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Taxes, Prices, and the Exchange Rate in the Destination-Based Cash-Flow Tax (DBCFT) System

Sherman Robinson and Karen Thierfelder[1]

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Introduction

Introducing a destination-based cash-flow tax (DBCFT) in the United States would dramatically change the tax base for businesses. Depending on how it is implemented, it could also affect prices, wages, and the exchange rate.

Under the proposed system, businesses would be taxed on their domestic cash flow—revenue from domestic sales minus the costs of labor and domestic intermediate inputs (Auerbach 2010, Auerbach et al. 2017). Interest on enterprise debt and depreciation would not be deductible; instead, total current investment expenditure would be deductible. Exports are not taxed and imports are, because they are included in the tax base, which is also the way a destination-based valued added tax (VAT) operates. Auerbach argues that, in theory, the DBCFT will implicitly include a border adjustment tax (BAT), combining an implicit tariff on imports and subsidy to exports.

There is considerable controversy over the impact of the DBCFT, particularly (a) its incidence on businesses compared with the current profit-based tax system and (b) its effect on prices, the exchange rate, production, exports, and imports, both if it operates as theory suggests and if there is incomplete adjustment in practice. This paper focuses on the second question—the impact on markets—addressing three important sets of questions.

First, does the DBCFT affect incentives to import and export? Auerbach and Holtz-Eakin (2016) argue that with full adjustment, the DBCFT will be trade neutral (no effect on exports or imports). In theory, the combined effect of an implicit tax on imports and a subsidy to exports from the BAT will result in an appreciation of the exchange rate that will exactly offset the BAT tariff/subsidy impact on the domestic prices of imports and exports.

Second, how does the DBCFT affect market prices and wages, and to what extent do businesses pass the tax on to the goods markets? Unlike a VAT, which the government collects in goods markets, the government collects the DBCFT based on businesses sales in the domestic market minus their deductions. Market prices and incentives are affected only if businesses behave as if

[1]Sherman Robinson is a Nonresident Senior Fellow at the Peterson Institute for International Economics (PIIE) and a Senior Research Fellow at the International Food Policy Research Institute (IFPRI). Karen Thierfelder is a professor of economics at the US Naval Academy. The views presented in this paper are their own and are not necessarily the views of the US Naval Academy, PIIE, or IFPRI.

there is a tax that makes the domestic sales price higher than the producer price and therefore pass the tax on to goods markets. The government does not explicitly collect the BAT; its effect on market prices depends on whether businesses include the BAT in the price of imports delivered to markets.

Third, what happens if businesses pass on only part of the price increase to markets or if the exchange rate does not adjust, so that there is incomplete adjustment in prices, wages, the exchange rate, production, and trade?

We analyze the DBCFT using a simulation model of the US economy. First, we specify scenarios in which there is full adjustment. In these scenarios, the equilibrium is trade neutral. Depending on which prices are "sticky" (slow to adjust), markets can adjust via the exchange rate or via domestic prices and wages. We analyze three scenarios with different types of price stickiness, drawing from cases considered by Buiter (2017), Freund (in chapter 7 of this Briefing), and Freund and Gagnon (in chapter 9), and Martin (2017). In all these scenarios, with full adjustment the economy achieves a trade-neutral equilibrium in the long run, but the changes in the price system are large, differ across scenarios, and would be expected to lead to serious adjustment problems.

Second, we consider what happens if the DBCFT is not fully implemented—the tax is not passed on to markets and/or the exchange rate is sticky and the trade balance rather than domestic prices adjusts. We consider three scenarios of incomplete adjustment, drawing from the literature. In these scenarios, the equilibrium is not trade neutral, with strong effects on trade incentives, exports, and imports that differ across scenarios and may raise concerns about consistency with international trade agreements.[2] In scenarios where the trade balance adjusts, real domestic consumption declines, suggesting that the DBCFT can leave consumers worse off.[3]

DBCFT and VAT Systems

There are many similarities between the DBCFT and a VAT. Auerbach et al. (2017, 4) argue that the DBCFT "is equivalent in its economic impact to introducing a broad-based, uniform rate value added tax (VAT)—or achieving the same effect through an existing VAT—and making a corresponding adjustment in taxes on wages and salaries."

