Welfare versus Subsidies: Governmental Spending Decisions in an Era of Globalization

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To what extent does globalization reduce the autonomy of national governments over spending decisions? Recent theories suggest that international trade puts pressure on governments to cut spending. Empirical studies find evidence of this with respect to social welfare spending in developing countries. However, existing studies leave open the possibility that trade has varied effects on different types of spending programs. Governments may cut spending on some programs, such as social welfare, in order to fund greater spending on other budget items. Using data on central government spending in 44 developing countries, trade is found to decrease spending on social welfare programs but increase spending on subsidies. The implication is that governments in developing countries have the capacity to offset the costs of globalization; however, they do so via subsidies rather than social welfare programs.

The dramatic growth in international trade during the past several decades has intensified the conflict between those citizens whose circumstances improved from trade and those whose lives deteriorated from trade.[1] The former demand continued openness while the latter demand policies that will stem, reverse, or compensate trade-induced losses. Governments must choose how to balance these competing demands while remaining mindful of the political and economic consequences of their decisions.

Governmental spending programs offer a means to pacify these rival interests. Governments could, for example, spend more on programs that compensate citizens for trade-induced losses. This type of expenditure can help to appease citizens made worse off by trade and facilitate continued openness (e.g., Burgoon 2001; Cameron 1978; Garrett 1998; Rodrik 1997, 1998; Rudra 2002). However, spending additional money is not always a viable option for governments, particularly those facing tight budget constraints. New expenditures become even more difficult as countries open up to international markets (e.g., Garrett and Mitchell 2001; Kaufman and Segura-Ubiergo 2001).

In many developing countries, for example, governments rely heavily on tariffs as a source of revenue (Rodrik 1992). Trade liberalization deprives these governments of much needed income and makes new expenditures even more difficult.[2] Governments consequently find themselves with diminished capacity to increase spending precisely when they need to most.

Governments in developing countries are not, however, without options—even in the face of growing global trade. To respond to the demands of citizens that stand to lose from trade without increasing total spending levels, governments can reallocate money across budget items. Governments could, for example, prioritize spending on subsidy programs that insulate citizens from the costs of trade. By enabling domestic producers to compete with lower-cost foreign imports, subsidies can obviate the need for layoffs and keep citizens from becoming unemployed (Corden 1957; McGillivray 2004). Governmental spending on subsidies can thereby lesson domestic opposition to trade (Şenses 1988). Given this, it is surprising that subsidy programs are largely absent from studies of the relationship between trade and governmental spending. The current study aims to redress this oversight by

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[1] An online appendix with supplementary material for this article is available at http://journals.cambridge.org/jop. Data and supporting material necessary to reproduce the results in the article will be made available at http://personal.lse.ac.uk/RICKARD/research.htm upon publication.

[2] In theory, substituting trade taxes with other forms of taxation, such as a value added tax, may be possible; however, the implementation of new taxes requires time and is administratively difficult for governments in developing countries (Rodrik 1992, 98).

investigating the impact of foreign trade on subsidies in developing countries where governments face particularly tight budget constraints.

Where governments have limited fiscal resources, increased trade will push leaders to prioritize cost-effective forms of "fiscal protection," such as subsidies. Subsidies are efficient in that funds spent on subsidy programs can be targeted to citizens that stand to lose from trade. In contrast, money spent on social welfare programs helps many vulnerable citizens, not just those for whom trade has a negative impact (Burgoon 2001). As a result, only part of any increase in social welfare spending assists citizens made worse off by trade.

In addition to being cost effective, subsidies have the added benefit of being proactive. Subsidies can protect citizens from becoming unemployed due to trade. In contrast, social welfare programs provide compensation for trade-induced losses only after such losses have been incurred. Governments facing tight budget constraints will therefore prioritize spending on subsidies in response to greater foreign trade.

In this way, international trade has the power to change governments' spending priorities and the composition of governments' budgets without necessitating a change in total spending. To date, this possibility has been largely overlooked. The current study aims to redress this oversight by investigating the impact of foreign trade on two budget items: subsidies and social welfare programs. Using cross-nationally comparable data on central government spending in 44 developing countries from 1981 to 1997, trade is found to have a positive and significant effect on subsidy spending shares. In contrast, trade has a robust, negative effect on welfare spending shares. As these results make clear, increased trade has different effects on different types of spending programs.

This novel finding has several important implications. First, it suggest that international trade may have an important yet previously overlooked indirect effect on the distribution of income and the allocation of production factors within countries. As this study makes clear, trade influences not only the *level* of total government spending, as demonstrated in previous research, but also the composition of governments' budgets. Changes in the composition of governments' budgets are consequential because different types of spending have different (re)distributive consequences and efficiency considerations. Social welfare programs, for example, may encourage workers to move from less inefficient to more efficient uses (Acemoglu and Shimer 2000). In contrast, subsidies often prevent market adjustment by keeping workers and capital in inefficient applications. Trade may therefore influence

countries' income distributions and production profiles via changes in governmental spending.

