

Creating Supply Chains for International Trade

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CONTENTS

- 1. OVERVIEW OF INTERNATIONAL TRADE
- 2. INTERNATIONAL TRADE FACTORS
- 3. CASE STUDY OF GLOBAL SUPPLY CHAIN REDESIGN

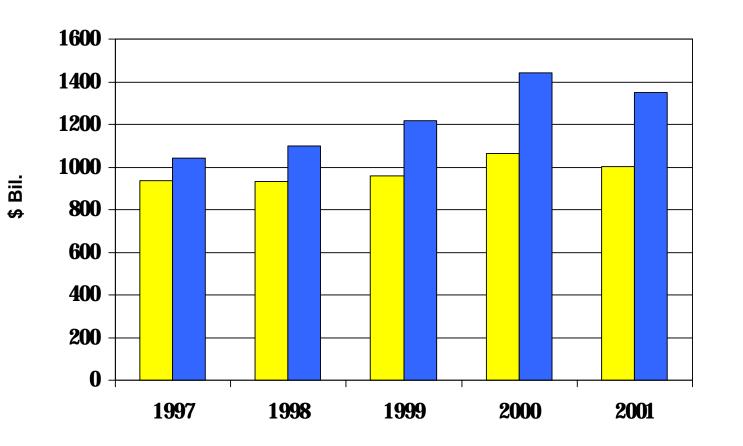
U.S. Trade and Gross Domestic Product



GDP (\$Bil.) 8318 8781 9268 9872 10205

U.S. Exports Average About 11% of GDP,

Imports
About
13%
of GDP





Source: Bureau of Economic Analysis & Bureau of Census, Foreign Trade Division





Top 20 Countries - Negative

Balance of	
Day	

	Payments		lmp	<u> </u>		Exports	
	(\$Mil)	Rank	(\$Mil)	Rank	(\$Mil)	Rank	
, China	-83833	1	100018	4	16185	11	
Japan	-81555	2	146479	2	64924	3	
Canada	-51897	3	230838	1	178941	1	
Germany	-29064	4	58513	5	29448	5	
Mexico	-24577	5	135926	3	111349	2	
Taiwan	-16097	6	40503	7	24406	7	
Malaysia	-14631	7	25568	10	10937	17	
Italy	-13982	8	25043	11	11060	16	
Venezuela	-13073	9	18623	13	5550	25	
Korea, South	-12478	10	40308	8	27830	6	
Nigeria	-9816	11	10538	22	722	59	
Thailand	-9768	12	16385	15	6617	22	
France	-9439	13	29800	9	20362	9	
Ireland	-8750	14	16464	14	7714	21	
Saudi Arabia	-8131	15	14365	16	6234	24	
Indonesia	-7965	16	10367	23	2402	38	
India	-7019	17	10687	21	3667	31	
Iraq	-6055	18	6066	31	10	181	
Russia	-5566	19	7659	28	2092	40	
Israel	-5219	20	12964	19	7746	20	
Top 20	-418916		957114		538198		
% of Total	96		79		69		
Total	-436104		1218022		781918		



U.S. Balance of Payments - 2001

Top 20 Countries - Positive

2001

+12 \$B

	Balance of Payments		Imports		Exports	
	(\$Mil)	Rank	(\$Mil)	Rank	(\$Mil)	Rank
Netherlands	12165	229	9671	26	21836	8
Australia	6044	228	6438	30	12482	15
Belgium	3996	227	9929	25	13926	14
Hong Kong	3133	226	11449	20	14582	13
Egypt	2446	225	888	64	3334	33
Argentina	1596	224	3099	41	4696	26
Brazil	1468	223	13853	18	15321	12
United Arab Emirates	1313	222	972	63	2285	39
Panama	1305	221	307	86	1612	45
Bahamas	794	220	275	91	1069	52
Jamaica	728	219	648	69	1376	49
Turkey	679	218	3042	43	3720	29
Greece	630	217	591	70	1222	50
Spain	609	216	5713	32	6322	23
Paraguay	405	215	41	130	446	67
Bermuda	389	214	39	132	428	68
Cayman Islands	348	213	7	167	355	73
Haiti	280	212	297	87	577	61
Lebanon	278	211	77	122	355	72
Barbados	268	210	39	133	307	76
Top 20			67374		106250	
% of Total			6		14	
Total			1218022		781918	

Change in Balance of Payments Since 2001

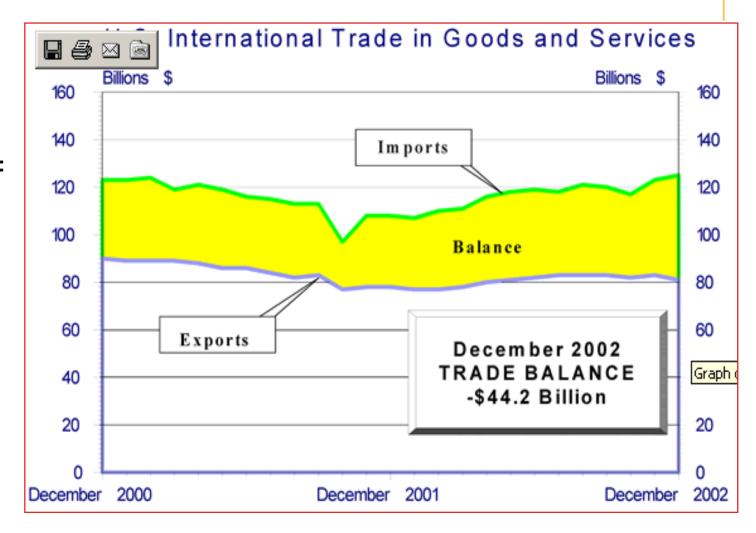


Change from 2001:

- Exports down by

\$25B

- Imports up by \$52B
- Total Exports \$973B
- Total Imports \$1408B
- Total Year 2002 Trade Balance was -\$435B



Source: Bureau of Economic Analysis & Bureau of Census, Foreign Trade Division

U.S. Balance of Payments - 2002 December 2002 Year To Date Deficit in Deficit in **Top 10 Countries - Negative** Millions Millions Imports > Exports of U.S. \$ of U.S. \$ -103,115.21 **was -S84B** CHINA -9,547.31 -103 **SB** JAPAN -7,129.97 -70,054.61 -4,560.81 CANADA -49,790.42 FEDERAL REPUBLIC OF GERMANY -35,852.01 -4,130.48MEXICO -37,201.57 -2,752.76-14,201.29 ITALY -1,379.05 Why China??? -1,308.38 -13,805.05 TAIWAN IRELAND -1,255.35-15,638.89 MALAYSIA -1,181.06 -13,661.68 FRANCE -1,127.73-9,389.14 Year To Date Surplus in Surplus in **Top 10 Countries - Positive** Millions Millions of U.S. \$ of U.S. \$ **Exports > Imports** AUSTRALIA 702.36 6,605.75 8,470.63 was +\$12B +8 \$B NETHERLANDS 587.26 HONG KONG 332.37 3,283.15 BELGIUM 3,507.69 211.24 EGYPT 181.98 1,514.23 UNITED ARAB EMIRATES 138.54 2,661.24 126.12 PANAMA 1,105.40 Why Holland??? JAMAICA 103.55 1,028.34 NETHERLANDS ANTILLES 70.10 380.42