The VAT provides a good starting point and comparator for understanding how the BAT works.[4] It operates like a sales tax with a border adjustment component, in order to ensure that imported and domestic goods are taxed at the same rate and exports are exempt. Since it includes a rebate for VAT taxes paid on intermediate inputs and investment goods, it operates as a tax on consumption. VAT taxes are collected by the government at the border on imports and in markets for domestic sales.

The DCBFT system will operate like a VAT if it generates the same market signals as a VAT: a uniform tax on domestic and imported goods and no tax on exports. But the government does not collect taxes on imports at the border or on domestic sales at the consumer level, and it does not

[2] See chapter 10 by Gary Clyde Hufbauer and Zhiyao Lu and chapter 11 by Chad Bown in this Briefing for a discussion of the trade policy implications of the DBCFT.
[3] Buiter (2017) considers a scenario in which the adjustment leads to changes in the terms of trade in foreign markets, with the possibility that introducing a DBCFT leads to a depreciation rather than an appreciation of the equilibrium exchange rate. We do not consider such a scenario; in the scenarios we consider, world prices are fixed.
[4] See Metcalf (1995) and Keen and Lockwood (2010) for an overview of a VAT system.

provide an explicit wage subsidy to enterprises. The fact that labor costs are deductible implies an implicit subsidy to employment. Businesses may operate as if they face these tax wedges and subsidies, because they know that the taxes affect their tax base (Auerbach and Holtz-Eakin 2016). The implicit price wedges in a DCBFT system contrast with a VAT system, in which the VAT is reported in every transaction.

Given that the DCBFT system involves implicit taxes, analyzing its impact requires specifying how the new taxes are transmitted to markets. Since the DBCFT is a new tax system, never tried anywhere, there is no historical experience to draw on in evaluating it. We therefore developed a simulation model to analyze its economy-wide effects. We consider "what if" scenarios, making plausible assumptions about how the system will operate in practice.

We start by assuming that the implicit tax wedges are passed on to markets. We simulate the effect of a DBCFT with a 20 percent tax on domestic sales minus deductions that is included in prices. On the demand side, businesses treat the tax as an implicit 20 percent tariff on imports (because imported intermediates are not deductible from the tax base). We consider different assumptions about adjustment of the exchange rate (fixed versus flexible), the balance of trade (fixed versus flexible), and the role of different specifications regarding which prices are sticky. [5]

An Economic Simulation Model of the DBCFT/BAT System for the United States

Our simulation model is a computable general equilibrium (CGE) model of the US economy.[6] A CGE model simulates the behavior of producers and consumers interacting in markets for goods and factors of production (e.g., labor), solving for market equilibrium prices and wages that clear all markets.[7] The model explicitly simulates how a change in tax policy affects incentives, solving for market prices, wages, and the exchange rate.[8]

The fact that labor costs are deductible in the DBCFT system implies an implicit subsidy to employment. Freund (2017) considers the implications for tax incidence across firms with substantial differences in the labor shares in value added. She argues that this heterogeneity is a potential source of incomplete price and exchange rate pass-through in the short run. We

[5] In chapter 9 Freund and Gagnon analyze the effect of border adjustment taxes on the real exchange rate and trade balance in countries that have introduced a VAT. They find that, in general, introducing a VAT is fully offset by a change in the exchange rate, so that there is no impact on the current account balance. Whether that mechanism will operate the same way in a DBCFT system, where the tax/subsidy wedges are implicit, is an open question. We explore both possibilities (full and partial offset).

[6] CGE models have been widely used to analyze the operation of VAT systems. Arndt et al. (2009) and Go et al. (2005) introduce a VAT in a single-country CGE model (for Mozambique and South Africa, respectively), analyzing the impacts on market prices and incidence. Introducing a DBCFT in such a CGE models is a straightforward extension.

[7] CGE models solve for relative prices. We introduce price stickiness by specifying a reference or anchor price (e.g., consumer price index, producer price index, fixed exchange rate), which we assume is fixed due to policy intervention or unresponsive in markets and hence slow to adjust. The reference price is termed the *numeraire* price index in the literature on CGE models.