Second, the novel finding reported here offers a potential explanation for the mixed results found to date regarding the relationship between cross-border trade and domestic spending. While some previous studies found a strong, positive correlation between international trade and spending (e.g., Cameron 1978; Garrett 1998; Huber, Ragin and Stephens 1993; Rodrik 1998), others identified a negative relationship (e.g., Garrett 2001; Garrett and Mitchell 2001; Rudra 2002), and still others found no effect at all. Given that trade increases governmental spending on some programs but reduces spending on other programs, as demonstrated in this study, any estimated trade effects will depend critically on the precise budget categories included in the authors' spending measures.

Third, the current study provides evidence that governments in developing countries have the capacity to manage the fiscal pressures of globalization. Developing-country governments respond to greater trade by reallocating funds across budget items to prioritize subsidy programs. Given this, the oft-repeated assertion that governments in developing countries are powerless to protect citizens from the costs of globalization appears to be exaggerated. Developing-country governments can and do protect citizens from the costs of greater trade; however, they do so using subsidies rather than social welfare programs. In sum, the new evidence reported in the current study contributes to understanding how governments facing especially tight budget constraints respond to greater foreign trade. This is important in a world where developing countries are increasingly active participants in the global economy.

Trade and Government Spending

A large literature examines the effects of trade on government spending.[3] Early studies focused on aggregate spending levels (e.g., Cameron 1978). Rodrik (1998), for example, found that countries with higher levels of international trade exhibit higher levels of governmental spending. Rodrik's study did not, however, identify the specific aspects of governmental budgets that grew in response to trade. As a result, the precise nature of trade-induced spending increases remained obscure.

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[3]For a comprehensive review of this literature, see Brune and Garrett (2005).

More recent studies tended to focus exclusively on social welfare spending. These types of spending programs arguably became the focus of scholars' attention because many such programs can compensate citizens for the costs of trade (e.g., Burgoon 2001; Garrett 1998; Hays 2009; Kaufman and Segura-Ubiergo 2001; Kono 2011; Rudra 2002; Singer 2011). Unemployment insurance is one such example: if a worker becomes unemployed as a result of foreign trade, government-funded unemployment benefits compensate the worker for lost income. Generous unemployment benefits may consequently help to reduce opposition to international trade (e.g., Garrett 1998; Hays, Ehrlich, and Peinhardt 2005).

Despite this possibility, previous studies consistently found a negative correlation between trade and social welfare spending in developing countries (e.g., Kaufman and Segura-Ubiergo 2001; Rudra 2002; Wibbels 2006). Varied explanations for this result have been suggested. One possibility is that social welfare spending requires higher payroll taxes, which increase the cost of labor (Pfaller, Gough, and Therborn 1991). Governments may consequently encounter pressure to cut social spending in order to facilitate the price competitiveness of exports (Drache 1996; Garrett 1998; Pfaller, Gough, and Therborn 1991). Such pressures may be particularly salient in developing countries where exporters often rely on low labor costs to compete in the global market.

Other possible explanations make explicit reference to the unique characteristics of developing countries. Rudra (2002), for example, suggested that the negative effect of trade on social welfare spending is due to the weak bargaining power of labor in developing countries. Where strong, encompassing labor unions do not exist, governments likely face less opposition to welfare cuts.

The current study offers a novel explanation for the negative relationship between trade and welfare spending in developing countries: trade pushes governments with limited fiscal resources to prioritize more cost-effective forms of "fiscal protection," such as subsidies. By enabling domestic producers to compete with lower-cost foreign imports, subsidies can obviate the need for layoffs and protect citizens from trade-induced job losses (Corden 1957; McGillivray 2004). In contrast, social welfare programs address the needs of many vulnerable citizens, not just those for whom trade has a negative impact (Burgoon 2001), and as a result only part of any increase in social welfare spending will assist citizens made worse off by trade. Governments in developing countries therefore

reduce spending on social welfare programs in order to fund more generous subsidies without incurring new fiscal burdens. In Turkey, for example, social welfare spending fell from an average of 2.8% of government expenditures to less than 1% (0.9) following trade liberalization (IMF 2001a).[4] At the same time, subsidies to the manufacturing sector increased by 70% (Boratav, Yeldan and Kose 2001; IMF 2001a). The lack of concerted opposition to trade liberalization in Turkey is often attributed to the generous government-funded subsidies made possible, in part, by reductions in social welfare spending (Şenses 1988).

As in Turkey, subsidies constitute an increasingly significant component of many governments' discretionary fiscal spending (Fan and Rao 2003; Ford and Suyker 1990; OECD 1998, 2010). Despite the growing importance of subsidy programs in governments' budgets, surprisingly little is known about the politics of subsidies. Only a few studies explicitly examine subsidy programs, and these studies focus exclusively on developed countries (e.g., Alt et al. 1999; Aydin 2007; Blais 1986; Rickard 2012a; Verdier 1995; Zahariadis 2001, 2008).[5] The current study aims to redress this limitation by investigating government spending on subsidies in developing countries. Particular attention is paid to subsidies that aim to make domestically produced goods more competitive with lower-cost foreign imports by, for example, reducing the cost of input factors. These types of subsidies are sometimes referred to as producer subsidies (Zahariadis 2008) or industrial subsidies (Cao, Prakash, and Ward 2007).