KENYA

Source: Bureau of Census, Foreign Trade Division

51.32

82.64

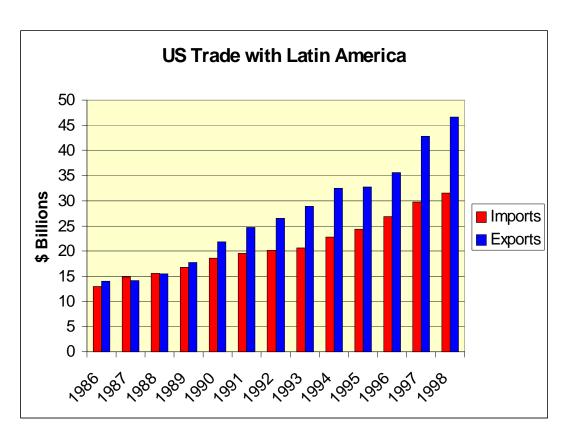


Trade with Latin America is growing

- 19% of US Trade is with Latin America
- 1998 Imports = \$31.5B
- 1998 Exports = \$47.7B
- Note the Trade Surplus

The internet is enabling
Latinos to see and buy
products from US companies
.... companies are getting
orders from customers they
never knew they had!

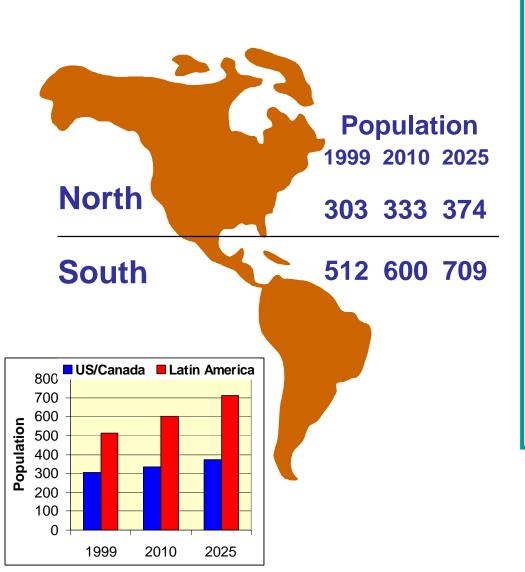
Many Latinos want to buy US goods Many US citizens want to buy Latin Goods.



Source: US Dept of Commerce

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Latin America is Big and getting bigger!



Latino influence in the US is growing rapidly too:

- In the US:
 - 28 Million Hispanics in 1999
 - 100 Million by 2050
 - High immigration rate
 - High birth rate
 - Will be largest minority by 2005
- In California
 - 40% of all school children today are Hispanic
 - 50% by 2006

The debate between the two leading candidates for the Gov. of Texas was in Spanish last week! Both are Latinos.

Source: Population Reference Bureau, 1999 World Population Data Sheet

Customs & Duties are major Trade Barriers



- "Moving at the speed of paper."
 - Rod Schonland, Polaroid Trade Counsel

- Typical delays of 2-5 days
- Onerous documentation burden on importers
 - commercial invoice
 - certificate of origin
 - bill of lading
 - freight insurance
 - packing list
 - import license
 - registration certificate
- Unique rules for each country
 - miles of fine print
- Special taxes and fees on many items
- Duties make imports too expensive: +60% by air courier

Enormous internet opportunity to speed things up.

Much of what slowed down the physical flow in the past has been lack of information & time to process information:

- 1) letter of credit,
- 2) import documentation,
- 3) payment of duties, and
- 4) release from customs

The Internet can remove the information bottlenecks.

Transmit the documents ahead of the shipment!!





Progress is being made

Automated Documentation

• ITM Corp of Seattle, WA,: Internet-based software to book and track shipments and print out documents such as customs forms and bills of lading.

American Shipper, Oct 1998

Pre-Inspection

- Some countries (e.g. Arg, Col) allow Pre-Shipment Inspection by authorized bonded inspectors
 - to speed up customs clearance
 - to combat corruption by in-country customs officials

Advanced Notice to Customs

- Some countries allow shippers to transmit import documentation to customs ahead of the shipment
 - US version is called Wheels Up, EDI linkage
 - Sealink's Export 2000 Web site enables firms to file export declarations, bills of ladings, and air shipment documents to the US Customs through the Internet.
 - Saves 80% of the cost of paper filings
 - Journal of Commerce and Commercial, Sept 22, 1997

Pre-Clearance

• Some countries (e.g Brz) allow Pre-Clearance for goods destined for use in Manufacturing (e.g. computer parts)



Electronic Supply Chain Manifest System (ESCM),

- 2.5 year freight ITS evaluation of an air cargo security and logistics system
- deployed at O'Hare and JFK international airports
- objectives of this test: increase the security of air cargo, improve efficiencies in operations.
- technology creates a secure intermodal electronic manifest system
- technology allows positive identification of the person responsible for the cargo and tracking capabilities for cargo movement within transportation modes as well as from one mode to another.
- standalone system that provides the secure transfer of information from manufacturer to motor carrier to airline
- time savings with the ESCM system come from automation of processes (e.g. notification of load pickup or acceptance).



Freight ITS Operational Test Evaluation Final Report, Department of Transportation, Publication No.: FHWA-OP-02-0XX December 2002



Some thoughts of an expert

Don Johnson, U.S. Chief Textile Negotiator American Shipper, Feb 1999

- "Globalization will make nation states less relevant in many areas, and so will the rise of supranational groups such as the World Trade Organization."
- "It's already evident that the rise of the Internet and other communication technologies, such as direct satellite broadcasting, has contributed to situations in which nation states cannot respond effectively. Yet attempts to restrict the Internet are futile, because such hurdles can be easily circumvented."
- "Electronic commerce will continue to expand radically, and further make national regulations irrelevant. That will change the face of commerce, retailing, and shipping."
- "I expect to see a continuing dispute between international buyers using electronic means to acquire goods and customs offices determined to interfere with the importing of such purchases."