[8] In a CGE model, the exchange rate is not determined in asset or financial markets. It operates through commodity markets, which determine the domestic price of exports and imports, and is functionally related to the trade balance. A depreciation of the real exchange rate (the nominal exchange rate variable deflated by the fixed price index) increases exports and decreases imports (an appreciation has the opposite effects). The model simulates two adjustment mechanisms. If the trade balance is held constant, the real exchange rate adjusts to generate exports and imports consistent with the fixed trade balance. If the real exchange rate is held constant, the trade balance adjusts.

incorporate her results in designing our incomplete adjustment scenarios but do not explicitly analyze the incidence effects of the labor subsidy. Although it incorporates the implicit labor subsidy, our CGE model is too aggregated to capture enough of the heterogeneity of labor shares across sectors to support incidence analysis.[9] We focus on the macroeconomic results, such as changes in aggregate price indexes, average wages, and the exchange rate.

Full Price and BAT Adjustment

We consider three scenarios. In the first scenario, the DBCFT is fully implemented with a fixed consumer price index (CPI), domestic goods are priced 20 percent higher than export goods in the market, and a 20 percent BAT is imposed on imports. The impact of this scenario on the price system is equivalent to that of the VAT—the case considered by Martin (2017). In the second scenario, the exchange rate is fixed and the CPI adjusts—the case considered by Cline and Freund in chapters 5 and 7, respectively, in this Briefing. In the third scenario, the tax is not passed on to the domestic market, the CPI is fixed, and the exchange rate adjusts—the case Auerbach (2017) considers. In all three scenarios, the balance of trade is constant, consistent with a trade-neutral DBCFT.

Under the first scenario (table 1, column 1), the nominal exchange rate adjusts, appreciating by 15 percent. While the appreciation achieves trade neutrality, it does not adjust by the full amount of the BAT (20 percent), because of other tariffs and commodity taxes (e.g., state and local sales taxes) in the economy.[10] Producer prices adjust by the same amount as the nominal exchange rate, however, so there is no change in the relative prices of traded and nontraded goods and essentially no change in real exports and imports. The system is trade neutral, as theory suggests.

In the second scenario, in which the nominal exchange rate is fixed (column 2), the real effects are the same as when the CPI is fixed: essentially no change in real exports and imports. However, the nominal price effects are dramatically different. The CPI and the average wage increase by almost 20 percent. Domestic price adjustment is an alternative to nominal exchange rate appreciation, but with very different impacts on the price system.

In the third scenario, we introduce the DBCFT/BAT as a 20 percent tax on imports and a 20 percent subsidy to exports, with no tax pass-through on domestic sales, following Auerbach. As in the other scenarios, the price of domestic sales relative to export sales increases by 20 percent. The DBCFT is trade neutral (column 3), and there is virtually no impact on domestic prices, as the nominal exchange rate appreciates by 17 percent.

If prices are fully able to adjust, then, the DBCFT is trade neutral—but with exchange rate, price, and/or wage changes that are potentially large and disruptive. Adjustment to the new system could well be difficult.

Incomplete Price Transmission or BAT Adjustment

In the second set of scenarios (table 2), we consider an incomplete DBCFT— the 20 percent tax on domestic sales is passed on to markets, but adjustment elsewhere is incomplete. In all three scenarios, the CPI is fixed. In the first scenario (column 1), the implicit BAT tariff is not passed on to markets, a possibility suggested by Buiter (2017). The second scenario (column 2) assumes

[9] We are developing a larger model of the United States with many more sectors, which can provide a simulation platform for analyzing incidence issues.

[10] There are also trade and transport margins, which affect prices differently by sector. We simulated the BAT in a model with no existing distortions; it operates as expected—a 20 percent appreciation.

that the exchange is fixed and the trade balance adjusts, a possibility suggested by Cline and Freund in chapters 5 and 7, respectively. The third scenario assumes trade balance adjustment and the BAT operates. In all three imperfect adjustment scenarios, the DBCFT is not trade neutral: Exports and imports change in the new equilibrium.

