Organization 2001).

CIT, on the contrary, is difficult to collect and is unappealing to foreign capital. The incidence of CIT is contested in LDCs because it may be absorbed by corporations or shifted to consumers (Gemmell and Morrissey 2005). Even if CIT is perceived as progressive, leftists may be reluctant to raise CIT because it sends negative signals to global markets and can result in capital flight (Haggard and Maxfield 1996).

SSPT is disliked by global markets because it increases the costs of doing business in a nation (Mitchell 1998). Foreign investors expect leftist governments to have pro-labor policies, including taxing labor at low rates (Pinto 2013). Social security systems in most LDCs are employment- and contribution-based (Kaufman and Segura-Ubiergo 2001). In most LDCs, these systems were established as patronage for privileged groups, such as civil servants, and were expanded to well-unionized, formal, urban workers (Mares and Carnes 2009). LDC governments have often subsidized social security systems using "general fund" taxes, and most beneficiaries in LDCs have enjoyed higher benefits than they contribute (Haggard and Kaufman 2008). Thus, unionized formal labor has typically opposed efforts to reform SSPT to retain existing benefits (Huber and Stephens 2012; Nooruddin and Rudra 2014). Accordingly, leftist governments may be reluctant to increase SSPT because it sends negative signals to markets and their constituents may oppose it.

CT requires a reasonably sophisticated administrative state to collect efficiently, but it is easier to tax than income (Lieberman 2002). CT is the favored revenue tool of international financial institutions and global markets alike because these taxes provide consistently high levels of revenue and are "revenue neutral" (Goode 1993). CT is regressive because low-income individuals spend a higher percentage of their incomes on consumption goods (Gemmell and Morrissey 2005). However, policy makers in LDCs can shape the incidence of CT through exemptions of goods such as kerosene, medicine, and food staples that dominate the budgets of the poor. The extent to which CT is regressive depends on "the structure of the tax, the nature of the economy, and the effectiveness of the administration" (Bird 2015, 25). Thus, partisan support and resistance to CT is not obvious in LDCs, and there are considerable partisan debates around the specifics of CT policy. Most crucially, CT provides very large levels of revenue that can fund redistributive policies preferred by the left, as is common in some high-income OECD (Organisation for Economic Co-operation and Development) countries (Beramendi and Rueda 2007; Inter-American Development Bank [IADB] 1998).

Given these characteristics of taxes, how should the left reallocate their taxes away from trade? The most straightforward way is through the expansion of PIT, but due to the political and administrative barriers to its expansion, it must be supplemented with other sources. Given the heightened sensitivity of global capital to leftist parties in LDCs, we expect the left to be wary of increasing CIT. Leftist parties are also expected to avoid expanding SSPT, which is unappealing to foreign investors and quite possibly to their constituents as well. Accordingly, CT is an imperfect but reasonable supplement to PIT for leftists because it is lucrative, relatively flat, and market friendly.

The constraints on leftist governments in LDCs should also be reflected in the mechanisms by which governments increase tax revenue and by the dynamics of these changes. In advanced industrial democracies, scholars quite reasonably look for evidence of long-term trends in tax revenue that result directly from (infrequent) rate reforms. In LDCs, changes to tax rates are highly contentious, relatively rare, and often have no clear relationship to levels of tax revenue (Fisman and Wei 2004). Numerous scholars have pointed out that the problem of taxation in LDCs is not in their rates or structures, which are typically very similar to those seen in wealthier nations, but rather in administrative and

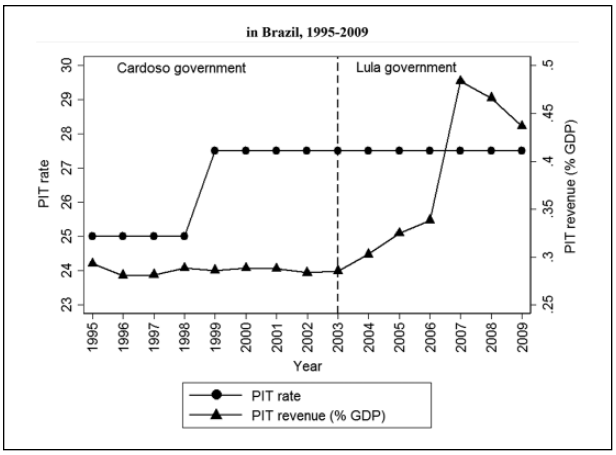

Figure 2. Changes of PIT rate and revenue (% GDP) in Brazil, 1995–2009.
GDP = gross domestic product; PIT = personal income tax.

enforcement deficiencies, exemptions, and wide-scale evasion (Bird 1992; Goode 1993). As Casanegra de Jantscher and Bird (1992, 25) argue, in LDCs, "tax administration is tax policy."

For leftists in particular, greater enforcement and administrative tweaks are not only more politically feasible than statutory rate changes, they also avoid the costly market signal of raising tax rates. Figure 2 provides an illustrative example showing that tax revenue moves independently of tax rates in LDCs. Leftist Brazilian President Lula and his Worker's Party government notably increased PIT revenue in the period 2004–2009 with no change in rates. A rate increase under previous President Cardoso in 1998 did not raise PIT revenue. Increased tax revenue (including PIT) resulted from changes in economic policy (such as a minimum wage increase) and reforms designed to simplify the tax system and improve enforcement (dos Santos 2005).

