An Overview of Import Supply Chains

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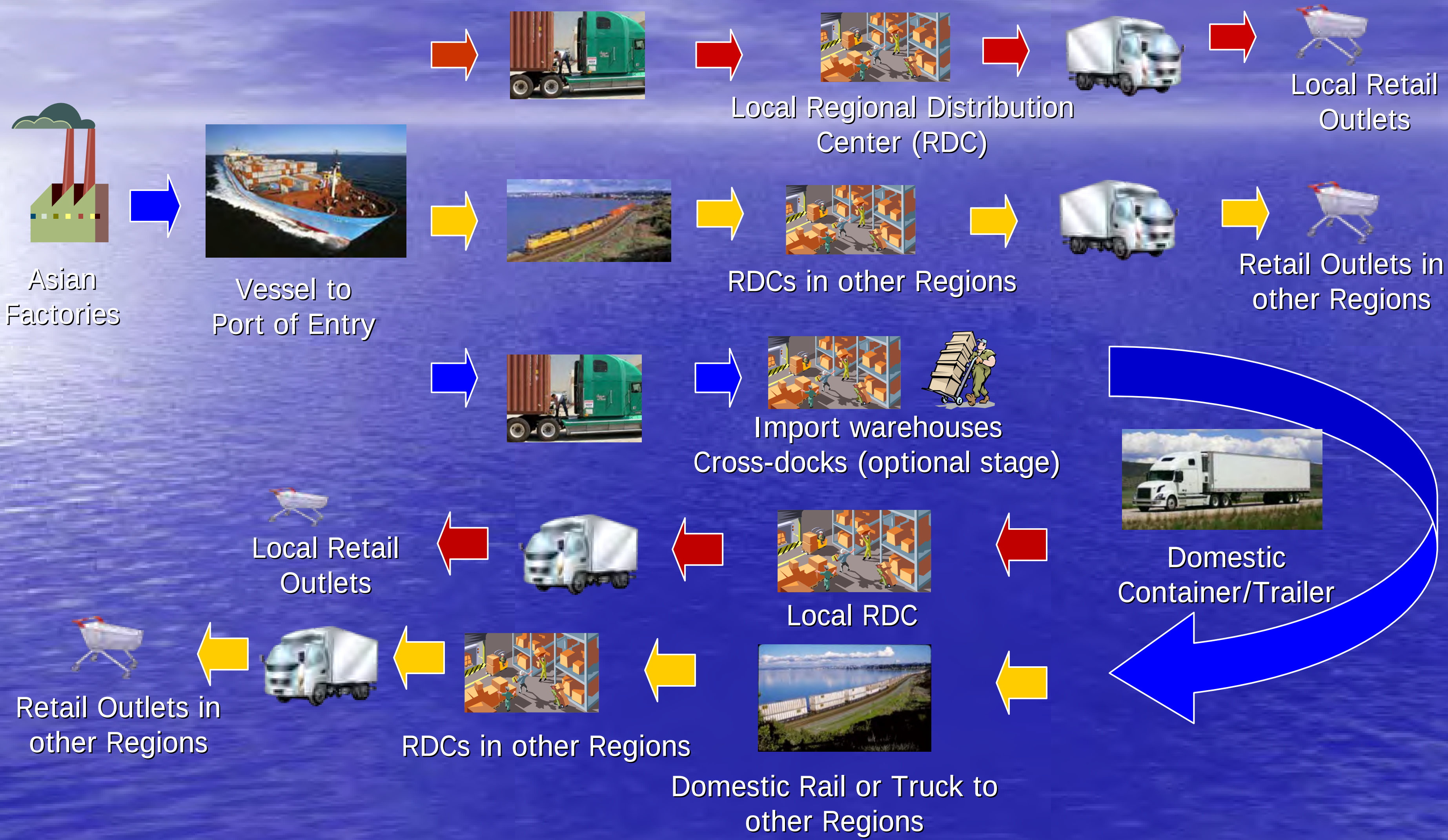
Elements of Asia – USA Supply Chains