The first scenario with an asymmetric BAT (no implicit tariff) yields incomplete adjustment in the exchange rate (which appreciates by only 10 percent), changes in producer prices, and changes in international trade (real exports increase by 6.2 percent and real imports increase by 4.8 percent) (column 1). The tax on domestic sales without a corresponding tax on imports operates like an export subsidy. With a fixed trade balance, exports increase and the exchange rate appreciates, partly offsetting the export subsidy, leading to an increase in imports.

The second scenario adds a fixed exchange rate, with adjustment in the balance of trade. It effectively amplifies the export subsidy effect of the first scenario: Real exports expand by 17.1 percent, imports do not change, and the trade balance narrows. The lower trade balance leads to a fall in aggregate demand domestically, with aggregate consumption falling by 4.1 percent—a significant reduction in welfare.

The third scenario adds to the second scenario the assumption that the BAT tariff operates, increasing the domestic market price of imports. This scenario adds an implicit import tariff to the export subsidy but does not allow the exchange rate to adjust, compounding the impact on trade. The introduction of the DBCFT in this scenario increases exports (by 17.5 percent) and reduces imports (by 6.5 percent), dramatically reducing the trade balance and welfare (aggregate consumption falls by 6.5 percent).

The introduction of a DBCFT with incomplete adjustment is not trade neutral: Exports and imports are affected. The resulting system is protectionist, in that imports are taxed and/or exports subsidized.

Conclusions

Our CGE simulation model of the United States incorporates different ways the new DBCFT might operate. We find that:

- The required appreciation of the nominal exchange rate to achieve trade neutrality in a DBCFT system with full adjustment, assuming no change in the CPI, is very large, with potential disruptive impacts beyond product and labor markets (e.g., in asset markets).
- Achieving trade neutrality in a scenario with a fixed exchange rate involves major and potentially disruptive shocks to domestic prices and wages.
- Incomplete adjustment, through failure of the BAT implicit tariff to operate and/or induced changes in the trade balance, yield uneven trade impacts, with implicit tariff protection and export subsidies. These results are likely to raise concerns with trading partners and may lead to disputes under international trade agreements.
- Incomplete adjustment scenarios with a fixed exchange rate and adjustment of the trade balance result in subsidizing exports and/or taxing imports. Aggregate consumption falls, and there is a significant impact on trade flows.

The DBCFT is a new, untried approach to business tax reform. Analyzing its impact is difficult, because there are no examples to study. Unlike a VAT, the tax is intended to be

implemented at the level of businesses; its impact on markets will depend on whether and how businesses pass the tax on to goods markets.

Table 1: DBCFT and Full BAT Adjustment			
Policy shock	**20% DBCFT and full BAT**		
Price adjustments	**(1)**	**(2)**	**(3)**
Tax passed to domestsic price	yes	yes	no
Exchange rate (EXR)	EXR flexible	EXR fixed	EXR flexible
Consumer Price Index (CPI)	CPI fixed	CPI flexible	CPI fixed
Price indices, base = 1			
Exchange rate (EXR)	0.84	1.00	0.83
Consumer price index (CPI)	1.00	1.19	1.00
Domestic price index (DPI)	0.83	0.99	1.00
% change from base value			
Average wage	-0.08	18.52	2.33
Real exports	-0.17	-0.17	0.66
Real imports	-0.13	-0.13	0.52
Real consumption	-0.01	-0.01	0.00
Balance of Trade (BoT)	0.00	0.00	0.00
Ratio to GDP (%)			
Exports	12.15	12.15	12.25
Imports	-15.58	-15.58	-15.68
Trade deficit	3.43	3.43	3.43

Table 2: DBCFT and Imperfect BAT Adjustment			
Policy shock	20% DBCFT		
Price adjustments	**(1)**	**(2)**	**(3)**
Tax passed to domestsic price	yes	yes	yes
BAT tariff operates	no	no	yes
Exchange rate (EXR)	EXR Flexible	EXR Fixed	EXR fixed
Balance of Trade (BoT)	BoT fixed	BoT flexible	BoT flexible
Consumer price index (CPI)	CPI fixed	CPI fixed	CPI fixed
Price indices, base = 1			
Exchange rate (EXR)	0.90	1.00	1.00
Consumer price index (CPI)	1.00	1.00	1.00
Domestic price index (DPI)	0.83	0.83	0.83
% change from base value			
Average wage	2.76	1.92	-1.88
Real exports	6.21	17.12	17.52
Real imports	4.84	0.08	-7.29
Real consumption	-0.09	-4.11	-6.54
Balance of Trade (BoT)	0.00	-60.41	-95.33
Ratio to GDP (%)			
Exports	12.93	14.28	14.35
Imports	-16.36	-15.64	-14.51
Trade deficit	3.43	1.36	0.16