We find many examples of these reforms across LDCs. Indonesia's leftist government substantially increased PIT and total tax revenue in the 2000s through administrative reforms and greater enforcement of payment from the highest income earners (Le Borgne et al. 2008). Similarly, Peru under the center–left *Alianza Popular Revolucionaria Americana* (APRA) party made major changes to the incentive structures of tax employees that helped to increase revenue from 5.4 to 9 percent of GDP between 1989 and 1990 (Das-Gupta and Mookherjee 1998). Administration is central to CT revenue as well. While "there is no systematic difference in statutory VAT (value-added tax) rates between high-income and developing countries," there is tremendous variation in compliance with and efficiency of VAT administration (Aizenman and Jinjarak 2008, 399). This variation depends primarily on "collecting and processing information, prosecuting and penalizing agents found underpaying the tax" (Aizenman and Jinjarak 2008, 393). For example, South Africa under the center–left African National Congress (ANC) increased VAT compliance in the last two decades through efforts such as electronic filing. Thus, administrative reforms are typically considered the most promising avenue for increasing tax revenue in LDCs (Slemrod 2015).

We focus on leftist parties in this analysis for the primary reason that leftists, in general, seek to retain lost revenue from trade given the increasing demand for the social protection in LDCs. Overall, rightist governments are expected to confront less pressure to increase revenue. Still, we test the interactive effects of trade tax and rightist parties on four tax categories and find reciprocal results for rightist parties. Unlike for leftist governments, most of the results for rightist governments are insignificant, suggesting mixed incentives to increase revenue. The results are nonetheless consistent with our main results for the left: rightist governments collect significantly lower revenue from PIT (in the long and short term), and rightist governments do not significantly replace decreasing trade tax with the other taxes. See Supplements 8.1 and 8.2 for detailed results.

By examining both short- and long-term relationships between partisanship and tax revenue using an ECM approach, we can evaluate whether these effects are long lasting or more short-term adjustments. Short-term effects would imply provisional changes to revenue policy, such as increased enforcement or administrative efficiency that may come and go with their governments. Importantly, this ECM approach offers a broad way to examine change dynamics in our diverse sample of countries that have reformed their tax systems in a variety of ways.

Data and Models for Analysis

Dependent Variables

We use total tax revenue, total net tax revenue (total tax revenue minus trade tax revenue), and the four major tax categories—CIT, PIT, SSPT, and CT—as dependent variables. All tax revenues are measured as a share of GDP. Tax revenue (% GDP) is a direct measure of tax capacity, as well as the levels of revenue available to LDCs, and it shows the substantive effect of the tax categories. As discussed above, tax rates are a poor indicator of tax collection in LDCs due to evasion, income exemptions, and investment incentives (Wibbels and Arce 2003). Tax rate data for LDCs are also sparse, highly static, and limited to the most recent periods (2006–present) and to the most

developed countries (Latin America). For these reasons, all related research on LDCs has focused on revenue rather than rates (Hart 2010; Stein and Caro 2013; Wibbels and Arce 2003).

We use tax revenue data from Acosta-Ormaechea and Yoo (2012), which provide the most complete available dataset of tax revenue categories in LDCs. Acosta-Ormaechea and Yoo meticulously combined available data from the International Monetary Fund's (IMF) Government Finance Statistics (GFS), the OECD, and the United Nations, using the definitions from the GFS. We define LDCs as countries that are not members of the OECD. See Supplements 2 and 5 for our full sample of LDCs and a detailed discussion of the tax data.

Independent Variables—Trade Taxation and Ideological Orientation

Trade tax. We use trade tax revenue (% GDP) to capture the decline in taxes on international trade and transactions that come with liberalization. Our ultimate goal is to explain the replacement of revenue lost from trade taxes, so it is straightforward to use this measure directly instead of alternative measures, such as trade flows, that are not strongly related to reduction of trade taxes in LDCs (Rodríguez and Rodrik 2001).

Leftist government power. We use the World Bank's Database of Political Institution (DPI) and Ha's (2012) ideological orientation indicator to measure leftist *government* parties' seats as a share of all *government* parties' seats in the legislature. DPI codes the three largest government parties, placing party preferences regarding state control of the economy along a standard left–right scale, and then assigns one of three values: Left, Center, or Right. Parties and chief executives are coded as "Right" when the terms "conservative" or "Christian democratic" appear in their party names, or when the label "right-wing" is found in cross-checked sources. Similarly, parties are classified as "Left" if their names include "communist, socialist, or social democratic," or if labeled "left-wing." Parties are coded as "Center" when their names assert centrist affiliation or if their position emphasizes not only strengthening private enterprise but also a redistributive role for government. Ha (2012) expands the DPI ideology data to all government parties, defining government parties as those holding a cabinet portfolio, and weighting the data according to seat shares held by each government party and the duration of time each party spent in power. This improves the scope, precision, and completeness of the DPI data. Using the DPI (Beck et al. 2001) and following the coding rules of Ha (2012), we expanded the ideology data from 1975–2005 to 1975–2009. A detailed description of these data and their comparison with similar measures are included in Supplement 6.

Control variables. We also include control variables common in research predicting taxation. These include GDP per capita (logged), relative political reach (RPR), capital account openness, foreign direct investment (FDI), level of democracy (Polity score), natural resource rents (% GDP), external debt (% gross national income [GNI]), and IMF program participation. Tax capacity is best captured by tax revenue. Given that tax revenue is our dependent variable, we use common alternative measures of state capacity: logged GDP per capita, and RPR, which captures differences in state control (Kugler and Tammen 2012). To conserve space, we discuss the theoretical link between the controls and taxation, and the empirical results for each variable, in Supplement 7.