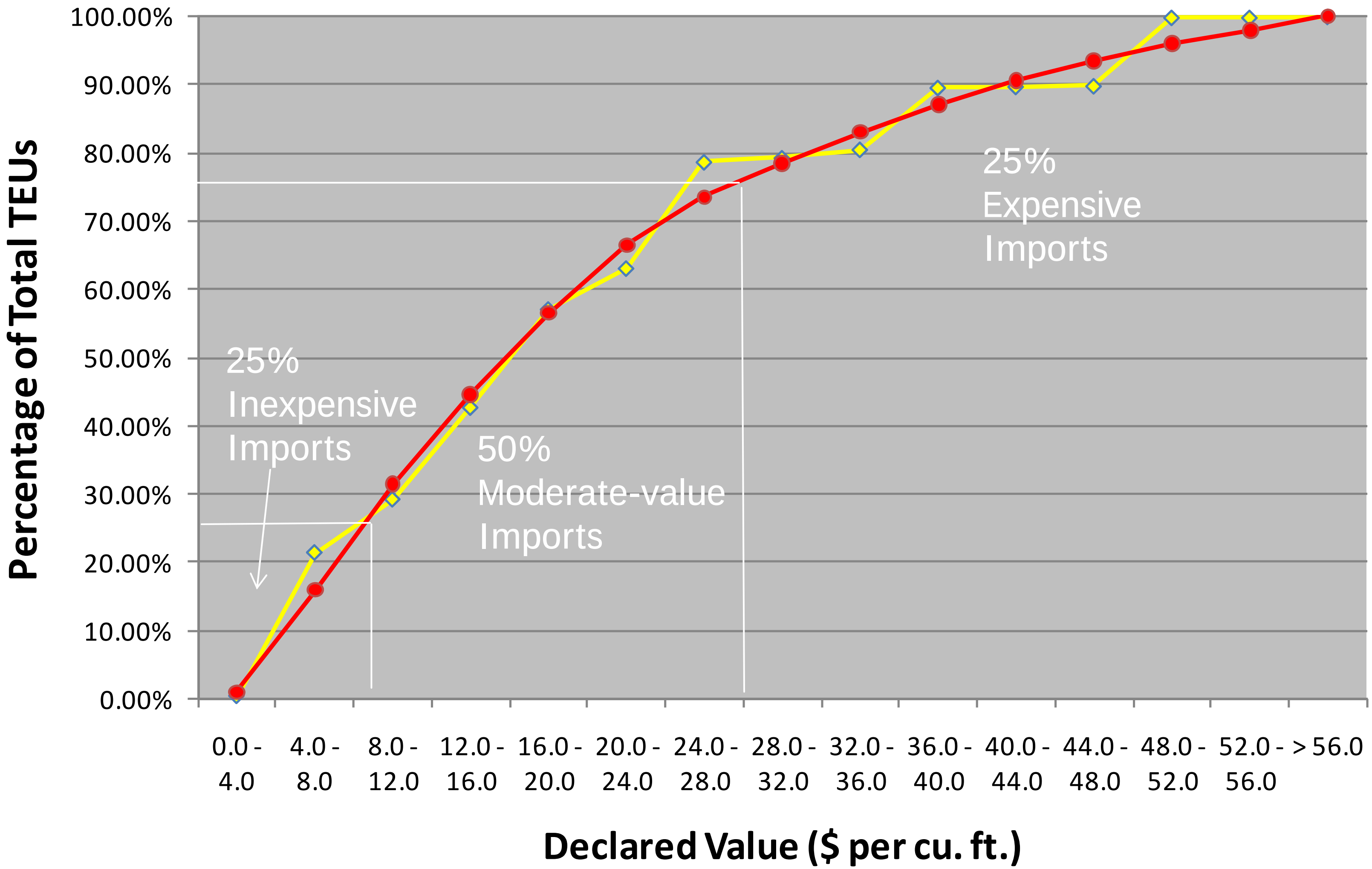


What's in the import containers?

Commodity	Percent of Total Volume
Furniture & Bedding	17.1%
Electronics	8.3%
Machinery	8.0%
Toys, Games & Sporting Goods	7.5%
Clothing	6.8%
Auto Parts & Motorcycles	6.1%
Plastic Goods	5.0%
Steel Goods	3.9%
Shoes and Boots	3.5%
Leather Goods (Handbags)	2.4%
Rubber Goods	3.3%
Wooden Goods	2.3%
All other	26.0%

Source: PIERS, WTA and PMA 2005 data

Value Distribution of 2005 Asia - USA Waterborne Containerized Imports



Box Types

- **Marine container** - holds up to 2,700 cu. ft. of cargoes
- **Domestic container or trailer** - holds up to 4,000 cu. ft. of cargoes
- Transportation savings – contents of 5 marine containers can fit in 3¼ domestic containers