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Appendix:

Markets and Price Signals in a Computable General Equilibrium (CGE) Simulation Model with a Destination-Based Cash-Flow Taxes (DBCFT)

CGE Simulation Models

A computable general equilibrium (CGE) model simulates the behavior of producers and consumers interacting in commodity and factor markets, solving for market equilibrium prices and wages that "clear" all commodity and factor markets. The model also solves for the real exchange rate that determines the equilibrium levels of aggregate exports and imports, given a fixed balance of trade.[11] The model can also specify a fixed real exchange rate and solve for the equilibrium balance of trade consistent with that exchange rate.

There are various "agents" in the model: producers (industries), households, government, world (exports/imports), S-I (savings/investment that collects savings and uses the funds to purchase capital goods). The model represents the complete "circular flow" in an economy. On the income side, it traces payments by producers to factors of production (value added, GDP at factor cost), then to income to the various agents (households, government, S-I), and finally to expenditures/demand by agents for commodities (GDP at market prices), and hence back to sales income to producers. The "rest of the world" is treated as an agent that purchases exports, sells imports, and transfers any difference between sales and receipts (the balance of trade) to agents (e.g., foreign remittances to/from households, factor payments to/from the rest of the world, foreign savings to the S-I account, government to government transfers as grants and foreign aid).

The CGE model explicitly simulates how changes in tax policies affect incentives, solving for new market prices, wages, and the exchange rate. These tax instrument are seen by agents in various markets (e.g., sales taxes, factor taxes, tariffs, subsidies), providing "wedges" between prices received by producers/sellers and prices paid by consumers/demanders. How agents react to changes in these wedges determines the initial impact of the changes. The ultimate impact, or incidence, of the tax changes must account for all direct and indirect linkages across markets. CGE models, which incorporate these linkages, have been widely used for such tax incidence analysis.[12]

Prices, and Incentives in VAT and BAT Systems

Figures A1 to A5 below show the supply chain in CGE models, from producer to demanders, and the price transmission mechanisms incorporated in the models. Table A1 provides definitions of the symbols that appear in the figures.

[11] The real exchange rate is the nominal exchange rate deflated by either the consumer price index (CPI) or the producer price index (PPI), one of which is the model numeraire or reference price index. To define the real exchange rate as the relative price of traded to nontraded goods, the PPI should be the reference price.

[12] For a survey of this work, see Ballard, Fullerton, Shoven and Whalley, (1985). *A General Equilibrium Model for Tax Policy Evaluation*, Chicago: University of Chicago Press.

