

Markets, Prices, and Exchange Rate Adjustment in a DBCFT/BAT System

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Simulating DBCFT or VAT

- DBCFT and VAT systems are similar
 - Both affect prices of domestically produced goods on the domestic market (PD)
 - Both require a border adjustment tax (BAT) to prevent bias in exports/imports
- VAT is well understood
- No past experience with DBCFT
 - Historical analysis is of limited use
 - Must use other methods of analysis



Simulation Models

- Can simulate the operation of the VAT and DBCFT systems in a national economy
- Simulation is widely used for scenario analysis in many fields: “What if” scenarios
 - Can do controlled experiments to isolate “components” of a complex system to see how they operate
 - NOT Forecasts



Role of the Exchange Rate (EXR)

- EXR in asset/financial markets
 - Linked to capital/financial flows
- EXR in commodity markets
 - Determines domestic prices of exports (PE) and imports (PM)
 - Functionally related to the trade balance
- Adjustment mechanisms
 - Fixed trade balance, EXR adjusts
 - Fixed EXR, trade balance adjusts



DBCFT/BAT Scenarios

- What if DBCFT and the BAT are both fully implemented?
 - What are the links between adjustments to EXR, domestic prices, and wages?
 - Tradeoffs?
 - Links between trade balance and EXR
 - Changes in trade balance and aggregate consumption: Mercantilism



DBCFT/BAT Scenarios

- What if the system is only partially implemented, and the BAT is incomplete?
 - No exchange rate adjustment: What happens to exports, imports, trade balance, and aggregate consumption?
 - What if the implicit BAT tariff is partial, perhaps because it is not explicitly collected at the border?
 - Note that the VAT tariff is explicit, collected by the government

A Computable General Equilibrium (CGE) Model



- The CGE model simulates the operation of commodity and factor markets
 - Solves for equilibrium prices and wages (and profits) that “clear” (supply = demand) commodity and factor markets
- Various “agents” in the model: producers (industries), households, government, world (exports/imports), S-I (collects savings and buys capital goods)



Markets and Prices

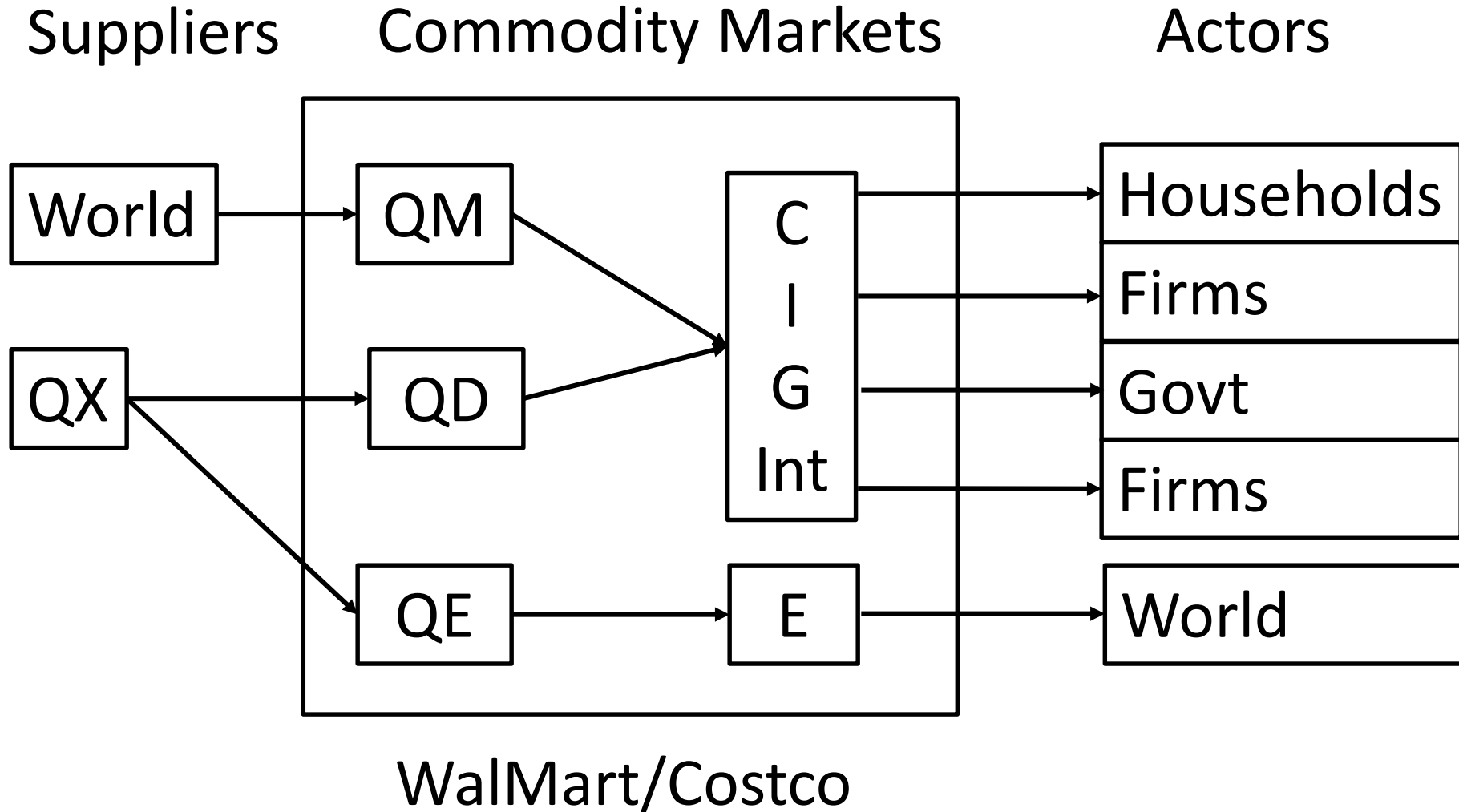
- Producers and households interact across markets and react to observed prices
 - Maximizing behavior underlies supply and demand equations
- The real exchange rate and the trade balance are linked in the CGE model
 - Can specify fixed EXR, flexible trade balance, or flexible EXR, fixed trade balance



