

Global economic trends as they impact transportation

Workshop for Transportation Forecasters

Paul Bingham

Managing Director, Global Commerce & Transportation

IHS Global Insight

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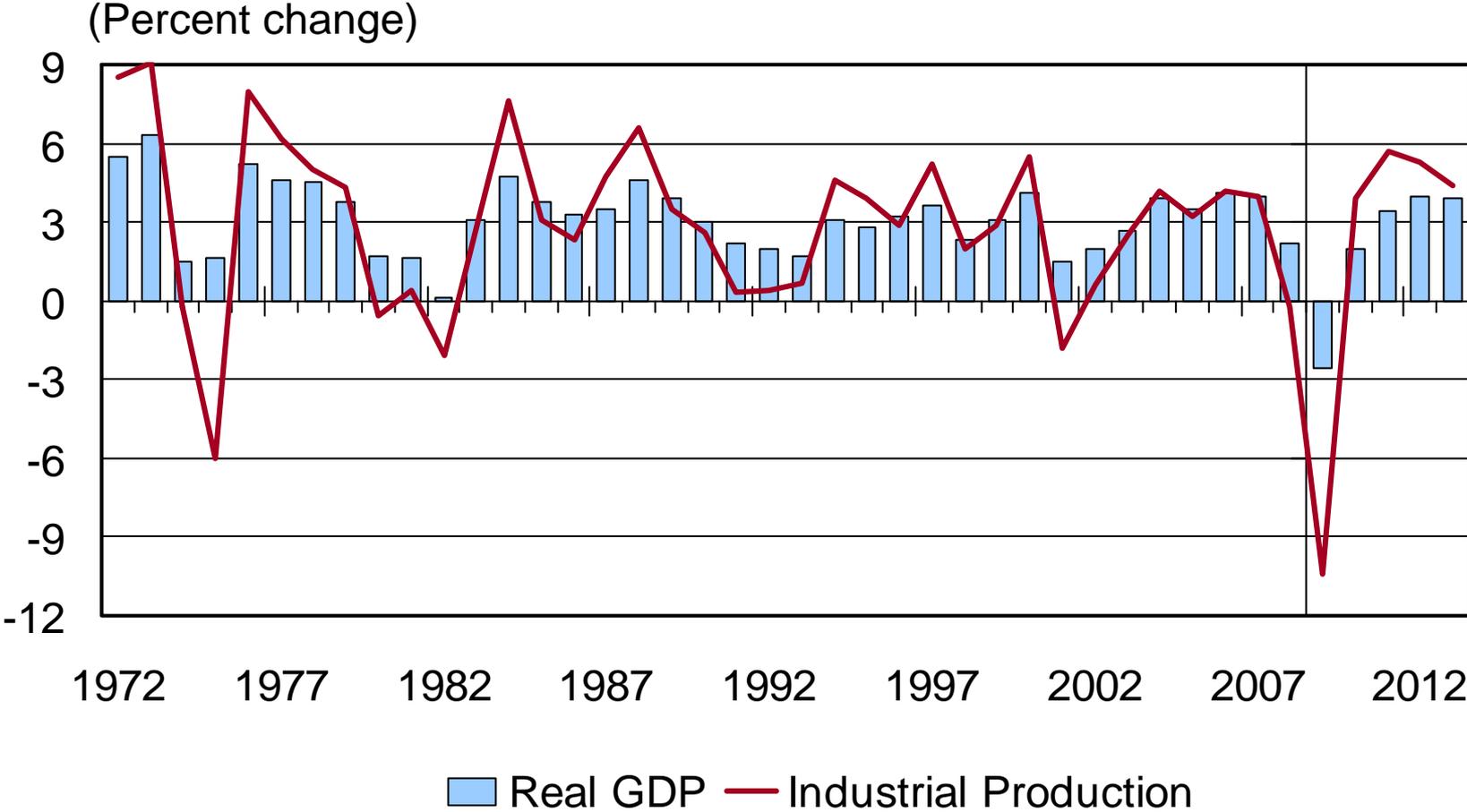