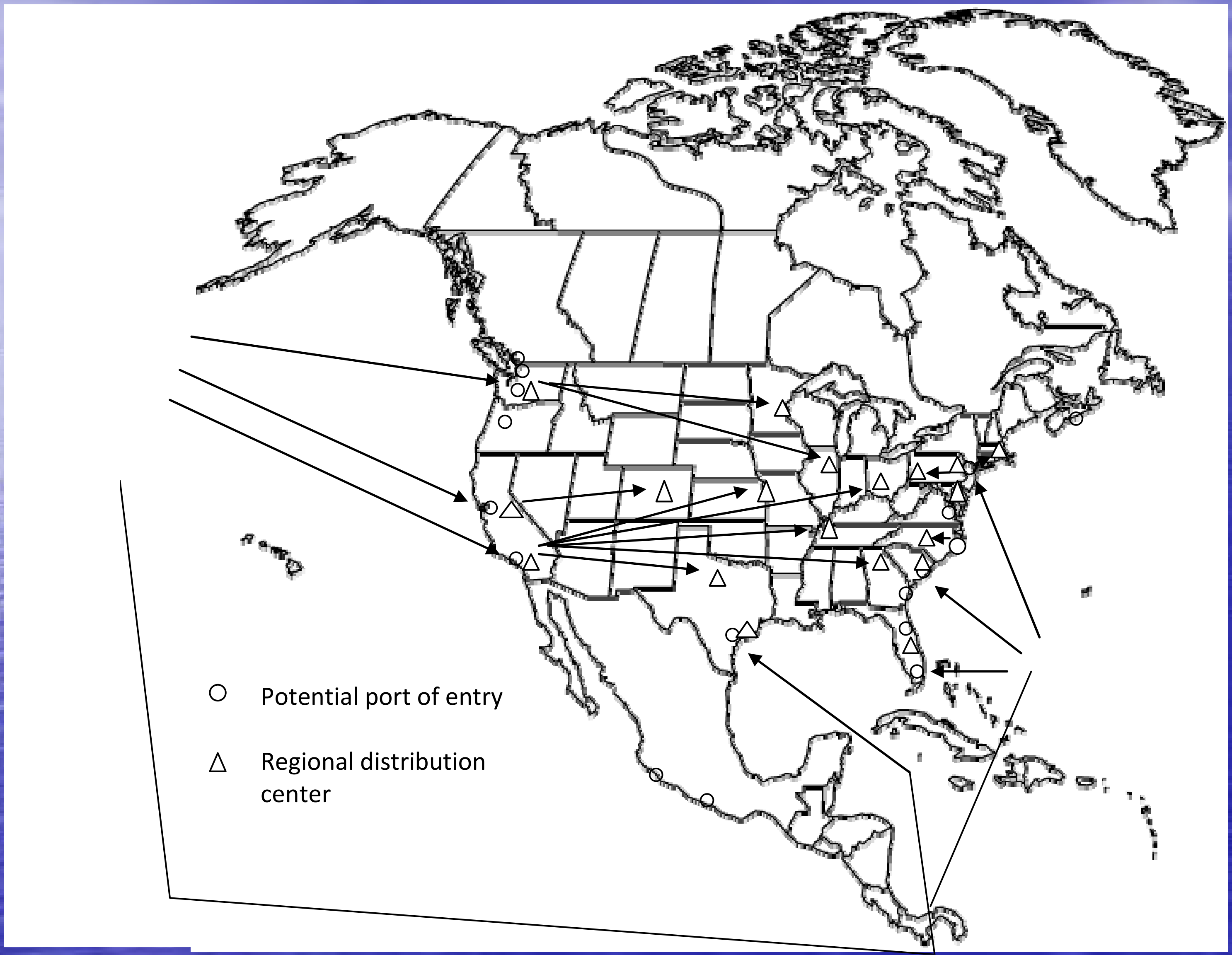
Marine Stack Train

Domestic Stack Train

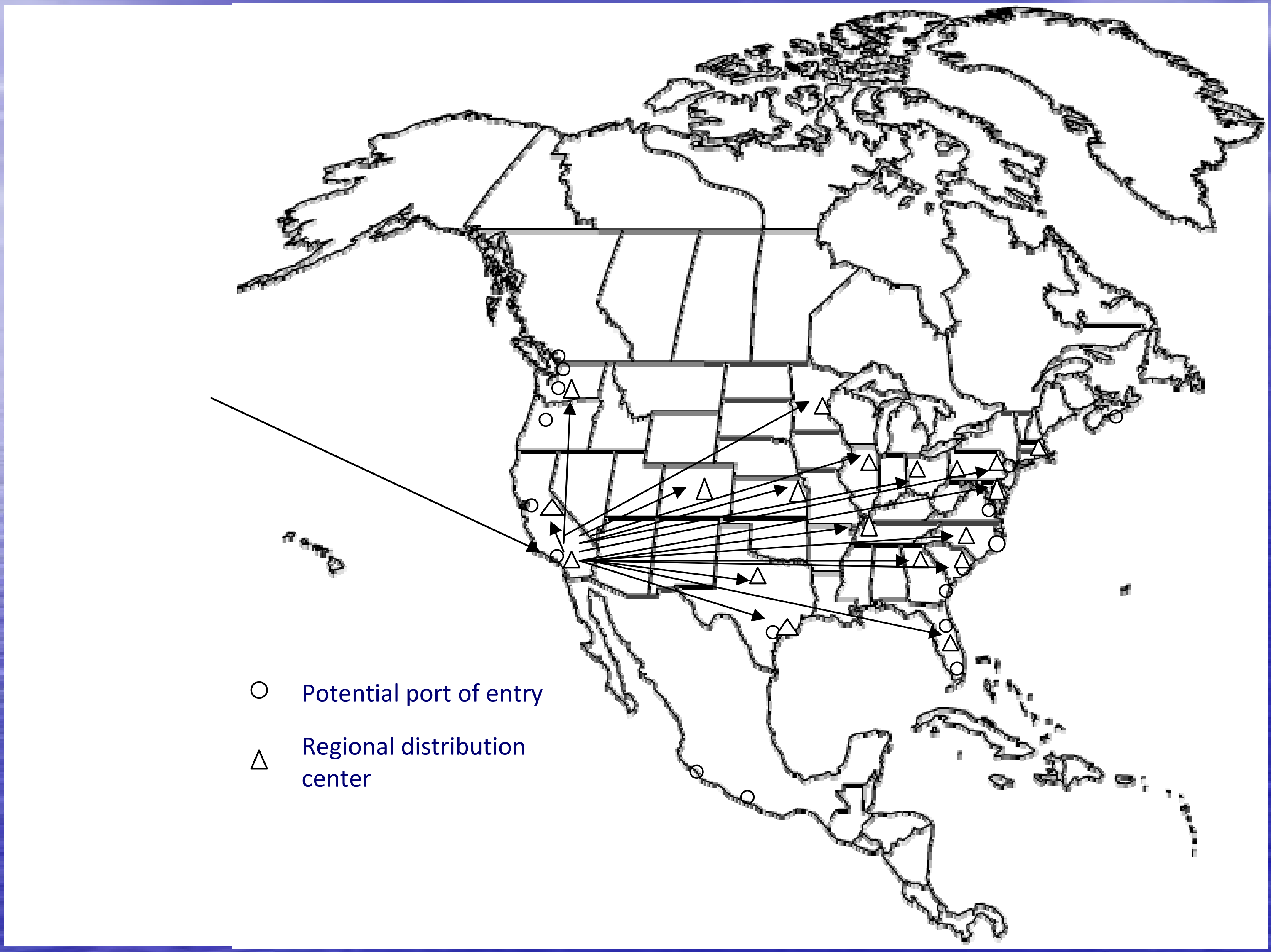
Alternative Supply Chains

- *Push System (a.k.a. Direct shipping)*
  - ship marine boxes directly from Asian factories to RDCs
  - Offers low transportation and handling cost
- *Push-Pull System (a.k.a. Consolidation - Deconsolidation)*
  - operate import warehouses and cross-docks at port(s) of entry, allocate imports and re-ship to RDCs in domestic boxes
  - Offers low inventory cost
  - Variants: Push-Pull - All at San Pedro Bay, Push-Pull - Four Corners, Push-Pull Five Corners