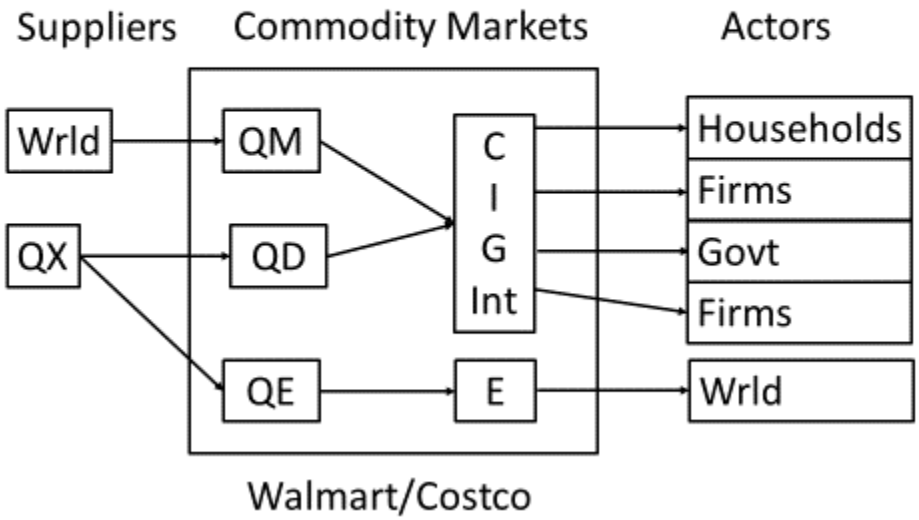
Table A1: Symbol Names and Descriptions

Wrld	Rest of World
QX	Quantity of domestic production
QM	Quantity of imports
QD	Quantity of domestically produced goods sold in the domestic market
QE	Quantity of exports
C	Consumer goods
I	Investment goods
G	Government goods
Int	Intermediate goods
EXR	Nominal exchange rate
PWM	World price of imports
PWE	World price of exports
PX	Price of marketed domestic output
PDS	Producer price for commodity produced and consumed domestically
PD	Demand price for commodity produced and consumed domestically
PM	Price of import to demander, including transport costs, tariffs, sales tax
PE	Border price of exports, including transport costs and subsidy/tax
tm	Rate of import tariff
tvat	Rate of value added tax
tbat	Rate of border adjustment tax
td	Rate of domestic sales tax
rbt	Rebate

In Figure A1, goods are supplied by domestic producers and foreigners. In the first step in the supply chain, they are sold to a giant retail/wholesale store (e.g., Walmart or Costco), which serves as the intermediary between suppliers and demanders. Domestic producers supply all of gross output of goods and services (QX) produced in the US and foreign producers (Wrld) supply all imports to the US (QM). Domestic production is divided into two categories, one for domestic markets (QD) and another for foreign markets (QE). In the second step, Walmart provides five "departments" where goods are sold to different classes of demanders: (1) consumption goods for households, C; (2) capital goods for investment by firms, I; (3) government demand (goods and services), G; (4) demand for intermediate inputs by firms, INT;

and (5) demand for exports by foreigners, E. These markets are separated, open only to each category of demander, and may operate with different taxes and prices.

Figure A1: Production and Demand



VAT Systems

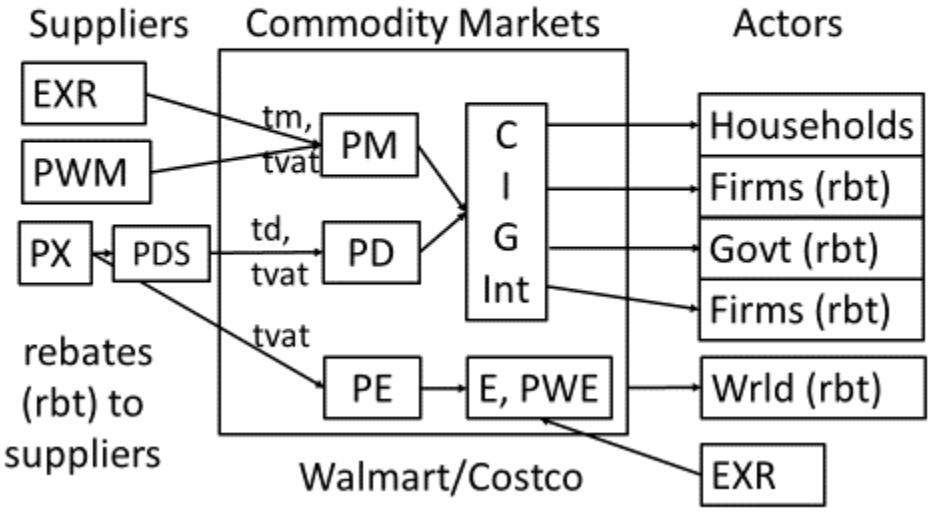
Consider a destination value added tax (VAT), which is designed as a tax on final consumption of both domestically produced and imported goods in the country of destination. The price system under a standard destination VAT, which is widely used across the world, is diagrammed in Figure A2. The VAT is implemented as a tax (tvat) on the sales price in all commodity markets—it applies to all "departments" in Walmart. Firms and exporters are eligible for a "rebate" on the VAT paid for intermediate inputs, investment goods, and exports—making them VAT free. The government usually also does not pay a VAT, which effectively would be to pay the tax and then give the proceeds to itself.