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International Trade Factors

COSTS

- •local labor rates
- •local space costs
- •int`l freight rates
- •currency
- exchange rates

DUTY

- Duty& drawback
- impact of GATT
- •trading blocs
- transfer pricing
- duty suspension

TAXES

- Country-specific markups
- tax havens
- inventory taxes
- taxes on profits

MARKET RQMTS

product quality differences

EXPORT REGS

COCOMcountriesdenied partiesexport licenses

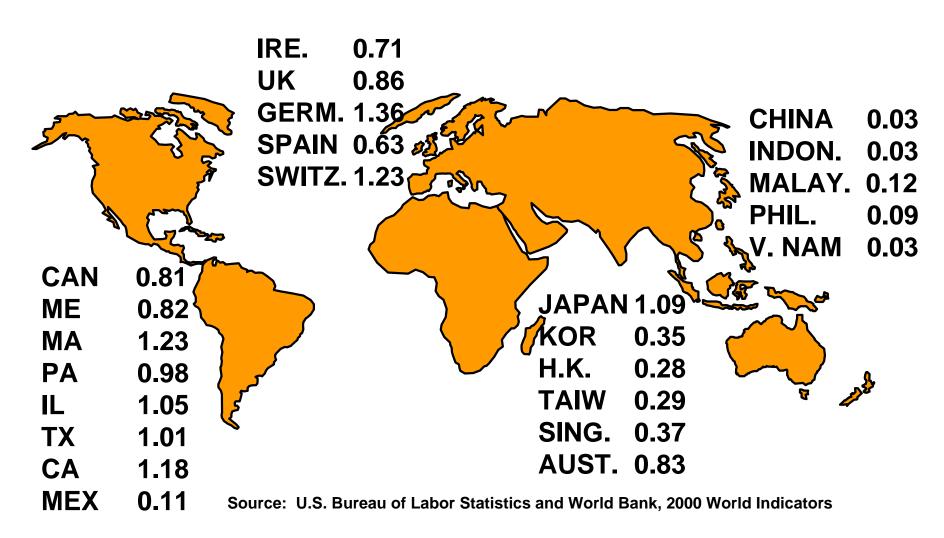
OFF-SET TRADE & LOCAL CONTENT

Local content requirements
GSP Generalized System of Prefs.
Off-set trade Requirements

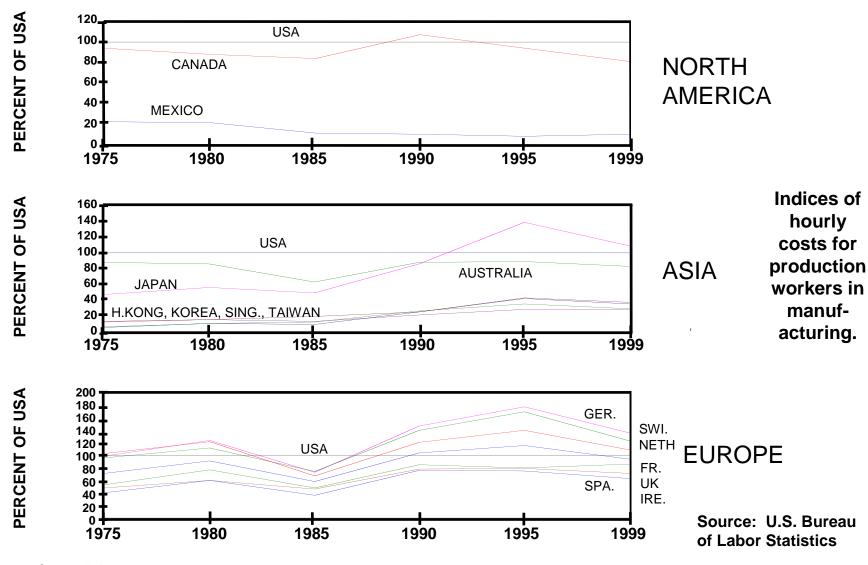
TIME

- •lead time
- •cycle time
- •transit time
- export license approval cycle
- •customs clearance

International Labor Costs



LABOR COST TRENDS





Currency Exchange Rates

Cumulative effect of changes in exchange rates

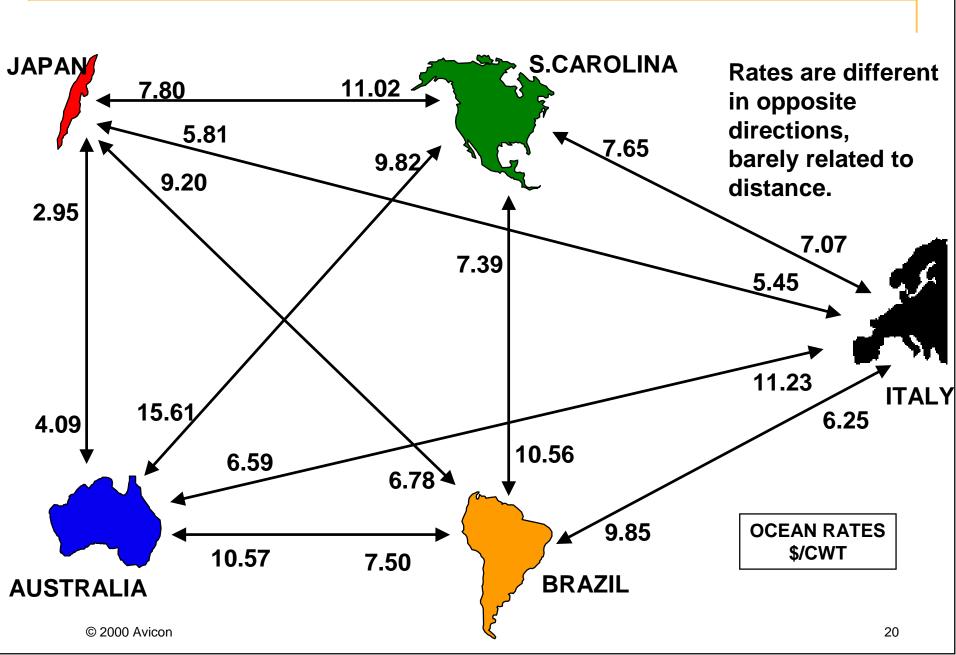
(Holding U.S. \$ constant)

As of Year 1975 1980 1985 1990 1995 1999 **USA** 100 100 100 100 100 100 Canada 100 87.0 74.5 87.1 74.1 68.4 Mexico 100 54.4 4.9 0.4 0.2 0.1 **Australia** 100 87.2 53.6 59.7 56.6 49.4 100 99.3 63.4 63.4 63.8 63.7 **Hong Kong** Japan 100 131.5 124.4 204.6 315.8 260.9 79.7 Korea 100 55.6 68.4 62.8 40.7 167.3 110.7 107.8 130.8 139.9 **Singapore** 100 Taiwan 100 105.5 95.4 141.2 143.4 117.6 France 100 101.5 47.7 78.6 85.9 69.5 Germany 100 135.3 83.4 151.8 171.4 133.7 Ireland 100 92.6 48.0 74.6 72.2 60.9 **Netherlands** 100 127.1 76.0 138.5 157.3 121.9 **Spain** 100 80.1 33.8 56.3 46.1 36.7 **Switzerland** 100 154.1 105.1 185.7 218.5 171.5 U.K. 100 104.7 58.4 80.3 71.0 **72.8**