Trade and Subsidies

New demands for government-funded subsidies arise when a country's producers are exposed to increased competition from foreign trade. These demands come from citizens that expect to be made worse off by trade.[6] The precise identity of citizens that stand to lose from increased trade depends on the model of the economy adopted. The specific factors model demonstrates that owners of production

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[4]Excluding interest payments.

[5]An exception is Rickard (2012b); however, this study examines government-funded subsidies in a sample of 68 countries that includes both developed and developing countries.

[6]Losers from import competition are far more likely to lobby for production subsidies than those that might expect to win from export subsidies (Baldwin 1994, 71–72; Levy 1997; Zahariadis 2008, 51).

factors employed in import-competing industries lose from trade (Hiscox 2002). The Stopler-Samuelson model shows that owners of the scarce factor in an economy are made worse off by trade (Hiscox 2002). Regardless of which model is adopted, it is clear that within every country there are some citizens that stand to lose from greater trade. These citizens experience real income losses due to increased competition with lower-cost foreign imports. Citizens seek to maximize their incomes and, to this end, reward leaders who enact policies that protect pretrade income levels.

Citizens are risk adverse and therefore prefer policies that protect their incomes ex ante. For this reason, citizens that stand to lose from trade prefer subsidies to social welfare programs. Subsidies are proactive; they buttress domestic producers' competitiveness against lower-cost foreign imports (Grunberg 1998) and minimize the number of workers laid off due to increased competition from foreign trade (McGillivray 2004). In contrast, social welfare programs only compensate citizens for the costs of freer trade after the costs have been incurred. For example, workers qualify for unemployment benefits only after they lose their jobs. Because citizens are risk adverse and prefer to keep their jobs rather than receive compensation for trade-induced job losses ex post, citizens prioritize demands for subsidies.

In light of these demands, governments in developing countries must decide how to allocate their limited fiscal resources. Significant incentives exist to spend more on subsidies; doing so appeases citizens that are likely be made worse off by trade and helps maintain public support for economic openness. Yet governments in developing countries may be unable to increase, at will, spending on subsidy programs. Subsidies are revenue expending. Because subsidies involve a net loss for the treasury, governments must offset the loss with revenue (Zahariadis 2008, 6). Paying for subsidies is difficult for governments in developing countries where revenue sources are limited and access to private capital markets is often restricted (Grunberg 1998; Wibbels 2006). Developing countries may, for example, be punished by capital markets for increasing spending levels (Wibbels 2006). Uncertain tax revenues pose yet another difficulty, and tariff liberalization exacerbates this problem. Trade taxes account for approximately 15% of total government revenue in developing countries (Farhadian-Lorie and Katz 1989; Grunberg 1998; Khattry and Rao 2002). Tariff reductions therefore make already tight budget constraints even tighter. At the same time, increased competition from foreign imports engenders new demands for increased spending on subsidies. Governments

consequently find themselves in a difficult position: they have diminished capacity to increase expenditures precisely when they need to most.

Yet governments in developing countries are not without options in the face of rising global trade. To pacify trade losers without increasing total spending levels, governments can simply reallocate money across budget items. Governments can prioritize spending on cost-effective programs that protect citizens from the vagaries of globalization, such as subsidies. By reducing expenditures on other budget items, governments can fund more generous subsidies without increasing total spending or incurring new fiscal liabilities. Governments have incentives to prioritize subsidies for several reasons. First, risk-adverse citizens that stand to lose from trade prefer subsidies, which provide ex ante protection rather than ex post compensation. Second, subsidies are cost effective in that spending on subsidies can be targeted precisely to those that stand to lose from trade. In contrast, social welfare programs address the needs of many vulnerable citizens, not just those for whom trade has a negative impact and as a result only part of any increase on social welfare spending will assist those made worse off by trade. Governments facing tight budget constrains will therefore prioritize subsidy spending over social welfare spending. The testable implication of this argument is that the share of expenditures devoted to subsidies by governments in developing countries will increase with trade.

Data

This study's hypothesis is tested using an unbalanced panel of 44 developing countries from 1981 to 1997.[7] Developing countries are the exclusive focus of this study for several reasons: First, the potential trade-off between spending on different types of programs is relatively more acute for governments in developing countries because they face tighter budget constraints than governments in developed countries.[8] Second, the use of subsidies in developed countries is restricted by international agreements, such as the EU

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[7]The World Bank's income classification is used to identify developing countries.

[8]Of course, developed-country governments also face budget constraints but often such constraints are relatively lax. The recent experience of several European countries illustrates, however, that even rich countries' governments can, at times, face tight budget constraints. On average, however, budget constraints are generally tighter in developing countries than in developed economies (Wibbels 2006).