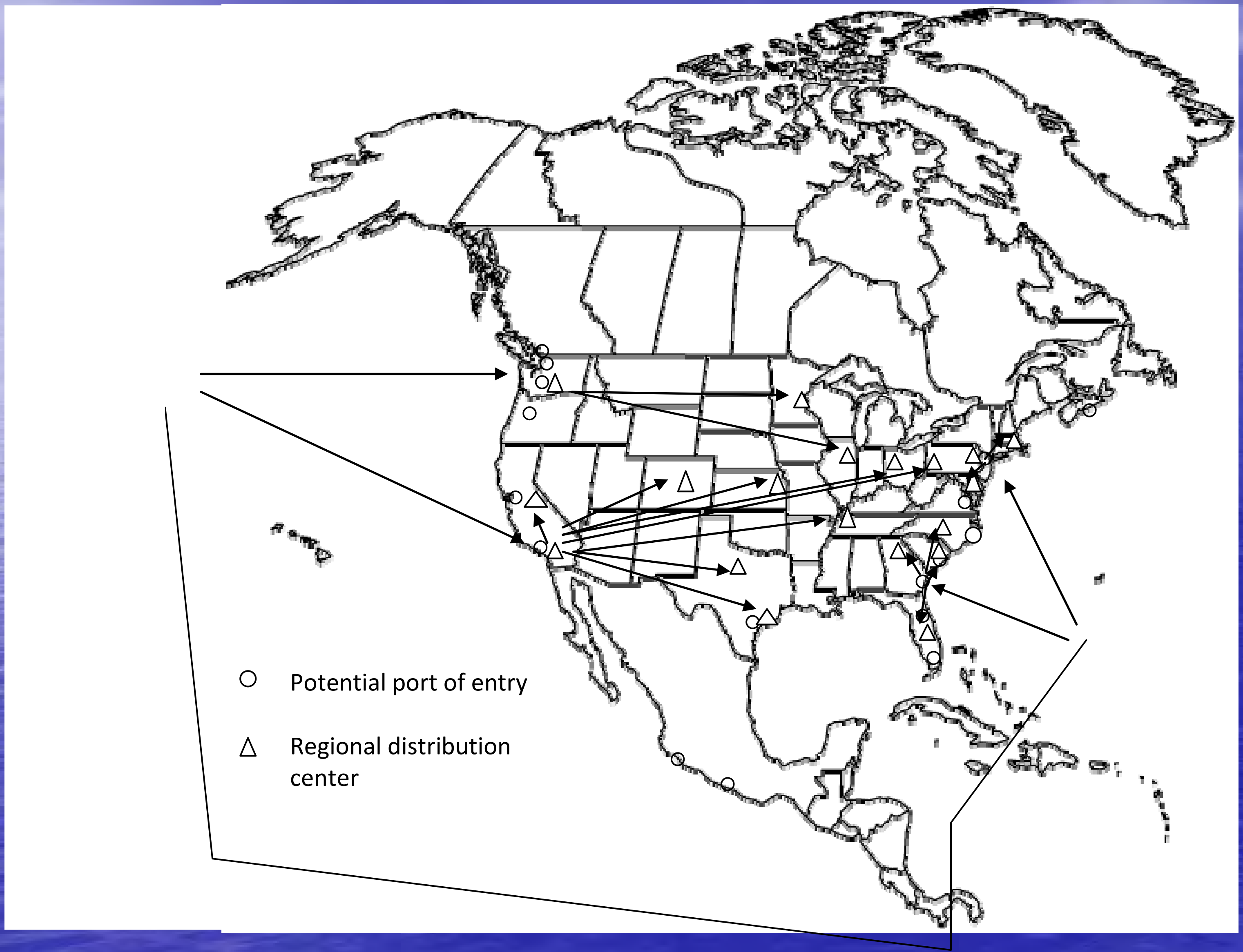
Push Supply-Chain Strategy



Push-Pull Supply Chain – All at San Pedro Bay



Push-Pull Supply Chain – Four Corners



Comparison of Supply Chain Strategies

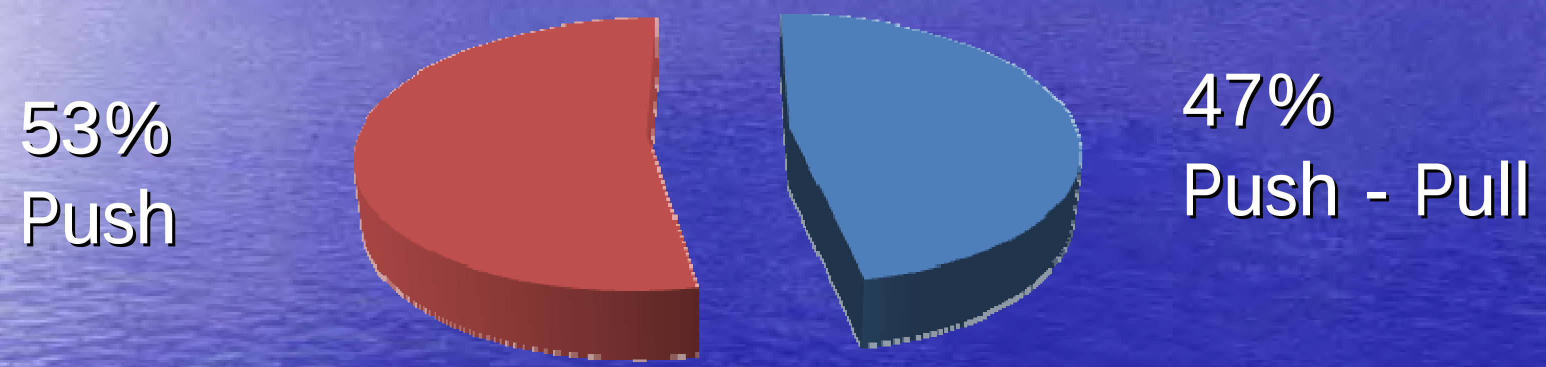
- Push Systems offer low transportation and handling costs, while Push-Pull Systems offer low inventory costs
- Each strategy suitable for different markets:

Push	Push-Pull 4 or 5 Corners	Push-Pull All at San Pedro Bay