**GLOBAL
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Economic Trends Matter to Transport Demand

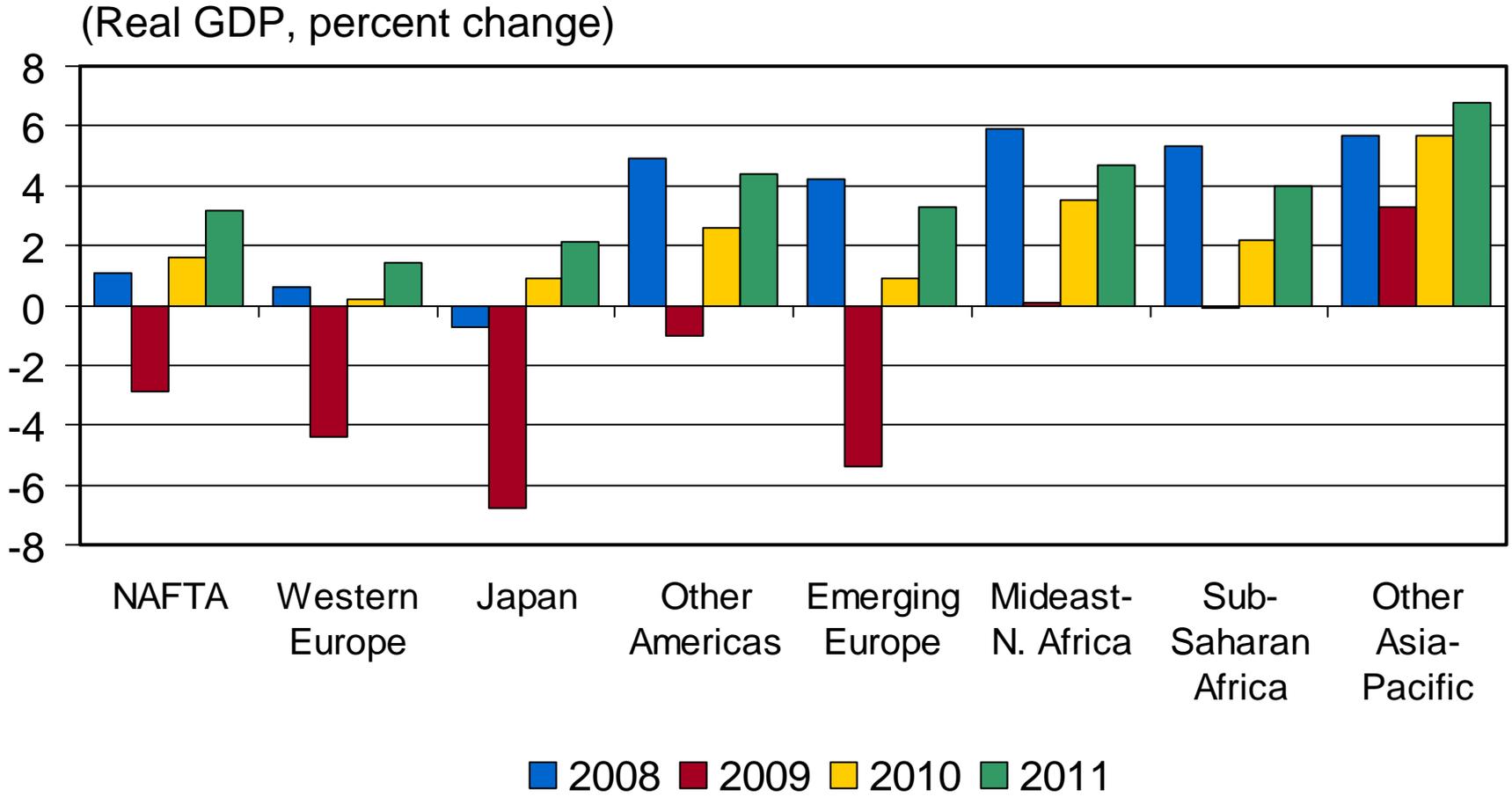
- Business cycle is forcefully alive and well in the world. Timing and size of recovery varies by country and region. Asia now leading.
- Inventory cycles of building and drawing down stocks are part of business cycle and for the freight system, magnify changes in underlying goods and transportation demand. Logistics costs and interest rates affect inventories.
- Overhang of public debt from fiscal stimulus remains a challenge where net payoff from infrastructure investments isn't clear.
- Financial markets affect business and consumer spending through (now more limited) availability of credit which limits spending to satisfy pent-up demand
- Pressure to minimize costs remains so supply chain evolution continues. Globalization is not dead or going to reverse though it will evolve.
- Demographics matter long-term. Country goods consumption and consequential freight demand depends on behavior and size of age cohorts across each economy.
- Environmental, safety, health, safety and labor policies all affect transport demand globally, with countries moving at different rates in adoption.