Agreement on State Aid and the WTO Agreement on Subsidies and Countervailing Measures. The EU restrictions are irrelevant for developing countries, and the WTO restrictions were not applicable to developing countries during the period under investigation. For governments in developing countries, subsidies constituted a possible policy option unrestricted by international agreements during this period. Finally, developed countries' initial experience with trade liberalization often predates the beginning of comprehensive, longitudinal data on disaggregate government spending (Wacziarg and Wallack 2004). The timing of the onset of trade liberalization in developed countries makes it difficult to assess the initial effect of trade on spending in rich countries, particularly given the path-dependent nature of governments' budgets. In contrast, many developing countries' initial experiences with liberalization began during the period under investigation in the current study (Wacziarg and Wallack 2004).

The primary dependent variable is the percentage of total government expenditures (excluding interest payments) spent on subsidies. This variable is calculated using data from the International Monetary Fund's Government Finance Statistics (GFS) and specifically the central government expense data classified by the COFOG. The Classification of Functions of Government (COFOG) classifies spending by the function or socioeconomic objectives that governments aim to achieve through fiscal outlays. For example, a government subsidy to shipyards is classified as an expenditure on the manufacturing sector (IMF 2001b, 77). Expenditure on the manufacturing sector also includes "grants, loans or subsidies to support manufacturing enterprises" and the "development, expansion or improvement of manufacturing" (IMF 2001b, 88). In the current study, the sum of spending on subsidies to tradable sectors is reported as a percentage of total government expenditures (excluding interest payments). This variable provides an estimate of the relative importance of subsidies amongst governments' myriad spending priorities.

The second dependent variable is the percentage of total government expenditures (excluding interest payments) spent on social security and welfare programs by the central government. These data also come from the International Monetary Fund's Government Finance Statistics (GFS). The IMF classifies as social security expenditures "transfer payments designed to compensate for reduction or loss of income or inadequate earning capacity" (Tabellini 1990, 29). Welfare expenditures are defined as "assistance delivered to clients or groups with special

needs, such as the young, the old or handicapped" (IMF 2001b; Tabellini 1990, 29).[9] This variable therefore includes spending on benefits for income loss due to circumstances such as, sickness and disability, old age, and unemployment (IMF 2001; Bräuninger 2005; Fan, Omilola, Lambert 2009, 17). Health expenditures and subsidies are excluded from this measure (IMF 2001b; Tabellini 1990).[10]

The spending data have several important characteristics. Most significantly, these data permit comparisons across countries and over time (IMF 2001b). Governments' conventional accounts are generally not suitable for these purposes because they reflect the organizational structures of government. Given this, organizational changes may distort time-series analyses (IMF 2001b). The IMF's *Government Financial Statistics* (IMF 2001a) data avoid the problems of organizational differences between countries and thereby allow for meaningful comparisons over time.

International trade, the key explanatory variable of interest, is estimated here using the conventional measure, which equals imports plus exports as a percentage of GDP (World Bank 2007). By using this measure, it is possible to make direct comparisons with the myriad previous studies of trade and spending that also use this variable.[11] However, the logic of the argument made in this study focuses principally on the effects of increased competition from foreign imports. Therefore, a measure of imports is substituted for total trade as an important additional test.

Several other variables are included in the estimating equations as controls.[12] Following Garrett (2001) and others, GDP per capita is included because although the sample is restricted to developing countries, variation exists in the levels of economic development.[13]

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[9]Unfortunately, it is not possible to disaggregate welfare expenditures and social security expenditures using these data (Tabellini 1990, 29).

[10]Several previous studies have used these data as a measure of social welfare spending including, for example, Huber, Mustillo, and Stephens (2008).

[11]See, for example, Cameron (1978); Burgoon (2001); Huber and Stephens (2001); Rodrik (1997); and Rudra and Haggard (2005).

[12]Unfortunately, the paucity of unemployment data in the sample countries makes its inclusion as a control variable impossible. However, this exclusion arguably makes it more rather than less difficult to identify systematic trade effects on spending. The results reported below are also robust to the inclusion of several additional control variables, including GDP growth and financial openness. These results are not reported due to space constraints but are available in the online appendix.

[13]The sample mean value of GDP per capita (logged) is equal to 8.4; the standard deviation equals 0.8.

The inclusion of GDP per capita as a control variable allows for comparisons between countries at similar levels of economic development. Including GDP per capita as a control also accounts for the possibility that wealthier citizens may be less sensitive to the income effects of trade because they are better able to self-insure against income loss.

An indicator of the national government's ideology, also included in all estimating equations, equals 1 for left governments and 0 otherwise.[14] Left governments tend to sustain higher levels of welfare spending than right governments (Garrett 1998). Consequently, left governments may spend relatively more on social welfare programs, regardless of international trade flows. Similarly, democratically elected governments may sustain higher levels of welfare spending irrespective of cross-border trade flows. To control for this possibility, *Democracy,* measured by PolityIV, is also included as a right-hand-side variable in all estimating equations.

The dependency ratio, measured as the percentage of the country's population younger than 15 years or older than 64 years, is a common control variable in studies of social welfare expenditures because such appropriations often accrue to old age pensions and allowances for children.[15] Unfortunately, excluding these programs is not possible due to data limitations; therefore, the dependency ratio is included as a control variable in all estimated models. Country fixed effects are also included in all estimated models. The inclusion of country fixed effects allows for heterogeneity in the intercept and ensures that the estimates are within-unit effects.