Cheapest Imports (25% of total at present)	Moderate-value Imports (50% of total)	Expensive Imports (25% of total)

Who Uses What Supply Chain

Push	Push-Pull 4 or 5 Corners	Push-Pull All at San Pedro Bay
Nation-wide Importers of Inexpensive Goods	Large Nation-wide Importers of Moderate-value Goods	Original Equipment Manufacturers of Expensive Goods (Nation-wide sales)
Small and Regional Importers		

Import Mix at San Pedro Bay

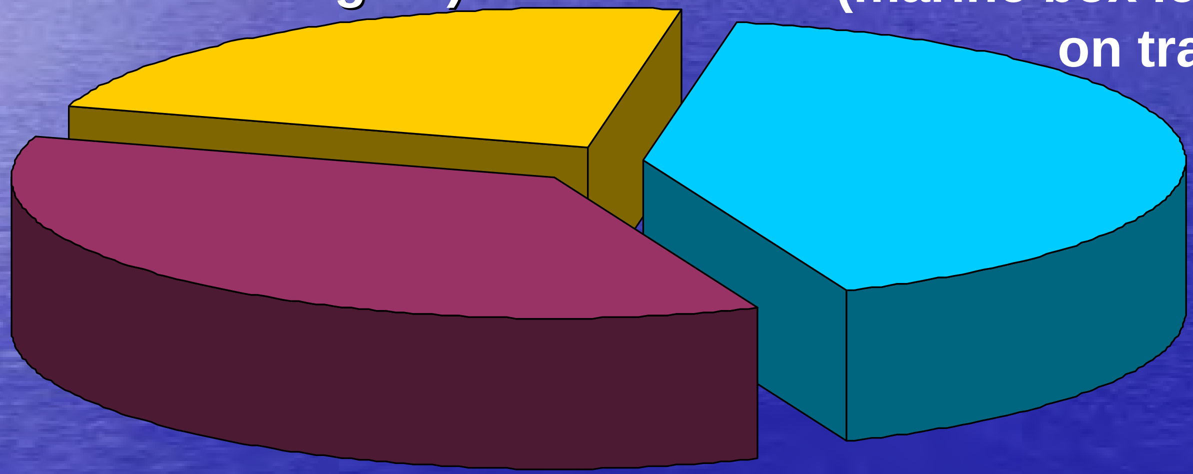


(Nation-wide, it’s 64% Push, 36% Push-Pull)