Models and Empirical Structure

We employ time-series ECM to predict changes in tax collection in thirty-eight LDCs from 1975 to 2009. The dependent variable in ECM is the first difference of the output under examination. The main independent variables are included in two forms, as a lag ($t-1$) and a delta term (first difference), to capture the distinction between long-term changes in the equilibrium relationship (lag term) between the variables and short-term adjustments to the long-term relationship (delta term). The choice of ECM is motivated by two theoretical arguments. First, we are interested in how changes in trade revenue affect changes in tax revenue allocation, in addition to absolute levels. Cross-national differences in the level of the tax revenues are highly persistent because they are strongly shaped by historical factors and structural conditions (Gupta 2007). Change in tax revenues is influenced more directly by dynamic processes of trade liberalization and contemporaneous political pressures. Second, we expect the changes to tax collection in LDCs to be most apparent in short-term adjustments because of the theorized mechanism—reforms to enforcement and administration. ECM is well suited to these purposes.

Following Kaufman and Segura-Ubiergo (2001), we use ordinary least squares with panel-corrected standard errors (PCSEs) to deal with panel heteroscedasticity and spatial correlation. Country dummies are included to control for unmeasured country-specific effects. Decadal dummies control for unmeasured period-specific international fluctuations, such as the 1970s oil crisis and the 1980s debt crisis. Both PCSE and country dummies tend to generate conservative results. While these methods may lead us to reject causal hypotheses prematurely, they provide more confidence that the statistically significant results are robust.

The regression model is listed below:

$$
\begin{aligned}
\Delta \text{Tax revenue} = {} & +\beta_0 \text{ Tax revenue}_{i,t-1} \\
& +\beta_1 \text{ Trade tax}_{i,t-1} \\
& +\beta_2 \Delta\text{Trade tax}_{t} \\
& +\beta_3 \text{ Left}_{i,t-1} \\
& +\beta_4 \Delta\text{Left}_{i,t} \\
& +\beta_5 \left(\text{Trade Tax} \times \text{Left}\right)_{i,t-1} \\
& +\beta_6 \Delta\left(\text{Trade Tax} \times \text{Left}\right)_{i,t} \\
& +\beta_7 \text{ Logged GDP per capita}_{i,t-1} \\
& +\beta_8 \text{ Relative political reach}_{i,t-1} \\
& +\beta_9 \text{ Polity}_{i,t-1} \\
& +\beta_{10} \text{ Logged population}_{i,t-1} \\
& +\beta_{11} \text{ Natural resource rents}_{i,t-1} \\
& +\beta_{12} \text{ Capital account openness}_{i,t-1} \\
& +\beta_{13} \text{ FDI}_{i,t-1} \\
& +\beta_{14} \text{ External debt}_{i,t-1} \\
& +\beta_{15} \text{ IMF program participation}_{t-1} \\
& +\sum_j \beta_j \text{Decade} \\
& +\sum_k \beta_k \text{Country} \\
& +\varepsilon_{i,t}.
\end{aligned}
$$

The βs are parameter estimates, and the subscripts *i* and *t* denote, respectively, the country and year of the observations. The *j* and *k* subscripts denote the decadal dummies and country dummies, respectively. Tax revenue denotes total and net domestic tax revenues, and four types of tax revenues—PIT, CIT, SSPT, and CT—as a share of GDP. Trade tax denotes trade tax revenue as a share of GDP. Left denotes leftist power in government. Our analysis focuses on the conditional effect measured in the interaction term (Trade Tax × Left).

The lagged variables (β_1, β_3, and β_5) capture the long-term effects of trade tax, leftist power in government, and their interactions, while the first difference variables (β_2, β_4, and β_6) represent the short-term effects of changes in these factors. The long-term effect can be calculated by dividing the parameters for the lagged-level variables (β_1, β_3, and β_5) by minus the parameter for the lagged dependent level variable (β_0). Our theoretical expectations lead us to predict that the conditional effect of partisanship will be most apparent in the first difference term. To simplify the model, we exclude the first difference of the control variables because we do not have theoretical expectations about their specific time dynamics.[2] The first difference terms of the controls were in almost all cases insignificant. Note that all of the substantive results are robust to the inclusion of the first differences of the controls.

We are interested in the impact of *decreasing* trade tax because we want to explain whether and how this tax is replaced. Therefore, the coefficients will be interpreted as trade tax loss, not gain. For example, according to our argument, *decreasing* trade tax (% GDP) *decreases* total tax revenues (% GDP), so the coefficient of trade tax (% GDP) is *positive* on the total tax revenue (% GDP). Yet, leftist governments would significantly moderate these effects, and thus the coefficient of Trade Tax × Left is expected to be *negative* on total tax revenue.[3]

Empirical Results

We separate our results into two sections: total and net domestic taxes (% GDP) in Table 1, and tax categories (% GDP) in Table 2. Table 1 reports our model estimations for the impact of the trade tax and leftist government power on changes in total tax revenue (Regressions [1]–[3]) and net tax revenue (total minus trade tax; Regressions [4]–[6]). Regressions [1] and [4] first report the results with two commonly used tax capacity measures: logged GDP per capita and RPR. We do not expect strong results on these controls because the dependent variables capture capacity and because our dependent variable measures changes in tax collection, not levels. Regressions [2] and [5] report the results with additional market liberalization and political variables: capital account openness, FDI (% GDP), and Polity. Regressions [3] and [6] report the full models. In all of the regressions, trade tax is strongly and positively associated with total tax revenue (in both the long and short term) and net domestic tax revenue (in the short term). These results suggest that decreasing trade tax in LDCs results in decreasing total and net domestic tax revenues, which provides supportive evidence of a declining revenue base in LDCs, at least in the short term.