Imported goods are denoted in the currency of the exporting country (PWM) so the nominal exchange rate (EXR), defined as local currency (dollars) per unit of foreign currency, is needed to convert prices to dollars. If imports are also taxed separately from the VAT, there is a tariff applied (tm) at the border. Domestic sales may also be taxed independently of the VAT, with a tax rate (td) applied. A value added tax (tvat) is applied to all goods sold in Walmart—it affects PM, the price of imported goods to the demander, PD the demand price for the commodity produced and sold domestically, and PE, the price of the export good.

However, not all actors pay the VAT. There are rebates to offset the cost of the tax paid for firms who buy intermediates and investment goods, for the government and for exports. Note, when exporting, the purchasers (wrld) convert the domestic price (PE) to foreign currency prices (PWE) using the nominal exchange rate (EXR). All transactions with the rest of the world must include the nominal exchange rate.

Since the VAT is applied to both imports and domestically sold goods, it does not change relative prices and hence does not "protect" domestic sales like a tariff. It operates like a sales tax, applied equally to all commodities regardless of source, and does not distort trade.

Figure A2: Price System, Rebate VAT

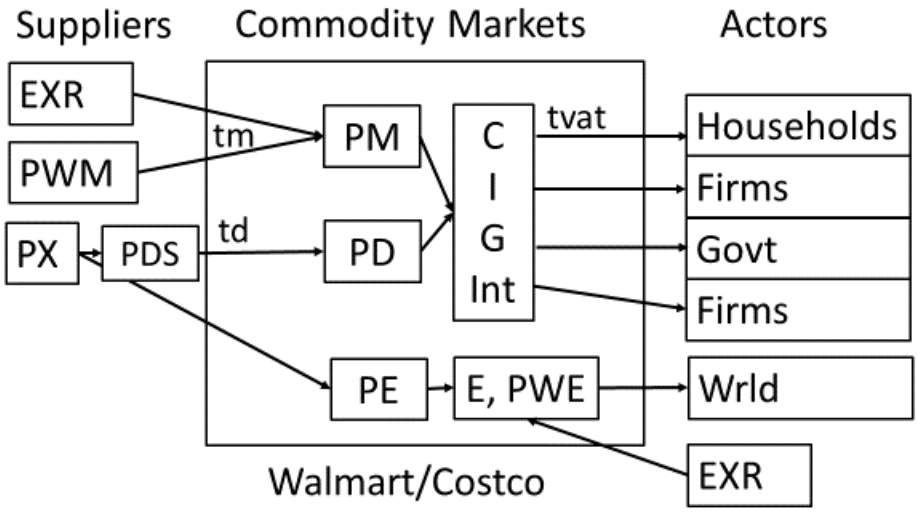


Rather than use a rebate system, the VAT can be administered as a sales tax at the retail level that only applies to the consumer goods department, and hence only to household consumption (both imported and domestic goods)—see Figure A3. As in Figure A2, while tvat only applies to consumption, there can be other taxes in the system, such as a tax on imports (tm) and/or a tax on domestic sales (td). The retail VAT is applied *only* on purchases by households and, like the rebate VAT, is trade neutral—it does not distort incentives with regard to imports or exports.

If implemented correctly, the two VAT systems—on all goods with rebates and only on retail sales to households—are identical in their operation in terms of revenue raised and incidence only on household consumption. They will, however, have different implications for measured prices since, in the rebate case, they will be applied to all goods (in all "departments") and reflected in all prices, while in the retail sales case they will only show up in consumption (in the consumption "department"). Administering a retail VAT is like operating a sales tax system, with problems because it is difficult to prevent consumers from accessing other "departments" and hence avoiding the tax.

Cross-country experience with administering the VAT system with rebates, especially in poor countries, indicates problems with incomplete incidence and distortions. For example, it is relatively easy to collect the VAT on imports, but more difficult to collect it on domestic production. For example, small firms may be exempt from the VAT and other firms may evade it. In addition, firms may have difficulties getting rebates from the tax authorities. The result will be a distorted tax system that may be protectionist (imports taxed, but not domestic goods) or have cascading taxes (intermediate inputs effectively taxed).