Source: U.S. Bureau of Labor Statistics

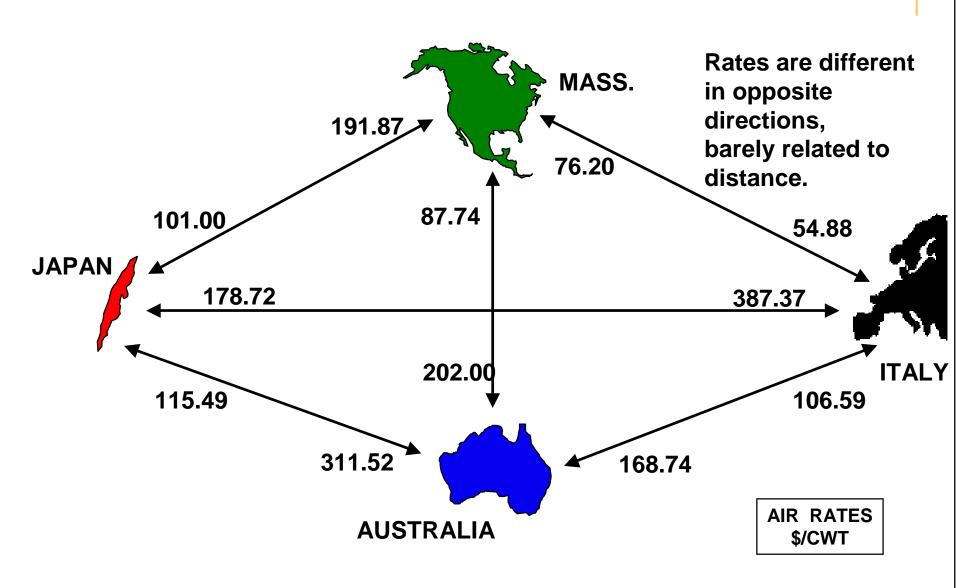
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International Freight Rates - Ocean





International Freight Rates - Air



In-Transit Inventory Carrying Cost

The least expensive mode depends on the cost/weight ratio and the inventory carrying cost rate.

AIR LTL OCEAN ITEM: COST: COST: COST:

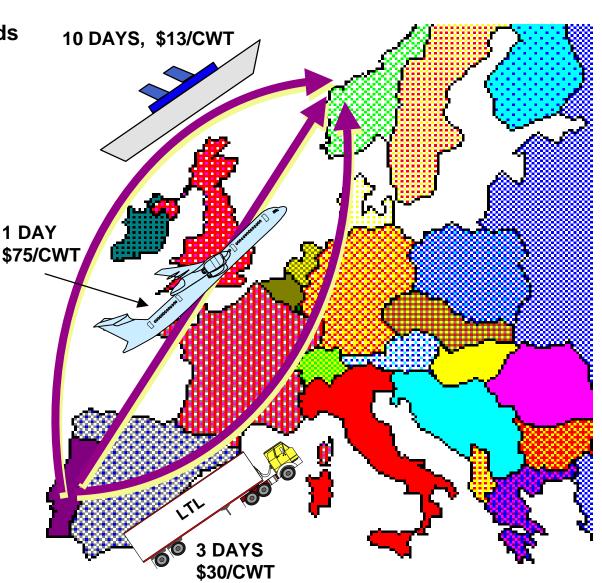
CPU \$900. \$0.69 \$1.88 \$6.18 CHIP 0.1 LB

EKG \$2000. \$27.62 \$14.61 \$18.25

Monitor 35 LB

CAR \$40 \$18.78 \$7.58 \$3.52

TIRE 25 LB



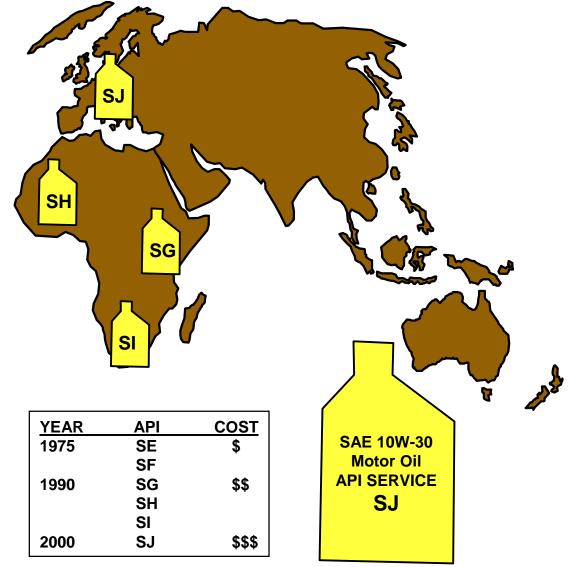
^{*} Assumes 25% annual inventory carrying cost.



Foreign Market Quality Requirements



Supply Chain Rationalization vs. Quality Give-Away???



International Factor: Duty

% Tariff	Japan &
----------	---------

	USA	EEC	Singapore	India	Mexico	Taiwan
Connectors	4.8	4.1	0	68.0	12.0	7.5
Disks	3.0	3.9	0	89.8	0	7.5
Drams	0	14.0	0	68.0	0	1.0
Fans	4.2	4.1	0	98.0	9.0	5.0
Power	0	3.9	0	89.8	12.0	7.5
PWB	4.8	5.9	0	61.0	0	7.5
Terminals & Printers	3.0	3.9	0	89.8	0	7.5
Modules (No CPU Chip)	0	3.6	0	80.0	0	5.0
Personal Computers (Including Motherboards)	3.5	4.4	0	89.8	12.0	5.0

















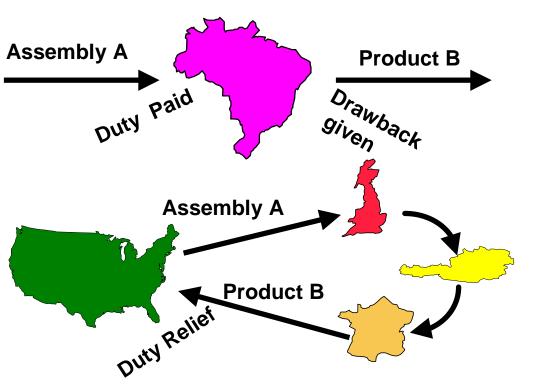
Japan 8	ጷ
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	USA	EEC	Singapore	India	Mexico	Taiwan
Connectors	0-1.9	0	0	35	10-15	0-10
Disks	0	0	0	0	10	0-10
Drams	0	0	0	0	0	0-2.5
Fans	0-4.2	3.2	0	35	15-20	5
Power	0-1	3.7	0	25	10-15	10-15
PWB	0-1.9	0	0	15	10-15	0-10
Terminals & Printers	0-1.7	0	0	15	20	0-10
Modules (No CPU Chip)	0-2.9	0	0	25	10	0-5
Personal Computers (Including Motherboards)	0-1.4	0	0	15	20	0-10

>> How Duty & Drawback Works



"Same Condition Drawback"