Import Mix at San Pedro Bay (cont.)

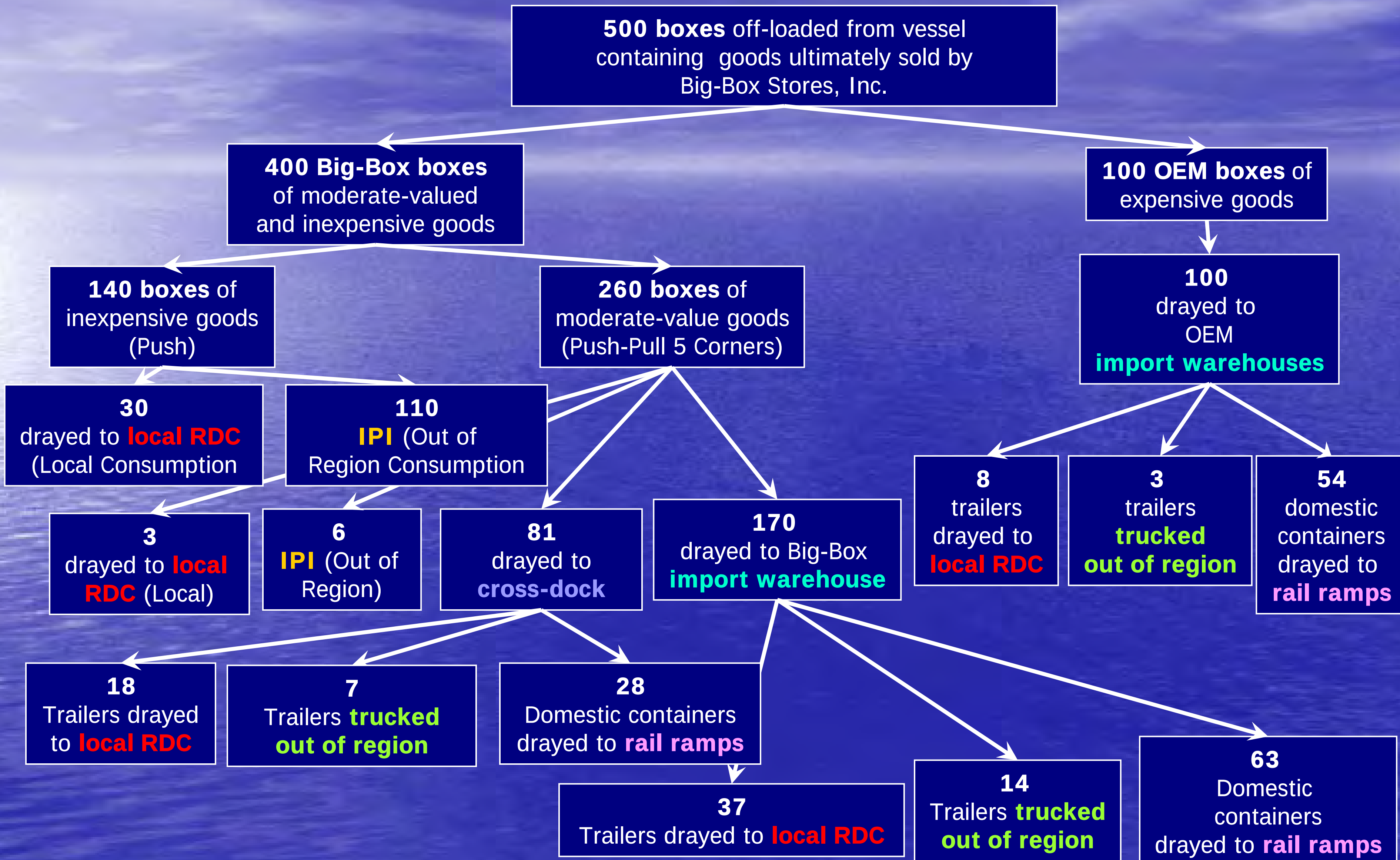
Local Region 23%
(imports consumed in greater local region)

Inland Point Intermodal (IPI) 41%
(marine box leaves region on train)



Trans-load/Re-shipment 36%
(imports leave region in domestic containers or trailers)

A "Big-Box Stores" Example



Re-cap of the Big-Box Example

- Out of 500 containers for Big-Box arriving on a vessel:
  - 116 went IPI
  - 33 drayed to the local RDC
  - 270 drayed to import warehouses
  - 81 drayed to cross-docks
- From the import warehouses and cross-docks:
  - 63 domestic trailers drayed to Big-Box's local RDC
  - 24 domestic trailers trucked out of region
  - 145 domestic containers drayed to rail ramps
- Even if all 116 IPI boxes are handled on-dock, the other 384 boxes for Big-Box generate **616 truck trips** in the Basin, not counting deadheads to pick up and return empties, and not counting distribution from the RDC!