Figure A3: Price System, Retail VAT

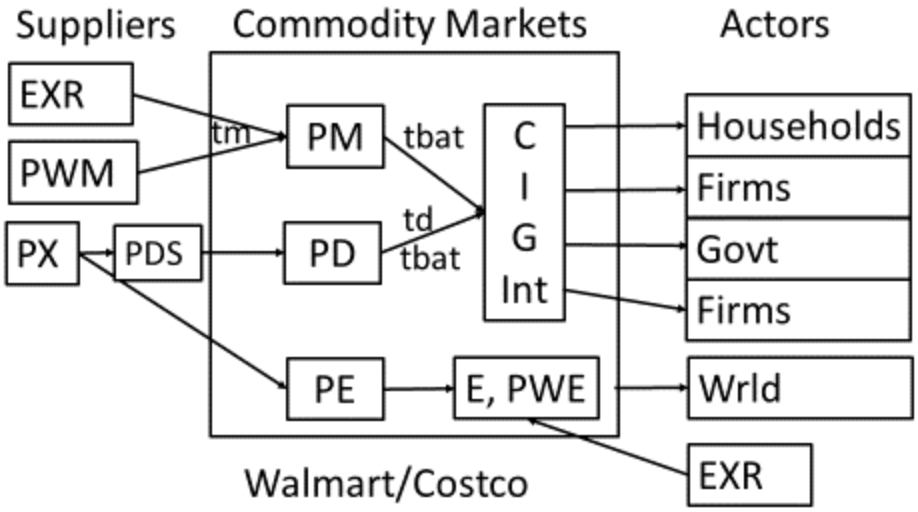


Destination Based Cash Flow Tax with Border Adjustment (DBCFT/BAT)

The proposed Destination-Based Cash-Flow tax, DBCFT, operates at the level of the enterprise. Enterprises will be taxed on their domestic cash flow—revenue from domestic sales minus costs of labor and domestic intermediate inputs. Export earnings will not be taxed, and imported intermediate input costs will not be deductible. As Auerbach et al. (2017, p.4) note, The DBCFT "is equivalent in its economic impact to introducing a broad-based, uniform rate Value Added Tax (VAT)—or achieving the same effect through an existing VAT—and making a corresponding adjustment in taxes on wages and salaries." However, unlike a VAT, the government does not collect the tax in the markets – the DBCFT tax wedges are not explicit tax instruments. Instead, the DBCFT is a paid by the corporation on its taxable cash flow (domestic sales revenue minus domestic intermediate input costs and labor costs).

If the enterprise passes the tax wedges through the price system, then the taxes affect incentives like a VAT—see Figure A4. The DBCFT applies to the domestic sales department in Walmart and so is a tax wedge (tbat) on the price of imports (PM) and on the price of domestically produced goods (PD). All actors who buy from any of the domestic sales departments will pay the tax, so it will operate like the VAT, with an implicit tariff on imports (a "border adjustment tax" or BAT) and an implicit tax on domestic sales. The system will work like a VAT system, with no distortion in incentives to trade. There will be an appreciation of the nominal exchange rate, assuming no change in the consumer price index, to ensure that the domestic prices of imports and exports are aligned, and the ratios of prices of traded and nontraded goods do not change—no change in the real exchange rate.

Figure A4: Price System, DBCFT, Domestic Tax & BAT



Alternatively, one might assume that enterprises will not pass the tax on to domestic markets. In this case, the DBCFT will be seen by the enterprise as a tax on imports and a subsidy to exports, since imports are taxed and exports are not. See Figure A5 where there is a tax on imports, tbat and a subsidy (-tbat) on export sales. In this case, the implicit BAT is a combined import tariff and corresponding export subsidy. With no change in domestic prices, the system will generate an appreciation of the equilibrium exchange rate that will bring the domestic prices of imports and exports back to their pre-tax values, and hence the system will be trade neutral.

In both cases, note that the adjustment in prices to re-establish the pre-tax real exchange can be achieved either through a change in the nominal exchange rate with no change in domestic prices or by a change in domestic prices (and wages) with no change in the nominal exchange rate. The differential effects of these different mechanisms on the price system in a CGE simulation model are explored in the paper.

Figure A5: Price System, DBCFT, Export Subsidy & BAT