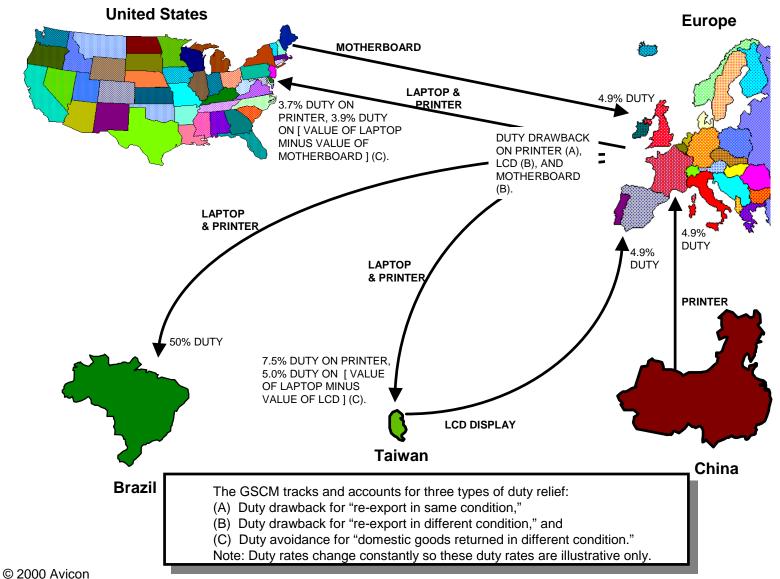
"Different Condition Drawback"

"Manufacturing Drawback"

"Domestic Goods Returned in Different Condition"

US: "Assembly Abroad"
EU: "Outward Processing Relief"

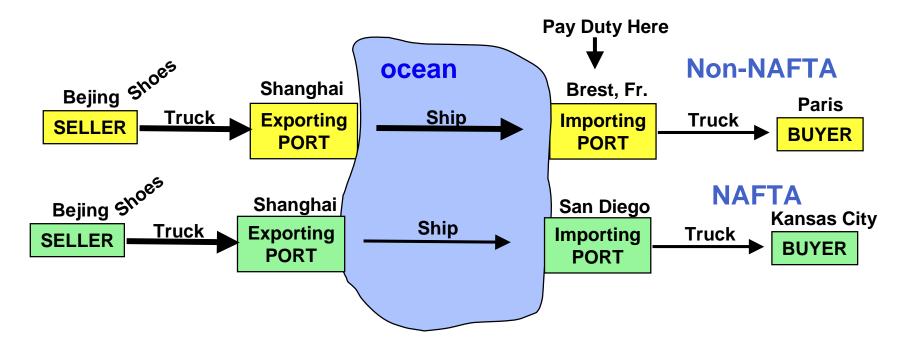
DUTY AND DUTY DRAWBACK EXAMPLE



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"DUTIABLE VALUE" ---> based on "CIF"

Cost, Insurance, & Freight



Non-NAFTA: CIF on all legs up to Import Port

Dutiable value is sum of:

- selling price of the shoes,
- freight all the way from Bejing to Brest,
- insurance all the way from Bejing to Brest

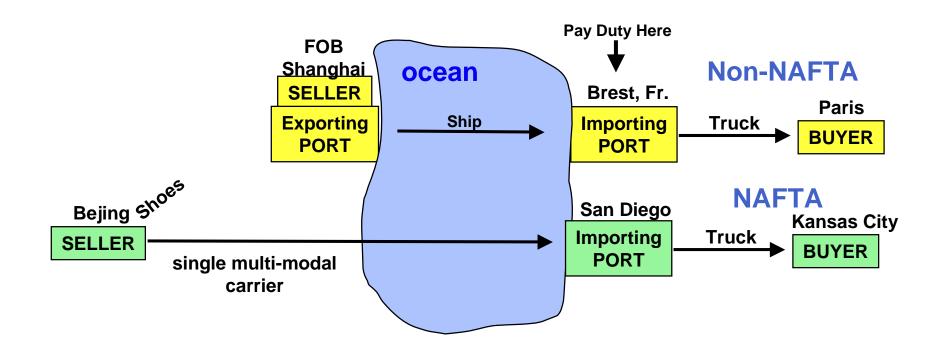
NAFTA: CIF on all legs up to Import Port except on international legs

Dutiable value is sum of:

- selling price of the shoes,
- freight from Bejing to Shanghai,
- insurance from Bejing to Shanghai.



Hiding domestic legs in the "DUTIABLE VALUE"



Non-NAFTA: CIF on all legs up to Import Port

Avoid paying duty on the freight and insurance on the leg from Bejing to Shanghai by having the bill of sale state that the goods were FOB Shanghai.

NAFTA: CIF on all legs up to Import Port except on international legs

Avoid paying duty on the freight and insurance on the leg from Bejing to Shanghai by having the bill of sale state that the goods were FOB Bejing. so the entire distance is part of the international freight.

•

MAJOR TRADING BLOCS - MAP

There are over 50 trading blocs in the world today.





TRADING BLOC MEMBERS

	NAFTA	ASEAN	GMS	(APEC)
USA	Х			Х
CANADA	X			X
MEXICO	X			X
CHILE	(X)			X
JAPAN				X
PERU				X
RUSSIA				X
CHINA				X
S.KOREA				X
TAIWAN				X
HONG KON	IG			X
SINGAPOR	_	X		X
INDONESIA	L	X		X
MALAYSIA		X		X
THAILAND		X	X	X
PHILLIPPIN	IES	X		X
BRUNEI		X		X
AUSTRALIA	=			X
NEW ZEAL	AND			X
PAPUA NE\	W GUINEA			X
LAOS			X	
MAYANMAI	R	X		
VIETNAM			X	
CAMBODIA			X	
YUNNAN PI	ROVINCE		X	

MERCOSUR

BRAZIL
ARGENTINA
PARAGUAY
URUAGUAY
CHILE
BOLIVIA

SAPTA

INDIA
PAKISTAN
BANGLADESH
SRI LANKA
NEPAL
BHUTAN
MALDIVES

ANDEAN PACT

ECUADOR VENEZUELA COLOMBIA

EU - EEA - EFTA

GERMANY FRANCE UNITED KINGDOM ITALY **SPAIN PORTUGAL DENMARK** LUXEMBOURG **NETHERLANDS BELGIUM** GREECE **IRELAND AUSTRIA SWEDEN FINLAND ICELAND** NORWAY LIECHTENSTEIN **SWITZERLAND**



TIB - Temporary

Import Bond

	•
Reclassification	Change the duty class of your goods to one with a lower duty rate.
In-country Manufacturing	Manufacture where you sell. Duty rates of raw materials is often lower than duty rates for finished goods.
Foreign Subsidiary	Sell the goods to your own in-country subsidiary who in turn sells it to the end customer. This reduces the entry price of the items.
GSP (Genrl. Sys. of Prefs) Sourcing	Goods sourced from GSP countries can be imported at a reduced or zero duty cost.
Bundling & Unbundling	Bundle together items if the higher level assembly enjoys a lower duty rate. Unbundle and separate out items that are not dutiable and import them separately.
Duty Suspension	If you are importing a unique items for which there are no local in-country suppliers you can apply for duty-free entry.
FTZ - Free Trade Zone	Free Trade Zones allow firms to import and add value to items, only paying duty on what is then brought across the line into the country. It enables firms to change the product form and delay duty payments.
Bonded Warehouse	Bonded warehouses allow firms to defer paying duty on items that are imported and avoid paying duty altogether for goods later re-exported.