Capacity and Congestion

- Port terminals, rail terminals, freeways, rail lines, warehouses
  - As more volume is added to a given capacity, congestion grows and container flow times stretch out
  - How much they stretch out is a function of *variability*

Capacity and Congestion (cont.)

- Port terminals are especially sensitive
  - Drays are mostly controlled by consignees
  - Some importers have negotiated a lot of free time

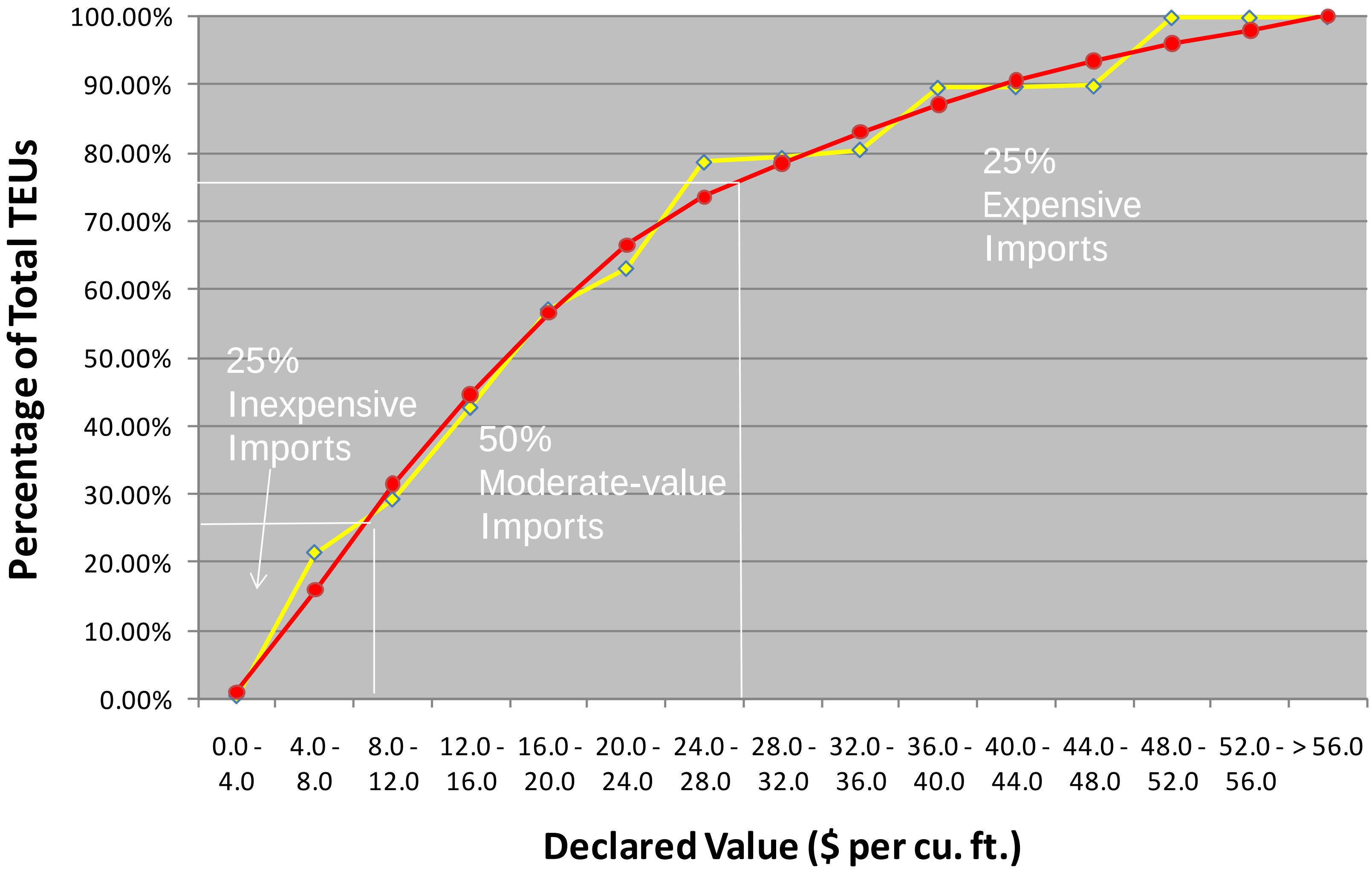
Policy Implications

- To serve large importers well, the whole portfolio of landside services is needed: IPI, cross-docks, import warehouses, domestic-container rail ramps
- There is an awful lot of local trucking for Push-Pull imports (1.6 trips per imported box)