Leftist power in government plays a significant role in predicting total and net domestic tax revenue (% GDP). Short-term leftist government power (ΔLeft), by itself, is strongly and positively associated with both total and net domestic tax revenues, implying that strengthened leftist power in government staunches overall tax revenue loss in the short term. According to Regression [3], if leftist power in government increases by 44 percent (one standard deviation in our sample) in the short term, total tax revenue increases by 0.57 (% GDP), which is roughly 10 percent of one standard deviation of total tax revenue in the sample (5.63% GDP). The results suggest that changes in leftist government power in the short term explain roughly 10 percent of the changes in total tax revenue.

Leftist power in government also plays a significant role in mediating the impact of trade tax on total and net

Table 1. The Impact of Trade Tax Revenue and Leftist Government Power on Total and Net Tax Revenues (% GDP).

	ΔTotal tax (% GDP)			ΔNet domestic tax (% GDP)		
Independent variables	[1]	[2]	[3]	[4]	[5]	[6]
Trade tax (% GDP)$_{t-1}$	0.222*** (0.056)	0.218*** (0.056)	0.200*** (0.060)	0.042 (0.049)	0.029 (0.049)	0.008 (0.055)
ΔTrade tax (% GDP)	1.209*** (0.073)	1.192*** (0.074)	1.165*** (0.077)	0.209*** (0.073)	0.192*** (0.074)	0.165** (0.077)
Left government power$_{t-1}$	0.001 (0.002)	0.002 (0.002)	0.002 (0.003)	0.001 (0.002)	0.002 (0.002)	0.002 (0.003)
ΔLeft government power	0.010*** (0.004)	0.013*** (0.004)	0.013*** (0.004)	0.010*** (0.004)	0.013*** (0.004)	0.013*** (0.004)
Trade Tax (% GDP)$_{t-1}$ × Left$_{t-1}$	−0.0001 (0.0007)	−0.0003 (0.0007)	−0.0002 (0.0007)	−0.0001 (0.0007)	−0.0003 (0.0007)	−0.0002 (0.0007)
ΔTrade Tax (% GDP) × ΔLeft	−0.004*** (0.001)	−0.004*** (0.001)	−0.004*** (0.001)	−0.004*** (0.001)	−0.004*** (0.001)	−0.004*** (0.001)
Logged GDP per capita$_{t-1}$	0.272** (0.106)	0.308*** (0.109)	0.168 (0.360)	0.272** (0.106)	0.308*** (0.109)	0.168 (0.360)
Relative political reach$_{t-1}$	−0.011 (0.494)	−0.275 (0.512)	−0.861 (0.699)	−0.011 (0.494)	−0.275 (0.512)	−0.861 (0.699)
Capital account openness$_{t-1}$		0.110 (0.225)	0.093 (0.270)		0.110 (0.225)	0.093 (0.270)
FDI (% GDP)$_{t-1}$		0.039 (0.031)	0.054* (0.033)		0.039 (0.031)	0.054* (0.033)
Polity$_{t-1}$		0.009 (0.012)	0.008 (0.015)		0.009 (0.012)	0.008 (0.015)
Natural resources (% GDP)$_{t-1}$			0.027** (0.012)			0.027** (0.012)
Logged population$_{t-1}$			0.085 (0.181)			0.085 (0.181)
External debt (% GNI)$_{t-1}$			−0.001 (0.001)			−0.001 (0.001)
IMF program participation$_{t-1}$			0.103 (0.109)			0.103 (0.109)
Total tax (% GDP)$_{t-1}$	−0.180*** (0.028)	−0.189*** (0.029)	−0.192*** (0.029)			
Net domestic tax (% GDP)$_{t-1}$				−0.180*** (0.028)	−0.189*** (0.029)	−0.192*** (0.029)
Number of observations	926	890	795	926	890	795
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Decadal dummies	Yes	Yes	Yes	Yes	Yes	Yes
R^2	.450	.434	.451	.164	.177	.188
Probability > χ^2	.000	.000	.000	.000	.000	.000

The dependent variables are changes in tax revenues (% GDP) from the previous year. Regressions are based on error correction models with panel-corrected standard errors. Statistical significance is based on two-tailed tests. GDP = gross domestic product; FDI = foreign direct investment; GNI = gross national income; IMF = International Monetary Fund.
$^{\dagger}p < .15$. *$p < .10$. **$p < .05$. ***$p < .01$.

Table 2. The Impact of Trade Tax Revenue and Leftist Government Power on Categories of Tax Revenue (% GDP).