Model

The data are analyzed using an error correction model (ECM). By using an ECM, it is possible to directly examine the longitudinal question of whether changes in trade inspire changes in spending shares. This question has been frequently overlooked in previous cross-national studies of the openness-spending nexus (Burgoon 2001, 511).

The error correction model is based on the idea that long-term trends in the independent variables are causally related to long-term trends in the dependent variable but that there are short-term transitory effects which must also be modelled.[16] The error correction model takes the following form:

$$\Delta(\text{spending}_{it}) = \beta_0 + \beta_1 \cdot (\text{spending}_{it-1}) + \gamma \Delta X_t + \lambda X_{t-1} + \varepsilon_{it},$$

$$(1)$$

where the dependent variable is the annual change in the percentage of total government expenditures devoted to either subsidies or social welfare programs in country, i, for year, t. The proportion of spending devoted to these programs is right-skewed because the proportions cannot be less than zero. However, differencing the series eliminates concerns about the distribution of the two dependent variables. Differencing the series also minimizes the potential for a spurious correlation between two series exhibiting a time trend (De Boef and Keele 2008; Huber and Stephens 2001).

In the error correction model, γ and λ are vectors of coefficients for the first-differences and lagged independent variables, respectively. Coefficients for the change variables (γ) measure the immediate effects of a once-off change in a variable. The immediate effect of a change in trade in year t on government spending in the same year may be small because governments' budgets generally go through the legislative process and are approved prior to the year in which spending occurs (Bawn and Rosenbluth 2006, 257). The ECM allows for this possibility and estimates the impact of a change variable dispersed across future time periods. More precisely, the error correction model estimates the rate at which Y returns to equilibrium after a change in X (De Boef and Keele 2008). In some cases, this may occur immediately. In other instances, the change may occur across only future periods or across both future and current periods.

The rate of return to equilibrium is of interest because it illustrates the responsiveness of the process. The rate of return can clarify if spending responds immediately to trade shocks through, for example, supplementary budgets and discretionary spending by ministers, or if governments respond more slowly to new protectionist demands. The error correction model sheds light on the question of governmental responsiveness by calculating the immediate effects of

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[14]The Database of Political Institutions (2007) is the source for these data.

[15]See, for example, Burgoon (2001), Garrett (2001), and Rudra and Haggard (2005).

[16]See Greene (2000) for an introduction to ECMs and Franzese (2002) for applications.

increased trade and the impact it has dispersed across future time periods. While the estimated coefficients for the level variables (i.e., lagged variables) (λ) capture the effect of a once-off change in a variable dispersed across future time periods, the total effect of a once-off change (i.e., the immediate impact plus all lagged effects) can be found by dividing a variable's lagged coefficient by the coefficient on β_1. In sum, the ECM specification is particularly useful because it estimates quantities of interest that elucidate the timing of the effects of international trade on domestic spending.

While a fully specified ECM imposes fewer restrictive assumptions than other time-series models (De Boef and Keele 2008), the error correction model in combination with robust standard errors and country fixed-effects, as estimated here, produces quite conservative results. While this estimation strategy carries some risk of discarding true hypotheses prematurely, it increases confidence in the results that do emerge as significant. These results are discussed in the following section.

Results

Table 1 reports the coefficient estimates for the error correction model, which show that an increase in cross-border trade has a significant effect on the composition of governments' budgets. On average, greater trade corresponds with increases in subsidy spending shares, holding all else constant. In contrast, increased trade corresponds with a reduction in social welfare spending shares, all else equal.

The dependent variable in Column 1 is the percentage of total government expenditures (minus interest payments) devoted to subsidies. Trade does not have a robust immediate effect on subsidies, as demonstrated by the statistically

TABLE 1 Estimated Effect of Trade on Spending Shares

	1 Subsidies ECM	2 Subsidies LRM	3 Welfare ECM	4 Welfare LRM	5 Ratio W/S ECM	6 Ratio W/S LRM
L.Trade	0.048*	0.099*	-0.077***	-0.147***	-0.041*	-0.103***
	(0.027)	(0.054)	(0.024)	(0.044)	(0.016)	(0.035)
L.Democracy	-0.305*	-0.630**	0.063	0.122	-0.014	-0.036
	(0.167)	(0.307)	(0.057)	(0.109)	(0.052)	(0.134)
L.Dependency	16.74**	34.61**	-22.54***	-43.37***	-5.77	-14.62
	(7.49)	(13.76)	(6.01)	(11.57)	(4.54)	(12.62)
L.Left	0.018	0.037	1.061*	2.041*	0.051	0.130
	(0.734)	(1.519)	(0.562)	(1.116)	(0.322)	(0.826)
L.GDP per capita (In)	-2.294*	-4.743*	1.340	2.579	0.436	1.106
	(1.386)	(2.834)	(1.210)	(2.331)	(1.250)	(3.328)
L.Spending level	-0.484***		-0.520***		-0.395***	
	(0.108)		(0.066)		(0.132)	
ΔTrade	0.004		-0.081***		-0.009	
	(0.029)		(0.022)		(0.018)	
ΔDemocracy	-0.206		-0.052		-0.103	
	(0.188)		(0.071)		(0.079)	
ΔDemocracy	245.78***		-135.47***		-96.54	
	(85.07)		(46.05)		(60.66)	
ΔLeft	-0.352		0.667		0.644	
	(0.687)		(0.911)		(0.474)	
ΔGDP per capita (In)	2.620		-5.489		3.185	
	(4.548)		(4.762)		(4.715)	
ΔConstant	17.18		19.73		4.207	
	(12.72)		(14.74)		(10.140)	
Observations	304		362		303	
R-squared	0.335		0.594		0.228	