The World Economy Has Suffered the Worst Recession of the Postwar Era



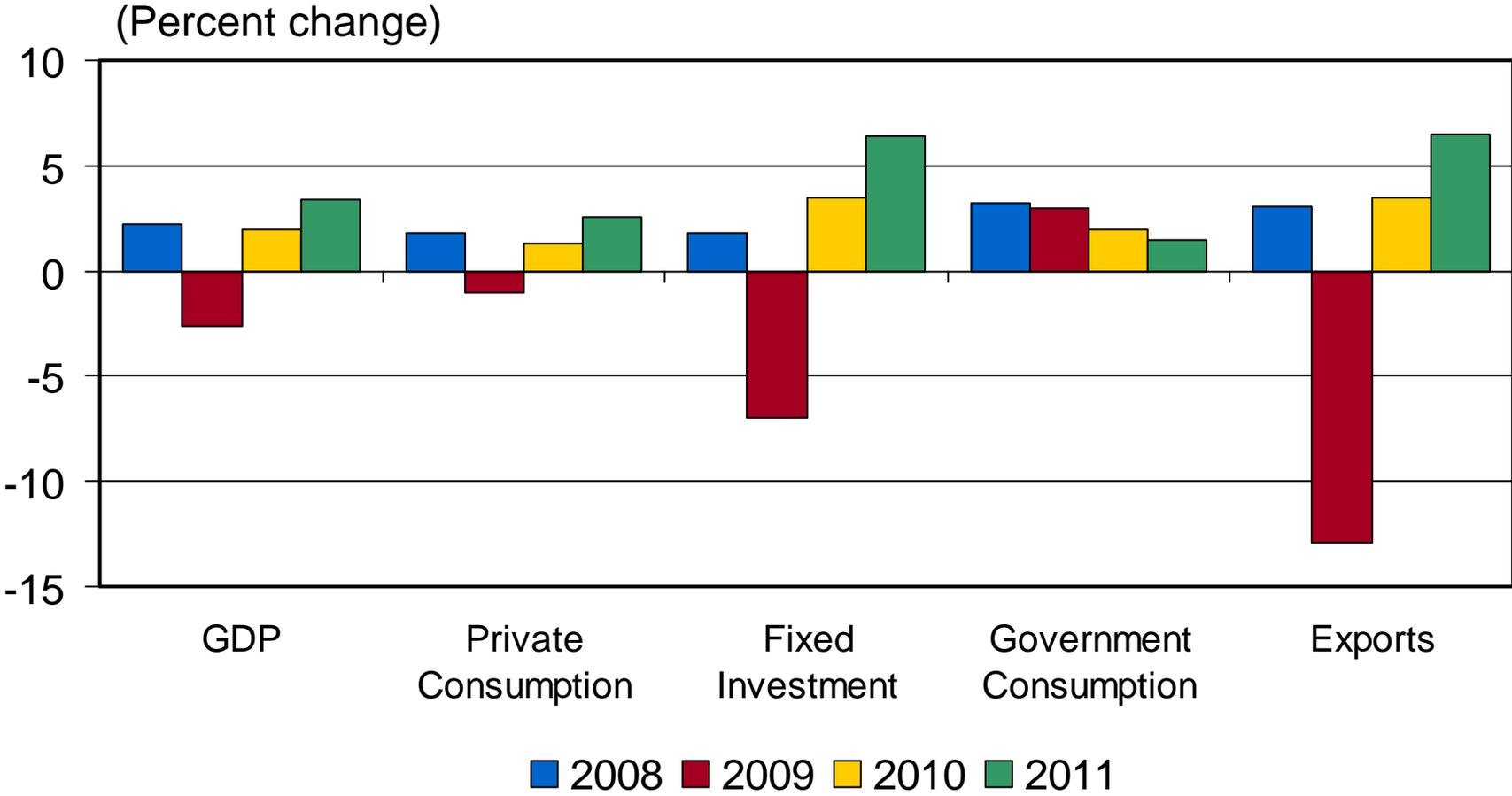
Source: IHS Global Insight

Economic Performance Varies by Region



Source: IHS Global Insight

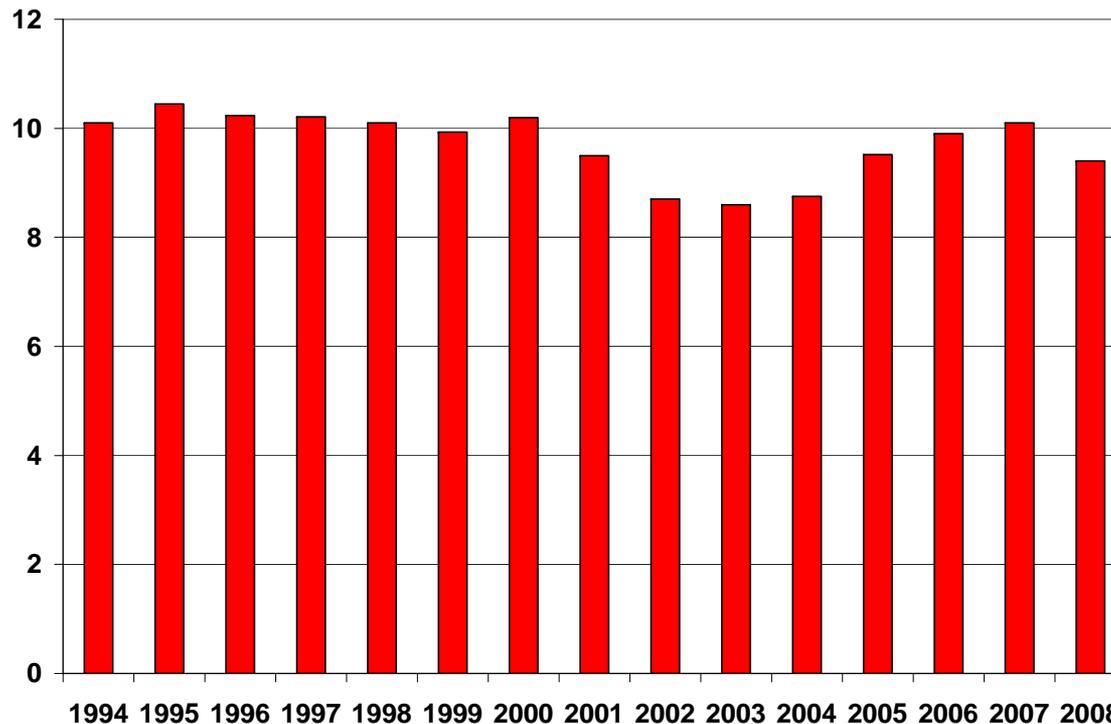
World Real Economic Growth by Sector Shows Trade Affected the Most in this Recession



Source: IHS Global Insight

Logistics Cost Trends Affect Inventory and Transportation Services Demand

U.S. Logistics Costs as % of U.S. GDP



- Shippers manage logistics costs, not just transportation costs
- As % of GDP, logistics costs increased from 2003 until 2007

Source: CSCMP State of Logistics Report, 2009

Globalization of Supply Chains Continues

- Reduced prices for traded goods and services; increased quality and choices available ... growth in number of SKUs to reflect competition
- Importers benefit from foreign resources and labor
- Exporters benefit from larger, more open markets
 - ... *If* firms are world-class competitive
- Transportation and distribution sector performance is key enabler
- Advances development of trade partners' economies
- Shifts in economic geography, inside and out of the U.S. continue
- Environmental, Safety and Security impacts affect shape of globalization