	ΔCIT (% GDP)	ΔPIT (% GDP)	ΔSSPT (% GDP)	ΔCT (% GDP)
Independent variables	[7]	[8]	[9]	[10]
Trade tax (% GDP)$_{t-1}$	−0.012 (0.046)	0.039*** (0.014)	−0.004 (0.013)	−0.012 (0.025)
ΔTrade tax (% GDP)	0.059 (0.067)	0.031** (0.016)	−0.009 (0.014)	0.019 (0.032)
Left government power$_{t-1}$	−0.002 (0.002)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
ΔLeft government power	0.005** (0.002)	0.005*** (0.002)	−0.002* (0.001)	0.005** (0.002)
Trade Tax (% GDP) × Left$_{t-1}$	−0.00002 (0.0005)	−0.0004* (0.0002)	0.0001 (0.0002)	−0.0007* (0.0004)
ΔTrade Tax (% GDP) × Left	−0.001* (0.001)	−0.001*** (0.000)	0.001** (0.000)	−0.002*** (0.001)
Logged GDP per capita$_{t-1}$	0.148 (0.334)	0.309** (0.136)	0.034 (0.080)	−0.456*** (0.160)
Relative political reach$_{t-1}$	−0.686 (0.605)	0.208 (0.259)	−0.418** (0.200)	−0.105 (0.291)
Capital account openness$_{t-1}$	−0.139 (0.164)	0.012 (0.083)	−0.002 (0.060)	0.203* (0.120)
FDI (% GDP)$_{t-1}$	0.046† (0.029)	0.004 (0.008)	0.003 (0.009)	−0.007 (0.012)
Polity$_{t-1}$	−0.017* (0.010)	0.021*** (0.007)	0.004 (0.005)	0.005 (0.007)
Natural resources (% GDP)$_{t-1}$	0.028*** (0.008)	−0.005† (0.004)	0.010*** (0.003)	−0.006† (0.004)
Logged population$_{t-1}$	0.004 (0.172)	−0.506* (0.272)	0.016 (0.042)	0.263*** (0.079)
External debt (% GNI)$_{t-1}$	−0.001 (0.002)	−0.002* (0.001)	−0.0002 (0.0002)	−0.0005 (0.0004)
IMF program participation$_{t-1}$	−0.050 (0.065)	−0.010 (0.040)	0.033 (0.028)	0.055 (0.049)
CIT (% GDP)$_{t-1}$	−0.288*** (0.058)			
PIT (% GDP)$_{t-1}$		−0.234*** (0.044)		
SSPT (% GDP)$_{t-1}$			−0.133*** (0.034)	
CT (% GDP)$_{t-1}$				−0.225*** (0.035)
Number of observations	662	632	632	693
Country dummies	Yes	Yes	Yes	Yes
Decadal dummies	Yes	Yes	Yes	Yes
R^2	.211	.219	.162	.215
Probability > χ^2	.000	.000	.000	.000

Statistical significance is based on two-tailed tests. See Note in Table 1. GDP = gross domestic product; CIT = corporate income tax; PIT = personal income tax; SSPT = social security and payroll tax; CT = consumption tax; FDI = foreign direct investment; GNI = gross national income; IMF = International Monetary Fund.
$^{\dagger}p < .15$. *$p < .10$. **$p < .05$. ***$p < .01$.