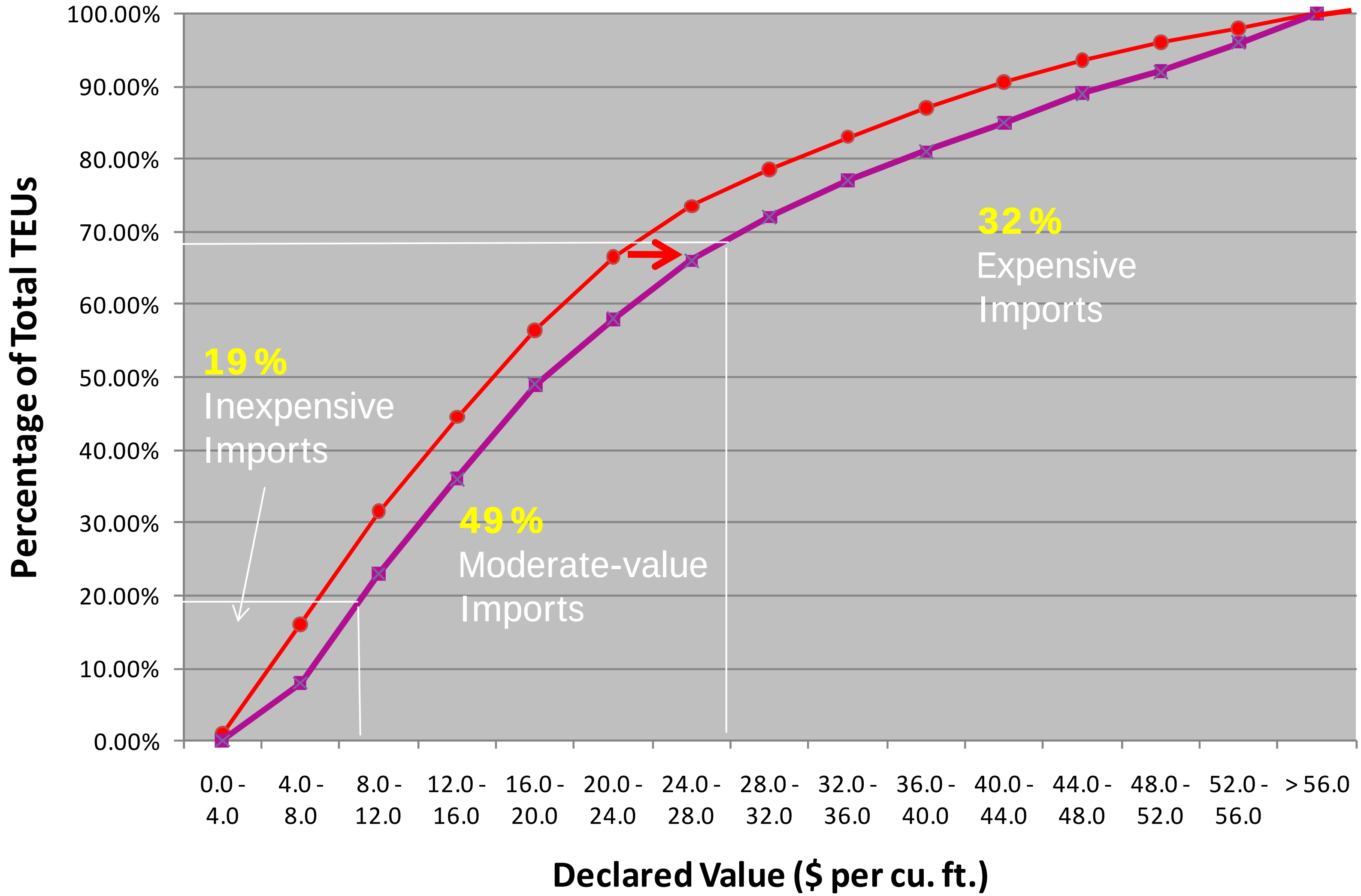
Policy Implications (cont.)

- At present, nation-wide, Push is 64% and Push-Pull is 36% (resulting in them being about equal at San Pedro Bay)
- But what happens after interest rates rise? After the Asian currencies are re-valued? After the market shares of the large, nation-wide retailers increase?

Value Distribution of 2005 Asia - USA Waterborne Containerized Imports



Value Distribution of Asia - USA Containerized Imports, 2005 Actual vs. After 15% Increase in Values



Policy Implications (cont.)

- At present, nation-wide, Push is 64% and Push-Pull is 36% (resulting in them being about equal at San Pedro Bay)
- But what happens after interest rates rise? After the Asian currencies are re-valued? After the market shares of the large, nation-wide retailers increase?
  - More Push-Pull!

Policy Implications (cont.)

- Local trucking is going to rise faster than imports rise, if:
  - More Push-Pull
  - New warehouses are located further away
- Should we take facilities location as a given?
- Or should we try to promote re-engineering of the supply chains for more efficiency?
  - More in the policy discussion ...