Globalization of Supply Chains Continues (2)

- Rationalization of demand-driven, time-definite shipping requiring more reliability and visibility balanced against cost, security of transit and options
- Increasingly distributed, point-to-point, even direct-to-customer shipments (e.g., Asia direct to store) advances decentralization of shipping patterns balanced against costs savings from economies of scale from density.
- Demand for more efficient flows – more products per shipment; pre-blocking containers on ships for intermodal trains; reducing MTs – all are examples of dynamic shipping operations practices
- Overall, trade in lighter weight, higher value products outpaces growth in bulk commodity categories, meaning modal mix shifts.

Globalization Affects the Inland System

With recovery, global trade growth is likely to again be faster than the growth of domestic system capacity across airports, seaports, terminals, railroads, trucking, warehousing and labor

(Partial) Solutions:

- Integration of international transportation with domestic transportation will increase further; changes in transloading practices; more “hub and spoke” (inland) distribution; more use of intermediate ‘bulk’ import DCs
- Some import strategies incorporate use of smaller, more frequent shipments to be more responsive to market demands. This favors truck vs. rail; intermodal container vs. intermodal rail trailer
- Improved (double-stack) intermodal rail service captures more line-haul long-distance trucking (not just TL either)
- However, additional (regional) trucking growth swamps other domestic mode growth; truck remains the default solution within the US

Globalization and Financial Markets Driving Shifts in Sourcing Geography and Domestic Economy Link to Freight

Globalization saw shifts in Foreign Direct Investment (FDI) looking for cheaper and more efficient costs of production

- In the 1960's-1980's Europe and Non-China Asia benefited
 - 1990s onward China, India and Vietnam
 - In future, Africa? (If political stability spreads)
-
- Globalization has resulted in shifts in sourcing of goods and services that diminishes the link between a domestic economy (GDP, Demand, Production) and the growth rate of transport

Will Growth Rates Of Recent Years Return?

Growth yes, but at slower rates

Volumes recover from recession within a few years

- As goods manufacturing off-shoring matures and further shifts of production slow, growth levels will begin to fall closer to growth in consumer demand
- Change in product mix in U.S. imports since 1995
 - Rising unit value of Asian-sourced goods from cheap plastics to expensive garments, furniture, electronics and machinery
 - Change in packing materials and requirements leading to more containers per ton of freight
- The Next Wave = less consumer end products + more (select) automotive and manufacturing components

Demographics Matter: Key Markets in 2008

	GDP (\$Billions)	Population (Millions)	GDP per Capita (\$)	Real GDP Growth (%)
China	4,326	1,328	3,258	9.0
India	1,223	1,186	1,031	6.0
Brazil	1,574	195	8,062	5.1
Mexico	1,086	106	10,203	1.4
Russia	1,677	142	11,826	5.6
Turkey	726	76	9,575	1.1
U.S.	14,265	305	46,713	0.4

Future U.S. Trade Patterns Will Be Influenced By Trade Partner Growth Capacity

China – World's Factory Floor Role Shifting

- GDP growth 11% for 2006 and 2007; 9% in 2008 and half that in 2009. Growth during recession due to government stimulus and growth in domestic China market (e.g. world's largest auto sales market is now China, not the USA.)
- Sectoral imbalances in China remain large
- ...And a large trade surplus adds to financial and political pressures
- Thanks to low wages, strong productivity growth and inland infrastructure investment, China will remain a manufacturing powerhouse even while losing global export market share to countries like Vietnam.
- China trade growth shifting away from N. American focus toward Europe and developing world

India has seen Rapid Growth but which Sectors?