© 2000 Avicon 32

A temporary import bond is used to avoid paying duties on items that will

be re-exported shortly. E.g. broken parts that come back for repair.



What about the World Trade Organization?

The General Agreement on Tariffs and Trade:

- seven-year negotiations concluded Dec.15, 1993.
- implementation began July 1, 1995, will occur in 5 & 10 year phases.
- promotes free trade but many conditions, exceptions, loop-holes

Lower Duties:

- over 40% of imports (worldwide) will be duty-free
- will cut duties on industrial goods by average of 33%

Prohibits "TRIMS"

- trade related investment measures, 2-7 year phase-out.
- local content and off-set trade requirements

Cleans up Gov't Procurement

- prohibits discriminatory procurement
- prohibits "offsets" (e.g. 3% adder for non-EC bids)

Eliminates "Technical Regulations" used to block trade

- e.g. Japanese barriers to US agricultural products

Standardizes rules and provides structure to settle disputes.



It's amazing how many people don't want free trade!!!

5TH WTO MINISTERIAL CONF. CANCUN, MEXICO SEP. 10-13, 2003



WTO PROHIBITS TRIMS & PROCUREMENT OFFSETS

CANADA:

Rationalization Program local content for gov't purchases.

EEC:

60% EEC content for gov't purchases

USA:

Buy America Act final ass'y + 50% US content for gov't purchases

MEXICO:

import duties tied to export volume

BRAZIL:

Market Reserve
Program - imports
tied to exports
generated

E.EUROPE/CIS:

Local manufacturing requirements

CHINA:

local manufacturing required

INDIA:

manufacturing required

JAPAN:

local final assembly req'd for market quality

perceptions

KOREA:

Joint venture req'd plus migration of technology

AUSTRALIA:

Partnership Program 40% offset trade for gov't procurement



Some Jurisdictions assess taxes based on the value of:

Real Estate

Equipment

Inventory

Example: Computer Plant where 90% of the output is exported.

- Real Estate valued at \$5.0 Million

- Plant & Equipment valued at \$13 Million

- Inventory valued at \$85 Million

Risk: That you will be taxed on the total value of the inventory.

Strategy: Negotiate for a Special Trade Zone which exempts

inventory for export. (Or find another location.)

Risk: That upgrades to plant & equipment will increase taxes.

Strategy: Negotiate for Tax Credits, Exemptions, and Tax Abatements

in return for local investments. (Or find another location.)



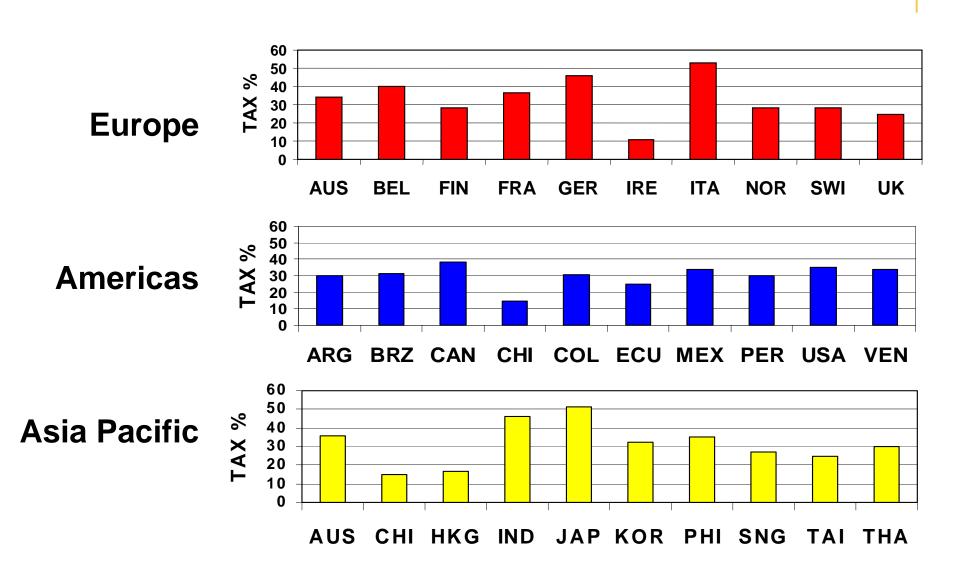
Taxes on Corporate Profits: Parameters

Major points:

- 1. Taxes in each country are charged based on how much profit was made in each country.
- 2. Tax rates vary significantly from country to country.
- 3. Profitability can vary significantly from product to product.
- 4. Margins can vary significantly from region to region. (e.g. same product priced differently in different markets)
- 5. Transfer pricing is used to establish intracompany selling prices (and thus establishes the profit margin in each country).



International Factor: Tax on Corp Profits



Tax Strategies

Sourcing in Tax Havens

Manufacture your most profitable products in the countries with the lowest taxes (Ireland, Singapore, Puerto Rico, Switzerland, China)

- make your least profitable products in the countries with high taxes,
- use plants in high tax countries for new product introduction only, not volume production

Set Up Foreign Subs

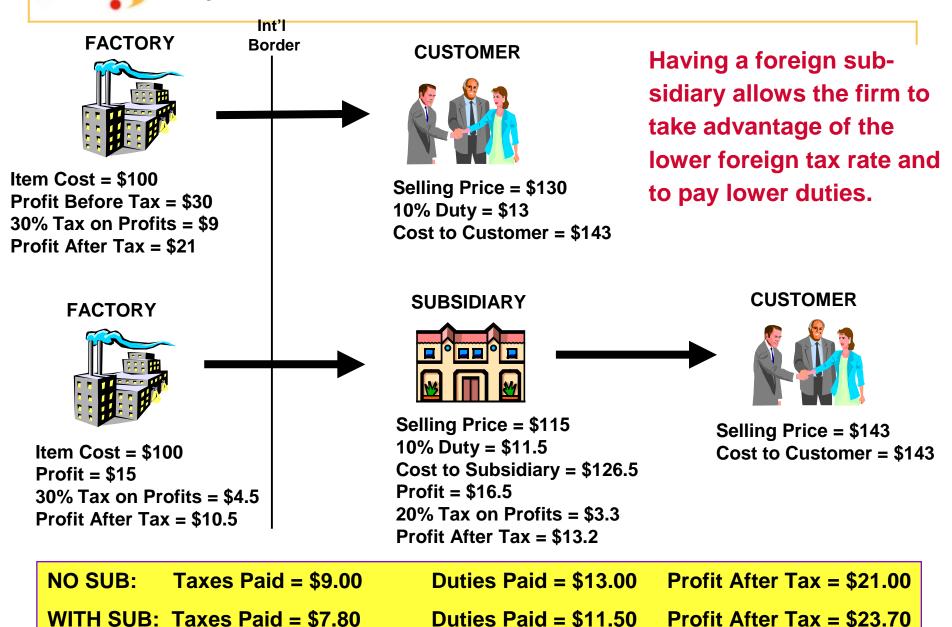
Set up foreign subsidiaries in the destination countries, then use Transfer Pricing to shift profits into countries that have lower tax rates. (much scrutiny nowadays).