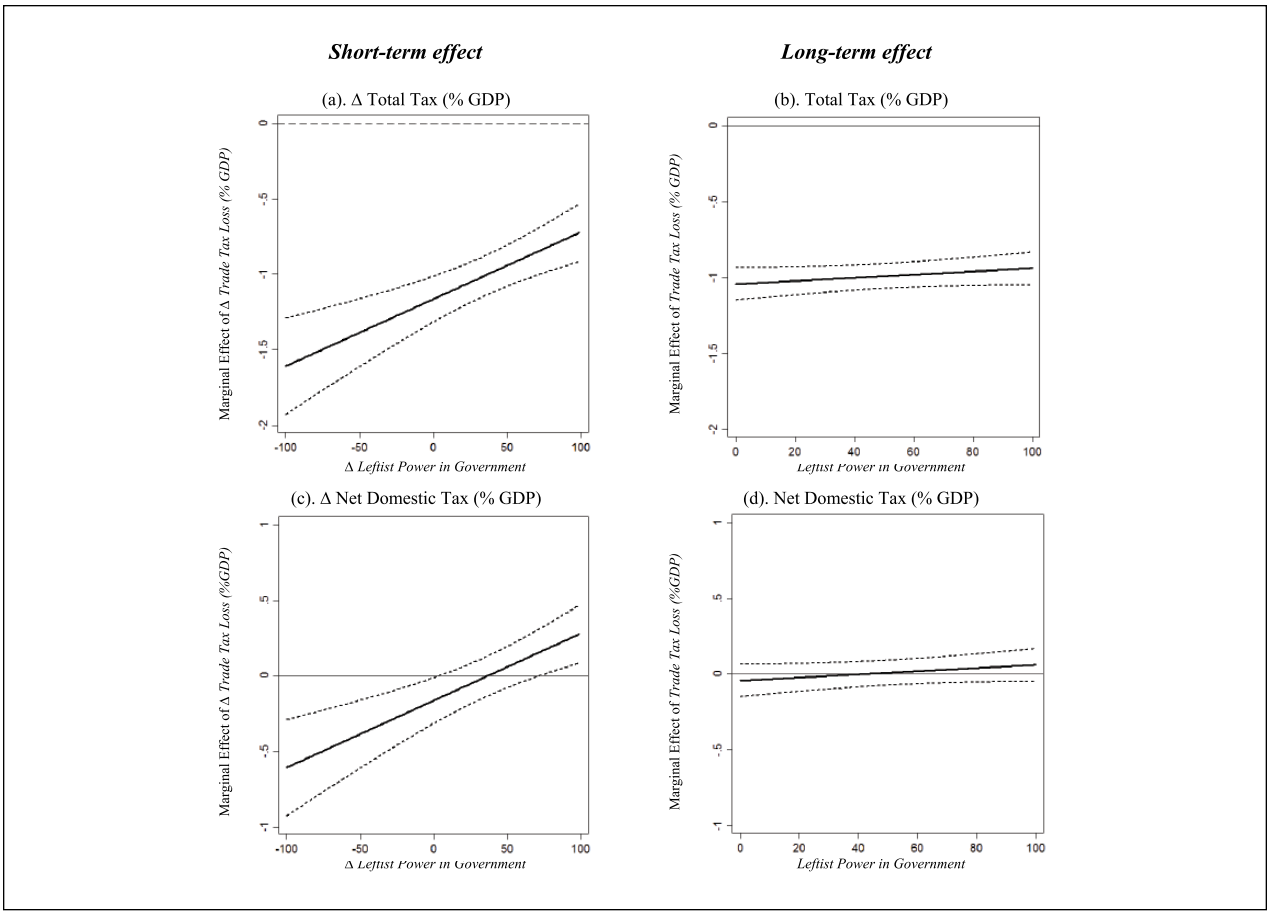

Figure 3. Marginal effects of trade tax loss (% GDP) on total and net domestic tax revenue (% GDP) as leftist power in government changes.
GDP = gross domestic product.

domestic tax revenue (% GDP). The short-term effects of trade tax and leftist power on total and net domestic tax revenue are statistically significant and substantively large. For example, holding other factors constant, when leftist parties have no power in government (0%), a 2.45 percent (GDP) decrease in short-term trade tax (one standard deviation) produces a decrease of over 2.85 percent in total tax revenue, which is roughly 50 percent of one standard deviation of total tax revenue in the sample (5.63% GDP). However, when leftist power in government increases 44 percent, this negative effect decreases by 0.57 percent (GDP), recovering 20 percent of the total revenue loss in the short term. Nonetheless, leftist power in the long term has insignificant effects on the relationship between decreasing trade tax revenue and total and net domestic tax revenue.

The point estimate of the interactive term (Trade Tax × Left) may not fully capture the conditional relationship between trade tax loss and leftist power in government on overall tax revenue. Following Brambor, Clark, and Golder (2006), we graphically present the conditional effect in Figure 3, with the 95 percent confidence interval represented by dotted lines. Figure 3(a) and (c) show the marginal effects in the short term, and Figure 3(b) and (d) show the long-term effects. As Figure 3(a) and (c) illustrate, the short-term marginal effects of a decrease in trade tax on total and net domestic tax revenues significantly increase as leftist power in government grows. Figure 3(b) and (d) also show that the long-term marginal effects are consistent with the short-term effects but weaker in magnitude.

Table 2 reports the impact of trade tax and its interaction with leftist government power on the four categories of tax revenues (% GDP): CIT, PIT, SSPT, and CT. The results show that the impacts of decreasing trade tax and leftist government power are not uniformly distributed across all tax categories. First, holding the other factors constant, trade tax (% GDP) is strongly and positively associated only with PIT (% GDP) in both the long and short term. In other words, as trade revenue declines, PIT falls along with it, and this effect is persistent over time. The results suggest that the decline in trade tax revenue,