- India's long-term growth (upwards of 7%) is sustainable
 - GDP growth 8.5% in 2010
 - Government policy slowly liberating trade
- Services have been a great success for India international goods trade
- Despite current account deficits, external finances were healthy going into the recession and FDI declines will see rebound, some of which is tied to exports
- Consumer spending and home-building are growing with growth of urban middle-class populations
- But India is still a relatively closed economy with high tariffs, inadequate infrastructure, and a large fiscal deficit

Japan: An Epic Recession as Population Drops

- Collapse in exports and capital spending sent Japan into a deep recession—the deepest among the G7 countries
- Deflation persists; nominal GDP is at its 1993 level
- Consumer spending remains weak
- Industrial production and real exports are recovering
- Japan's population has entered a long-term decline

Long-term world growth is not uniform: Market shifts continue and will affect U.S. trade and transportation

(Country GDP Rank in Billions of Real (2003) U.S. Dollars)

2000	2010	2020	2030	2040	2050
U.S.	U.S.	U.S.	U.S.	U.S.	China
Japan	Japan	China	China	China	U.S.
Germany	Germany	Japan	Japan	India	India
U.K.	China	Germany	India	Japan	Japan
France	U.K.	U.K.	Russia	Russia	Brazil
Italy	France	India	U.K.	Brazil	Russia
China	Italy	France	Germany	U.K.	U.K.
Brazil	India	Russia	France	Germany	Germany
India	Russia	Italy	Brazil	France	France
Russia	Brazil	Brazil	Italy	Italy	Italy

Source: Global Insight World Service and Goldman Sachs, 2006

The Panama Canal Lock Expansion



Today handles the large majority of Asia-US East and Gulf Coast Cargo

- Undergoing a major expansion plan for 2014, financed by higher tolls

The Suez Canal - Restrictions are Tolls and Time



- **Few Size restrictions; can handle the world's largest ships (in ballast)**
- **Growth in container traffic reversed with Somali piracy, tolls and drop in demand from recession**
- **Services from Asia to North American East Coast have been tried with limited success so far**
- **Sailing time from Singapore is about equal through Panama or Suez**

Challenges in Freight Transport Modeling

Global intermodal supply chains are increasingly complex and time sensitive

- “NIMBY-ism”¹ impacts every step of the supply chain in the U.S. – adding policy challenges, new delay, higher costs and changing historic relationships we’re trying to model
- U.S. has moved from a manufacturing to a trading nation, and logistics is its lifeblood
 - **Forecasting has to allow for evolution of market geography and industry structural change and slow-to-adapt policy**

1. NIMBY is common acronym for ‘Not In My Back Yard’

Challenges in Freight Transport Modeling

- Environmental issues are no longer an afterthought.
- Governments in freight-intensive areas have begun to charge for environmental impacts. Externalities matter.
- Carbon 'footprinting' has already started in the private sector.
 - Freight carriers have begun to contend with it.
 - Carbon emissions will become a selection criterion in transportation purchasing decisions.



Challenges in Freight Transport Modeling

- Developed-world freight project infrastructure planning and management takes over a decade. Many major projects fall 5-8 years behind schedule. Modeling must take into account diversions / substitutions due to institutional barriers to efficient capacity being planned for and provided when needed.
- Technology and operational practices within the supply chain are advancing over a much shorter time horizon.
- Public processes affecting freight will be slower and less flexible than needed to be effective and the world moves on regardless.
- Environmental decisions / permitting. Some countries are moving ahead with environmental regulations and laws.

Challenges in Freight Transport Modeling

- Impedance to trade is lack of coordination between countries / organizations which leads to inefficiencies
 - Any border crossing – between nations, states, or municipalities - with inconsistencies in the regulations affecting freight, can raise transportation costs.
 - Increasing transport costs raise product prices or reduce available levels of service, all of which affects the shipping public and ultimately the consumer and future transport activity.
- Local decisions do not remain local.
 - Increasing consumption of products from across the country and overseas, means decisions made locally that change the cost of transportation can have a downstream effect on consumers in far off locations. The converse is also true for sources of influence.

Conclusions & Recommendations

- Freight forecast modeling faces global challenges
- More external factors driving growth in demand
- Internal activity must recognize external reactions
- Markets and governments will determine success – or failure
- Mechanisms to forecast impact on freight imply use of exogenous forecasts of non-freight indicators
- Addressing risk and uncertainties call for additional modeling

Thank you!

Paul Bingham

Managing Director, Global Commerce and Transportation

paul.bingham@ihsglobalinsight.com

202.481.9216



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