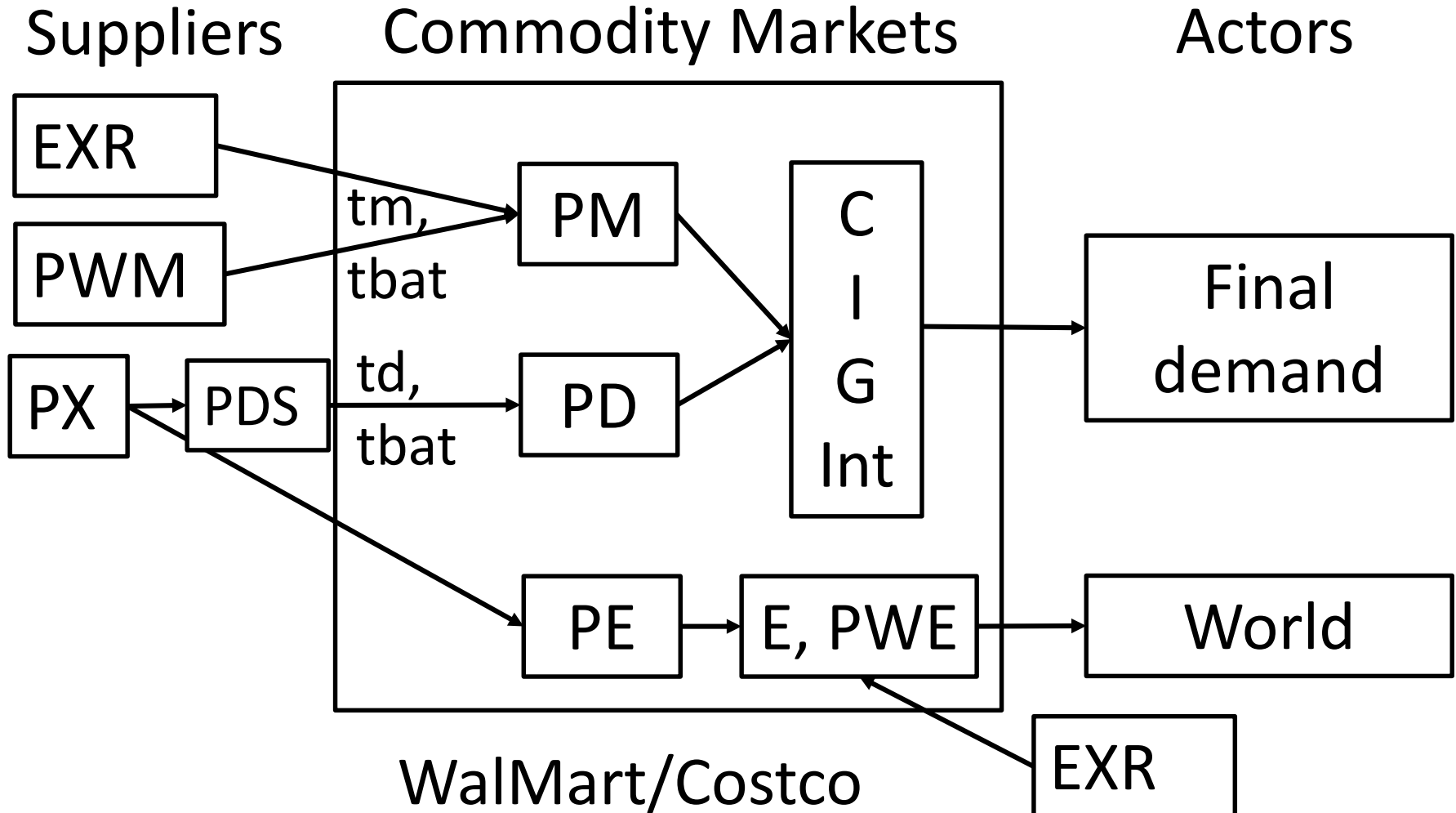
CGE Application: USA

- 10 sector CGE model with options for implementing DBCFT/BAT or VAT
- Work program to expand the model to include many more sectors for tax revenue and incidence analysis
- This application focuses on exchange rate and price linkage scenarios, which is feasible with a small model

Production and Demand



Price System: domestic tax & BAT



DBCFT with BAT



Policy shock	20% domestic sales tax & BAT		
EXR Fixed/flexible	EXR Flexible	EXR Fixed	EXR Flexible
Reference Price	CPI	CPI	DPI
Price indices, base = 1			
Exchange rate (EXR)	0.84	1.00	1.01
Consumer price index (CPI)	1.00	1.00	1.20
Domestic price index (DPI)	0.83	0.83	1.00
% change			
Average wage	-0.08	-1.87	19.8
Real exports	-0.17	17.52	-0.17
Real imports	-0.13	-7.29	-0.13
Real consumption	-0.01	-6.54	-0.01
Ratio to GDP (%)			
Exports	12.15	14.35	12.15
Imports	-15.58	-14.51	-15.58
Trade Balance	-3.43	-0.16	-3.43

DBCFT: BAT Failure



Policy shock	20% domestic sales tax, no BAT tariff	
EXR Fixed/flexible Reference Price	EXR Flexible CPI	EXR Fixed CPI
Price indices, base = 1		
Exchange rate (EXR)	0.90	1.00
Consumer price index (CPI)	1.00	1.00
Domestic price index (DPI)	0.83	0.83
% change		
Average wage	2.75	1.92
Real exports	6.21	17.12
Real imports	4.84	-0.10
Real consumption	-0.09	-4.11
Ratio to GDP (%)		
Exports	12.93	14.28
Imports	-16.36	-15.64
Trade Balance	-3.43	-1.36



Conclusions

- Changes in EXR or trade balances are significant and problematic, given potential impacts on global asset markets
- DBCFT/BAT with no trade bias and no change in EXR involves major shocks to domestic prices and wages
- Incomplete DBCFT/BAT scenarios yield uneven trade impacts and violations of WTO rules



Conclusions

- Incomplete DBCFT/BAT scenarios with a fixed exchange rate are Mercantilist, subsidizing exports and/or taxing imports
 - Result in lower aggregate consumption, and
 - Violation of trade agreements and WTO rules
- Implicit taxes, tariffs, and subsidies not reflected in explicit market signals and not in government statistics confuse market information for policy analysis