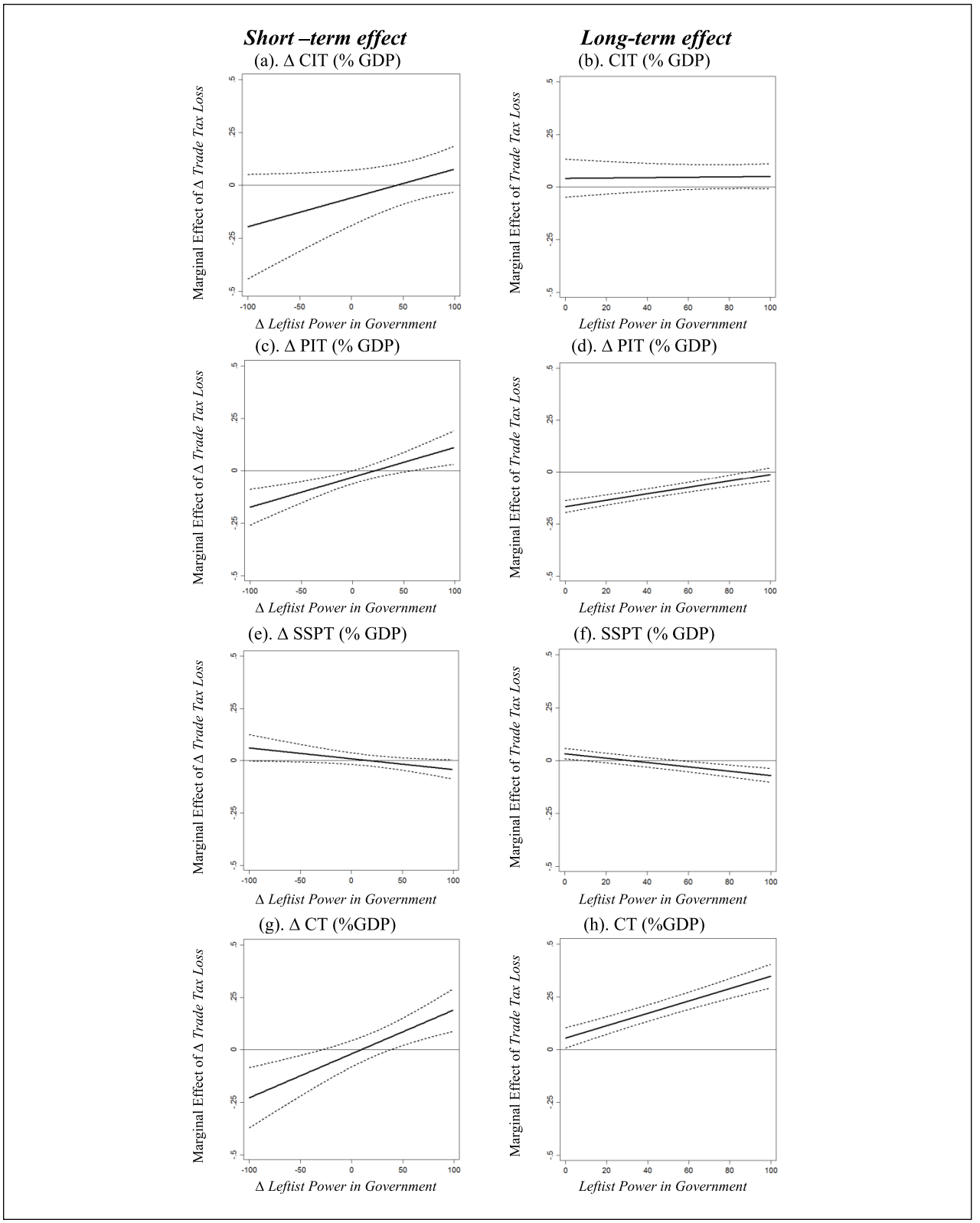

Figure 4. Marginal effects of trade tax loss (% GDP) on tax categories (% GDP) as leftist power in government changes.
GDP = gross domestic product; CIT = corporate income tax; PIT = personal income tax; SSPT = social security and payroll tax; CT = consumption tax.

which might be from trade liberalization or international market conditions, is associated with a decline in wages and jobs and thus with a decline in income tax collection in LDCs. The evidence of losses in total taxes, and losses from PIT in particular, is a strong indication that LDCs continue to struggle with tax capacity. Trade revenues are not automatically replaced in LDCs by other revenue sources. We find that many LDCs face declining revenue, and partisanship matters primarily in stemming losses from the categories that benefit parties' constituents.

Partisan effects are apparent in changes to the individual tax categories. Leftist power in government plays a significant role in predicting individual tax categories (% GDP). Short-term leftist government power, by itself, is strongly and positively associated with PIT and CT (% GDP), while it is negatively related with SSPT (% GDP). According to the coefficients in Regressions [8] and [10], if leftist power in government increases by 44 percent in the short term, PIT and CT significantly increase by 0.22 and 0.22 (% GDP), roughly 12 and 9 percent of one standard deviation of PIT and CT, respectively. The strong results for PIT, in particular, provide compelling evidence of the constituency effect on the tax take. In contrast, the 44 percent increase of leftist government power decreases SSPT by 0.09, which is about 4 percent of one standard deviation of SSPT. Although the size of the impact is small, leftist power seems to confine market-unfriendly SSPT.

Most importantly for our theoretical argument, leftist power in government plays a significant role in mediating the impact of trade tax on the four tax categories (% GDP). The short-run interaction term (ΔTrade Tax × Left) is strongly and negatively associated with CIT, PIT, and CT (% GDP) but positively related with SSPT (% GDP). Figure 4 (a), (c), (e), and (g) report the marginal effects in the short term. These figures illustrate that, as leftist power in government increases, the marginal effect of a decrease in trade tax on PIT and CT significantly increases, whereas the effect is not significant on CIT and SSPT. The results are also substantively meaningful. When trade tax decreases by 2.45 percent (one standard deviation), with a full shift from nonleftist to leftist government (100%), PIT and CT significantly increase by 0.35 and 0.51 (% GDP), respectively (roughly 19% and 21% of one standard deviation of PIT and CT, respectively). This indicates that, as trade revenue declines, leftist governments are able to retain more revenue from PIT and substantially increase CT. Likewise, the loss of leftist power in government (when ΔLeft is negative) significantly reduces PIT and CT.

Figure 4(b), (d), (f), and (h) show the long-term effects. The figures show that the long-term effects are similar to the short-term effects, but that the magnitude of the long-term effects is smaller, with the exception of CT. Decreasing trade tax in the long term reduces PIT when leftist parties do not have power in government, yet this effect decreases as leftist government power increases and becomes insignificant under full leftist government power (100%). Decreasing trade tax in the long term does not have any impact on CT in countries with no leftist government power (0%), yet it significantly increases as leftist power rises. The substantive effect on CT is exceptionally large; when trade tax decreases by 2.45 percent (one standard deviation), with a long-term full shift from no leftist representation (0%) to a fully leftist government (100%), CT significantly increases by 0.72 (% GDP; roughly 29% of one standard deviation of CT). These results indicate that leftist governments are making enduring changes to their tax structures to increase CT.

We tested the robustness of our main empirical results in a variety of ways. First, we tested rightist power in government rather than leftist power (Supplements 8.1 and 8.2). Second, we tested if our main results hold under alternative estimation techniques: fixed effect models with robust standard errors (clustered by country; Supplement 9), seemingly unrelated regression (Supplement 10), random effect models, maximum likelihood, with and without each control variable, and with additional controls (Supplement 11),[4] with and without the delta terms, and the exclusion of one country at a time and one region at a time (Supplement 12). In all cases, the models show that our main results are not driven by a particular control variable, country, group, or region. Third, we tested our results with imputed missing data to address concerns with unbalanced data (Supplement 13). Finally, we ran our models with tax revenue per capita as the dependent variable (Supplement 14). We found consistent results in all cases.