Note: Robust standard errors in parentheses. Two-tailed tests. * p-value < 0.1; ** < 0.05; *** 0.01.

insignificant coefficient on $\Delta Trade$. Instead, the significant effect of trade on subsidy spending shares occurs across future time periods, as demonstrated by the statistically significant coefficient on $L.Trade$.

The *total* impact of increased trade on the budgetary share of subsidy spending (i.e., the immediate impact plus all lagged effects) is estimated by the long-run multiplier (LRM), which is reported in Column 2 along with the corresponding standard errors.[17] The LRMs mirror the immediate and lagged coefficients reported in Column 1. However, the LRMs are generally larger because they estimate the *total* impact. For example, the LRM for *Trade* in Column 2 estimates the total effect that a change in trade has on subsidy spending shares by incorporating all of the immediate and lagged effects. Substantively, a once-off, 1-percentage point increase in trade has the *total* effect of increasing the share of expenditures devoted to subsidies by nearly 0.1-percentage points. This is a substantively large effect; a once-off, one standard deviation rise in trade increases the share of government expenditures devoted to subsidies by 3.35-percentage points in total.

In Column 3, the dependent variable equals the percentage of total government expenditures (minus interest payments) devoted to social welfare programs. The long-run multipliers (LRMs) and the corresponding standard errors appear in Column 4. The estimated LRM reports that a, once-off, 1-percentage point increase in trade reduces welfare spending shares by nearly 0.15-percentage points in total. A one standard deviation increase in trade off has the total effect of decreasing social welfare spending shares by 4.97-percentage points.

Note that the negative total effect of trade on welfare spending shares is larger in magnitude that the positive total effect of trade on subsidy spending shares. This suggests that on average the reduction in social welfare spending is not entirely offset by the corresponding increase in subsidy spending. This result suggests two possibilities: First, some of the funding cut from social welfare programs may be reallocated to programs other than subsidies. Alternatively, the reduction in welfare spending may represent a real contraction of government expenditures. Mediating between these two scenarios is beyond the scope of the current study; however, these unequal effects raise intriguing avenues for future research on trade and the composition of governments' budgets.

Taken together, these results reveal that governments with limited fiscal resources reallocate funds across programs in response to international trade. Governments increase the share of expenditures allocated to subsidies but reduce the share of expenditures devoted to social welfare programs as trade grows. Further evidence of this budgetary response to globalization is provided in Columns 5 and 6. The dependent variable in Column 5 equals the ratio of welfare spending to subsidy spending. This ratio estimates the relative salience of welfare spending to subsidies.[18] As expected, an increase in trade reduces the ratio of welfare spending to subsidy spending. The estimated long-run multiplier, reported in Column 6, illustrates that a once-off increase in trade of one standard deviation has a total effect of decreasing the relative salience of welfare spending to subsidies by 3.48-percentage points.

These results are robust to an alternative measure of trade exposure, namely imports as a percentage of GDP. The argument developed in the current study focuses particular attention on the effects of increased competition from lower-cost foreign imports. Imports are therefore substituted for total trade as an important additional test. Exports as a percentage of GDP enter the estimating equation separately. Excluding exports from the model would likely result in omitted variable bias because of the high correlation between imports and exports.

If governments increase spending on subsidies to protect domestic producers from greater competition with lower-cost foreign imports, then subsidy budget shares should respond to imports rather than exports. Table 2 reports evidence of precisely this pattern. An increase in imports corresponds with greater subsidy spending shares, all else equal. More precisely, a one standard deviation increase in imports has the total effect of increasing subsidy spending shares by 4.41-percentage points. This is a substantively large and statistically significant effect.[19] In contrast, exports have no significant effect on subsidy spending shares. The null result for exports helps minimize concerns that the true causal path runs from subsidies to trade. Increased spending on subsidies might, for

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[17]Generating standard errors for the LRMs employs a transformation first proposed by Bewley (1979) and discussed in detail by De Boef and Keele (2008).

[18]The ratio alone, however, could not identify precisely which of the two budget categories change in response to trade. For example, a trade-induced decrease in the W/S ratio could result from: (1) an increase in subsidies only; (2) a decrease in the welfare spending only; or (3) both.

[19]Given the high correlation between imports and exports, one might expect the inclusion of both variables in the same model to render the two variables insignificant. However, imports remain a robust predictor of subsidy spending shares.