- have the sub do enough value add to justify the transfer price delta

Foreign Purchases

Fulfill local content requirements in high-tax countries by purchasing there instead of manufacturing goods there.

Duty & Taxes Interact



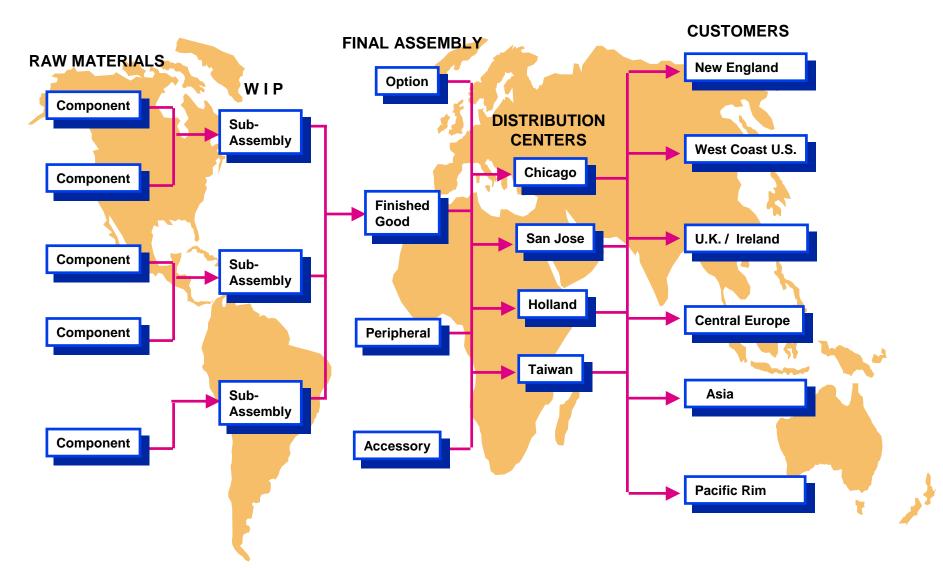


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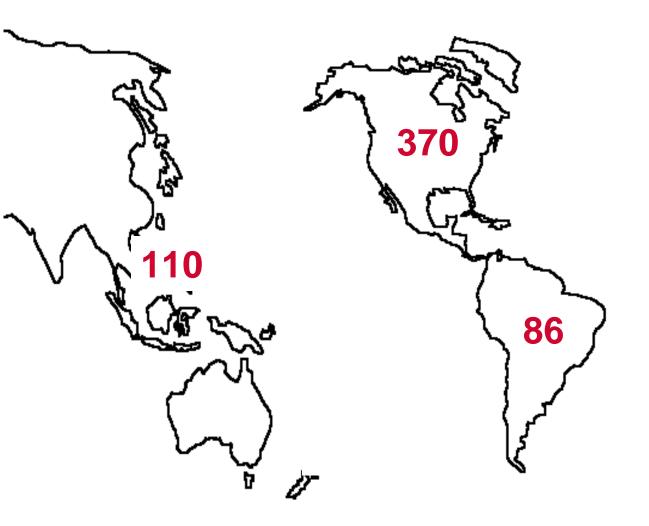
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International Product Supply Chain