Discussion and Conclusion

This article explores how government ideology and declining trade taxes have shaped the allocation of taxes in LDCs. Our study shows that LDCs confront fiscal pressures to replace lost trade revenue given their reluctance to scare global markets. At the same time, our evidence indicates that government ideology also plays a significant role in the allocation of taxes in LDCs, and this effect grows stronger as trade revenue declines. The results show that leftist governments retain more of the revenue lost from trade and collect it in ways that are expected to do the least harm to their constituents. Leftist governments collect higher levels and proportions of PIT and CT revenue, and they do so even more as trade revenue falls. Importantly, leftist parties' dependence on CT is substantively large both in the short and long term. Leftist governments have therefore been central to a major

reallocation of tax collection in LDCs away from trade and toward CT in recent decades.

The results suggest that leftist parties in LDCs face a difficult path to reform. The maneuverability of leftist parties—already highly constrained by weak tax capacity and declining revenue—is further restricted by skittish global capital. Our dynamic modeling also reveals that the effects of leftist governments' efforts to shape tax allocation upon decreasing trade tax may diminish over time, with the exception of CT. Similar findings of short-term partisan effects have been observed in OECD countries (Boix 2000). This result is not surprising given that subsequent governments can overturn reforms to enforcement and administration, which are more common than are changes to rates. Leftist parties face an uphill battle when it comes to changing equilibrium redistributive policies.

The evidence is not all bleak for leftist parties, however. CT is king, but this may not undermine redistributive goals in LDCs. CT incidence evidence suggests that it is possible to offset some of the effects of CT on the poor (Bird 2015). Analyses of the general sales tax in Pakistan (Refaqat 2003) and the VAT in several Asian and African countries (Bourguignon 2003) show that the regressivity of CT may be minor because most staple products for lower-income individuals are zero rated. The battle over the VAT in LDCs is largely over exemptions and rates, not its revenue role. Mexico's VAT battle is over exemptions. The leftist *Partido Nacional Revolucionario* includes within its party manifesto advocacy for zero-rating basic foodstuffs and medicine. Mexico under the rightist *Partido Acción Nacional* president Vicente Fox pressed to eliminate the VAT on foodstuffs. Moreover, the left in LDCs may be systematically changing the incidence of CT to make it more progressive. For example, we find that leftist power in government is positively correlated with progressive excise revenues (% total) in our sample ($r = .22$, $p < .000$).

Even if the CT is regressive, it may still provide the left with the (politically palatable) resources needed for larger redistributive interventions than have been previously seen in LDCs (Engel, Galetovic, and Raddatz 1998). For example, Cyprus under the leadership of the Communist Progressive Party of the Working People systematically increased CT in the period 2003–2005 to support broadly progressive social spending (Koutsampelas 2011). South Africa's ANC introduced a social safety net program simultaneously with its VAT to use spending to offset regressivity. Similarly, Chile's 1990 reform, enacted by the center–left coalition *Concertación*, combined increased income taxes with an expanded rate (from 16% to 18%) of the VAT. That 2 percent increase in the VAT was earmarked for education spending in 1993, and an additional 1 percent increase in 2002 was targeted to health care reform and direct income transfers to the poor called *Chile Solidario*. Lora (2006) extends this argument to Latin America as a whole:

> Contrary to widespread belief, social spending has grown substantially since the early 1990s . . . Considering the constraints imposed on tax collection by globalization and the growing informalization of economies, the increase in social spending would not have been possible without the increased tax revenues produced by VAT. (p. 205)

Overall, the heavy reliance on CT reveals the delicate balance that leftists must maintain to both show responsiveness to constituents and placate needed global capital.

We have stressed the differences in both capital constraints and constituencies between LDCs and developed countries, and how these relate to their respective abilities to extract revenue. This point, while important, should not be overstated. Many of the trends we document are more like those in advanced industrial nations than is often recognized. Leftist parties in developed nations (especially highly redistributive ones) have also increased CT (Beramendi and Rueda 2007). We attribute this change to the absence of viable alternatives in LDCs, but the same may be true in industrial nations facing maxed-out PIT burdens, high budget deficits, and constraints to capital taxation. Evidence from both advanced industrial nations and LDCs suggests that shifts toward CT are a critical part of the revenue reforms associated with market integration.

Further research could add more depth to our understanding of the varied processes by which partisan governments are able to shift their revenue profiles in LDCs—whether through statutory or administrative means. The country examples mentioned above suggest that administrative reforms can meaningfully increase revenue. However, very little data currently exist to establish precisely how leftist governments adjust their revenue, and why these reforms appear so malleable. Systematic examination of the statutory changes to tax rates, administrative policies, and enforcement across the world would improve our understanding of tax reform in LDCs and, ultimately, how they related to distributive outcomes.

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Notes

1. Summary statistics and data sources are listed in Supplement 1.
2. One exception is gross domestic product (GDP) per capita growth, which may affect changes in tax revenue. Including this first difference term does not alter the results.
3. We report the interaction models of trade tax and left power in government in the paper because of our theoretical focus on the response of left government in power to decreasing trade tax revenue. We report the empirical results without the interaction term in Supplement 15. The results show that left power in government plays a most significant role in replacing decreasing trade tax with progressive personal income tax (PIT) and consumption tax (CT).
4. The additional control variables include electoral system, executive selection, oil rents (% GDP), urbanization, inflation rate, stochastic output gap trends, and potential labor power (Rudra 2008).

Supplemental Material

Replication data for this article can be viewed at https://scholar.cgu.edu/eunyoung-ha/. Supplemental material for this article is available with the manuscript on the PRQ website.

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