TABLE 2 Estimated Effect of Imports on Spending Shares

	1 Subsidies ECM	2 Subsidies LRM	3 Welfare ECM	4 Welfare LRM
L.Imports	0.118*	0.242*	0.066	0.124
	(0.067)	(0.138)	(0.053)	(0.099)
L.Exports	-0.031	-0.064	-0.231***	-0.432***
	(0.076)	(0.155)	(0.058)	(0.108)
L.Democracy	-0.316***	-0.648***	0.055	0.103
	(0.084)	(0.156)	(0.065)	(0.122)
L.Dependency	16.44**	33.74**	-23.36***	-43.62***
	(6.79)	(13.77)	(5.19)	(9.64)
L.Left	0.008	0.017	1.092*	2.040*
	(0.810)	(1.661)	(0.635)	(1.190)
L.GDP per capita (ln)	-2.010	-4.123	1.933	3.612
	(1.709)	(3.536)	(1.418)	(2.647)
L.Spending level	-0.487***		-0.535***	
	(0.053)		(0.032)	
ΔImports	0.031		-0.079	
	(0.066)		(0.052)	
ΔExports	-0.022		-0.073	
	(0.079)		(0.059)	
ΔDemocracy	-0.202*		-0.040	
	(0.122)		(0.099)	
ΔDependency	237.01***		-162.9***	
	(65.03)		(47.55)	
ΔLeft	-0.381		0.630	
	(1.007)		(0.756)	
ΔGDP per capita (ln)	2.572		-2.852	
	(5.563)		(4.482)	
Constant	15.18		15.55	
	(19.11)		(15.55)	
Observations	304		362	
R-squared	0.338		0.610	

Note: Robust standard errors in parentheses. Two-tailed tests. * *p*-value < 0.1; ** < 0.05; *** 0.01.

example, be thought to encourage producers to export more, thereby generating greater flows of trade. However, the results reported in Table 2 do not support this assertion. Exports have no significant effect on subsidy spending shares.[20]

In sum, changes in international trade flows have important, lasting effects on the allocation of fiscal resources across spending programs in developing countries. Greater international trade flows, and specifically foreign imports, increase the share of government spending devoted to subsidies. In contrast, shares of social welfare spending decrease with trade flows and specifically exports. These results

are robust to various model specifications[21] and the inclusion of numerous additional control variables.[22]

[20]Exports have a robust negative effect on social welfare spending shares. Welfare spending may be particularly vulnerable to pressure from exporters to cut government expenditures in order to facilitate the price competitiveness of exports (Drache 1996; Pfaller, Gough, and Therborn 1991).

[21]For example, the seemingly unrelated regression method (SUR) is used to jointly estimate the two spending equations. The SUR estimation allows for nonzero covariance between the error terms of the expenditure-share equations (Zellner 1962). The key trade results are robust to this alternative model specification. The SUR results are not reported here due to space constraints but are available in the online appendix.

[22]Additional control variables include labor mobility, real GDP growth, financial openness, net inward FDI, and foreign aid. Importantly, the key trade results are robust to the inclusion of all of these additional control variables. This is particularly noteworthy with respect to labor mobility. Greater foreign trade could increase the costs of adjustment (Hiscox 2002) and owners of more specific factors make greater demands for protection (Frieden 1991; Hiscox 2002; Zahariadis 2008). Given this, the positive correlation between foreign trade and subsidy spending shares might be due to increased factor specificity. However, no evidence is found to support this assertion. These results are available in the online appendix.

Before concluding, it is worth considering a plausible alternative explanation.

Countries may concurrently liberalize trade barriers and reduce social welfare spending in response to loans from the International Monetary Fund (IMF). The approval or continuation of IMF financing is frequently conditional on the implementation of proscribed policy reforms. These prescriptions may include both trade liberalization and reductions in governmental spending (e.g., Caraway, Rickard, and Anner 2012; Vreeland 2003). The reported negative correlation between trade and social welfare spending may therefore be the result of IMF loan conditions rather than domestic politics or budget constraints. IMF loan conditions are unlikely though to account for the reported positive correlation between trade and subsidy spending shares.

To examine the potential effects of IMF loan programs, the baseline models from Table 1 are reestimated with an additional variable that indicates the presence of an IMF program in a given country-year. This variable (*IMF program*) is dichotomous and equals one for country-years in which an IMF program exists and zero otherwise (Vreeland 2003). Slightly more than half (54%) of the country-years in the sample have an IMF program in force.

The key trade results are robust to the inclusion of *IMF Program*, as illustrated by Table 3. Controlling for participation in an IMF program, a rise in trade increases subsidy spending shares but decreases welfare spending shares. In other words, the reported correlations between trade and spending are not due to countries' participation in IMF programs.