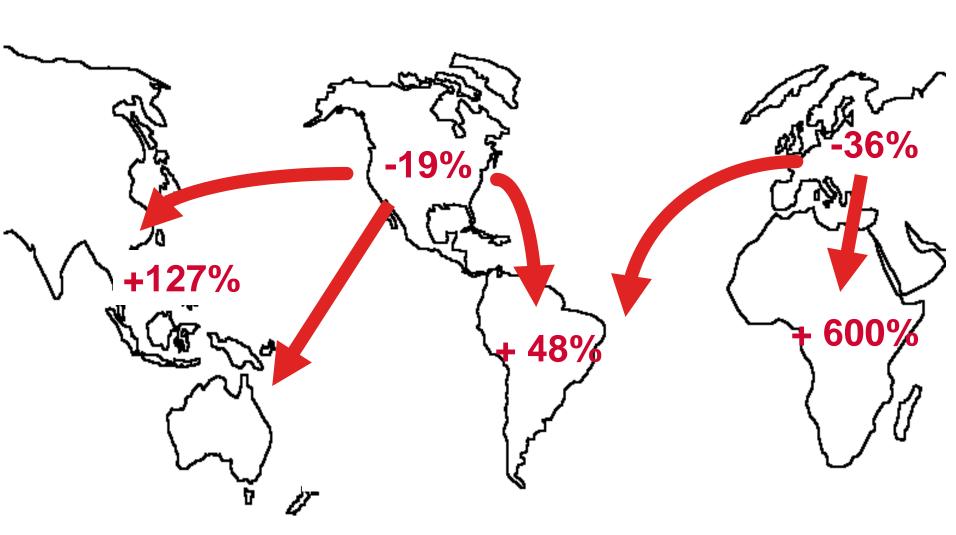
PRODUCT DEMANDS IN 1996



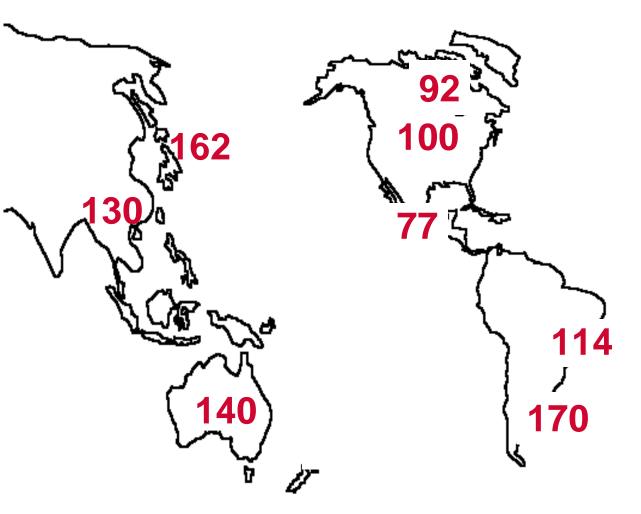




PRODUCT DEMAND SHIFT 1996 TO 2000



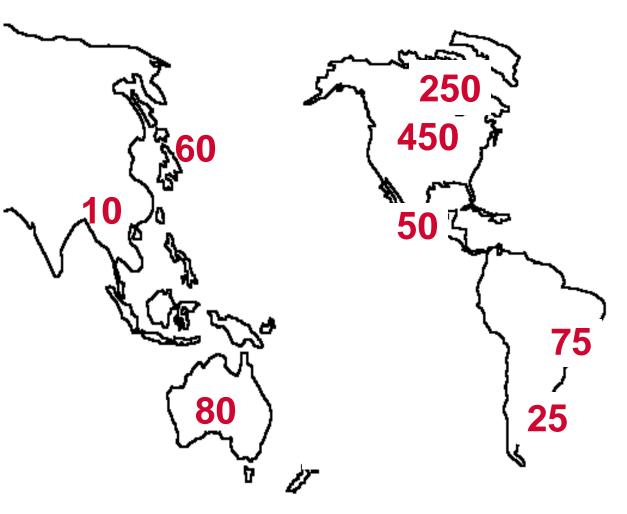
MANUFACTURING COSTS





INDEXED: US MEAN = 100

> MANUFACTURING CAPACITY

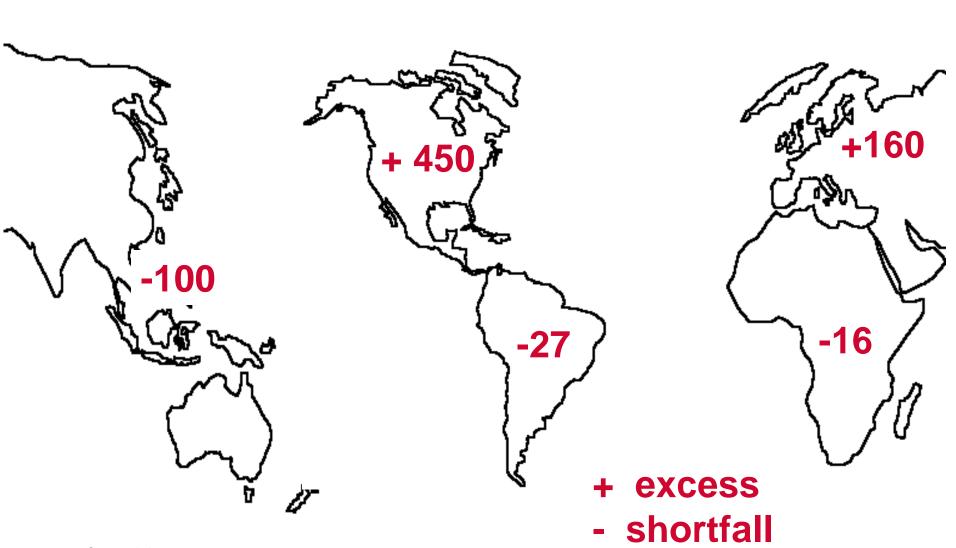




UNITS PER YEAR

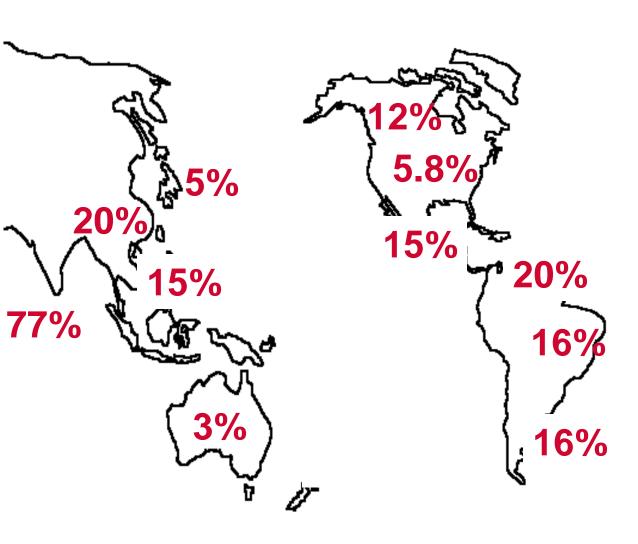


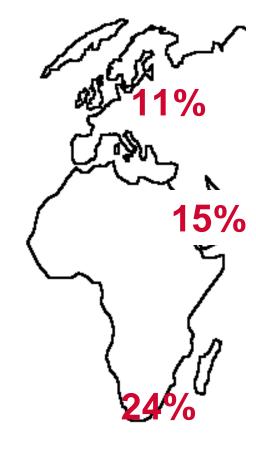
MANUFACTURING CAPACITY MINUS DEMAND IN YEAR 2000





IMPORT DUTY RATES







IMPORT DUTY RATES VARY BY ORIGIN, TOO

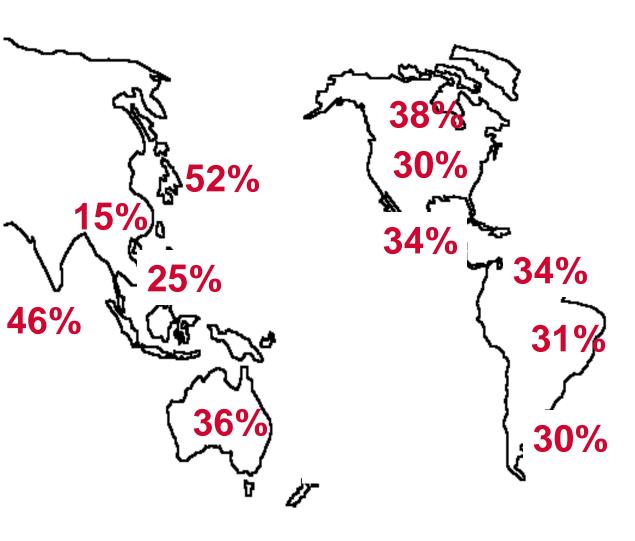
Example Data

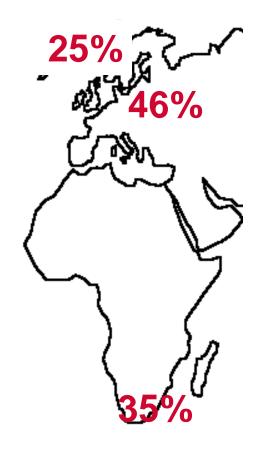
DUTY RATE PERCENT		DESTINATION							
		ARG	AUS	BRZ	CAN	EUR	JAP	MEX	USA
	ARGENTINA		4	0	8	0	0	15	0
O R I G I N	AUSTRALIA	16		16	12	11	3	15	6
	BRAZIL	0	4		8	0	0	15	0
	CANADA	16	4	16		11	3	6	1
	EUROPE	16	4	16	12		3	15	6
	JAPAN	16	4	16	12	11		15	6
	MEXICO	16	4	16	8	0	0		0
	USA	16	4	16	3	11	3	6	



CORPORATE TAX RATES

Example Data







> RESULTS OF SUPPLY CHAIN ANALYSIS

	Total cost \$ mill	Cost/Unit \$
1996 Baseline Cost (today's costs)	256	190
2000 Baseline Cost (yr 2000 cost if no changes - demand up by 9.4% but cost up by 23%	314	212
2000 Keep baseline, add line in Brazil	289	195
2000 Keep baseline, add lines in Brazil & Korea	a 287	194
2000 Optimize use of existing facilities - i.e. change loadings, network flows	286	193
2000 Optimize use of all facilities, add new lines in Brazil & Korea	~ 280	~ 191



End of Slides