IMF programs appear to have a robust, positive effect on welfare spending shares. This may be the result of IMF-induced reductions in other types of spending programs, such as education and health

TABLE 3   Estimated Effect of Trade on Spending Shares, Controlling for IMF Programs

	1 Subsidies ECM	2 Subsidies LRM	3 Welfare ECM	4 Welfare LRM
L.Trade	0.046*	0.093*	−0.77***	−0.146***
	(0.028)	(0.054)	(0.024)	(0.043)
L.Democracy	−0.309*	−0.628**	0.075	0.143
	(0.168)	(0.304)	(0.056)	(0.106)
L.Dependency	17.42**	35.41**	−23.11***	−43.80***
	(7.78)	(13.94)	(6.40)	(12.09)
L.Left	−0.023	−0.047	1.208**	2.290**
	(0.786)	(1.596)	(0.582)	(1.139)
L.GDP per capita (ln)	−2.387	−4.853	1.915	3.630
	(1.774)	(3.650)	(1.488)	(2.828)
L.IMF program	−0.328	−0.668	1.059**	2.007**
	(0.617)	(1.260)	(0.437)	(0.803)
L.Spending level	−0.492***		−0.528***	
	(0.108)		(0.066)	
ΔTrade	0.002		−0.082***	
	(0.030)		(0.022)	
ΔDemocracy	−0.219		−0.042	
	(0.191)		(0.066)	
ΔDependency	247.04***		−124.05***	
	(85.73)		(46.57)	
ΔLeft	−0.359		0.790	
	(0.761)		(1.003)	
ΔGDP per capita (ln)	1.504		−5.366	
	(4.558)		(4.912)	
ΔIMF program	−0.639		0.793*	
	(0.851)		(0.437)	
Constant	18.44		13.69	
	(17.34)		(17.65)	
Observations	301		359	
R-squared	0.339		0.602	

Note: Robust standard errors in parentheses. Two-tailed tests. * *p*-value < 0.1; ** < 0.05; *** 0.01.

(Nooruddin and Simmons 2006). An optimistic interpretation of this result might be that governments protect social welfare spending from IMF-induced cuts relative to other budget items. Further research on the effects of IMF programs on the composition of governments' budgets is prudent.

In sum, the key trade results are not driven by the presence or absence of IMF loan programs. Neither are they drive by the size of IMF loans. Larger loans may have different effects on governments' behavior than smaller loans (e.g., Copelovitch 2010; Mukherjee and Singer 2010). However, the key trade results are robust to the inclusion of a variable measuring the size of IMF loans. Similarly, the key results are robust to variables measuring GATT/WTO membership and foreign aid. These results are available in the online appendix.

Conclusion

Although subsidies are one of the most direct ways governments can protect citizens from the costs of trade using national budgets, subsidy spending has been largely absent from research on governments' fiscal responses to globalization. This oversight is surprising given the frequent use of subsidies by national governments and their obvious political salience, as demonstrated, for example, by the tense negotiations over subsidies during the Doha Round. The current study redresses this omission and contributes to the literature on globalization and spending by examining explicitly the effects of trade on government-funded subsidies in developing countries.

Following a rise in trade, governments in developing countries prioritize spending on subsidies at the expense of social welfare programs. Citizens, for whom foreign trade is potentially a detriment, prefer subsidies to social welfare spending because subsidies are proactive. Subsidies protect citizens from the costs of openness ex ante. For example, subsidies can help avoid layoffs by enabling domestic producers to compete with lower-cost foreign imports. In contrast, social welfare programs only compensate citizens for the costs of freer trade after the costs have been incurred. Because citizens prefer to keep their jobs rather than receive compensation, ex post, for trade-induced losses, they prioritize demands for subsidies.

Subsidies have the added benefit to governments of being cost effective. Subsidies can be targeted to citizens that stand to lose from freer trade. In contrast, social welfare programs help many vulnerable citizens, not just those for whom trade has a negative impact.

Governments facing tight budget constraints therefore prioritize subsidy spending over social welfare spending in response to increased trade. In this way, international trade changes the composition of governments' budgets. Specifically, this study reports that the share of government expenditures devoted to subsidies increases by 3.35-percentage points, on average, following a one-standard deviation increase in foreign trade. In contrast, the share of government expenditures devoted to social welfare programs decreases by 4.97-percentage points in response to the same-sized increase in trade.

The reported negative effect of trade on social welfare spending is consistent with findings from previous studies of developing countries. Scholars have often interpreted this result as evidence that economic integration erodes the state's ability to protect citizens from the costs of globalization, particularly in developing countries where fully developed welfare programs do not exist (e.g., Cerny 1995; Kurzer 1993; Strange 1995). Yet, the novel findings reported in the current study suggest that such concerns are overstated. Governments in developing countries can and do protect citizens from the costs of trade; however, they do so via subsidies rather than social welfare programs. By reallocating money from welfare programs to subsidies, governments provide preemptive protection to precisely those citizens that stand to lose from trade without incurring new fiscal liabilities or increasing total spending levels. This possibility has previously been overlooked. Arguably this oversight is due to the near exclusive focus on social welfare spending in the existing literature on economic openness and governmental spending. The current study suggests an important corrective, namely that governments have a portfolio of fiscal instruments from which to choose in order to offset the costs of globalization. Governments' choice of fiscal instrument depends crucially on the economic context in which budgetary decisions are made.

Acknowledgments

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