



Pandemic: An Economist's View

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SARS ... 2003



Worldwide:

- Only 8,078 Cases
775 Deaths

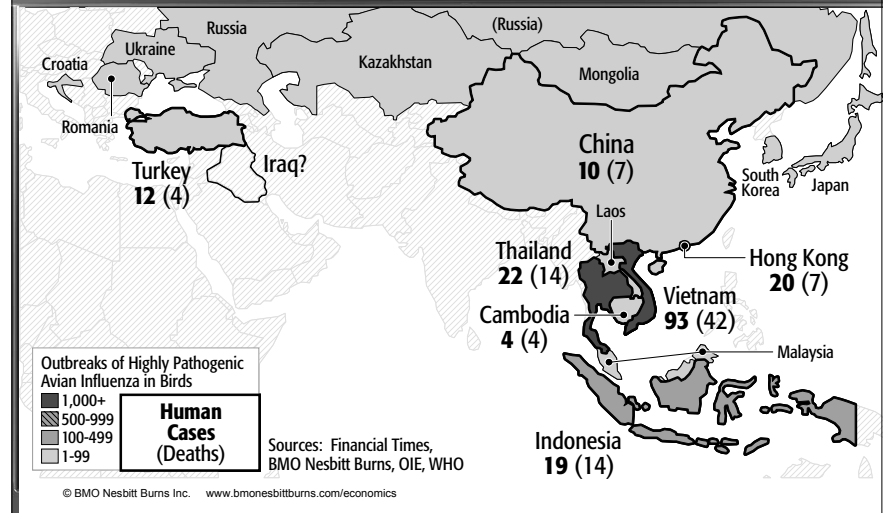
Toronto:

- 252 Cases
44 Deaths

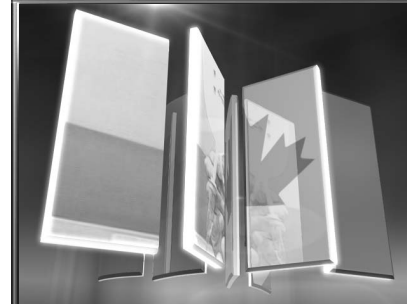
**Very Mild by Pandemic Standards
... Still Disruptive**

160 Human Cases of Avian Flu ... 85 Confirmed Deaths

Outbreaks (as of Jan. 26, 2006), Human Cases & Deaths (May 1997 – Jan. 30, 2006)



SARS in Canada ... Some Hospitals at Surge Capacity



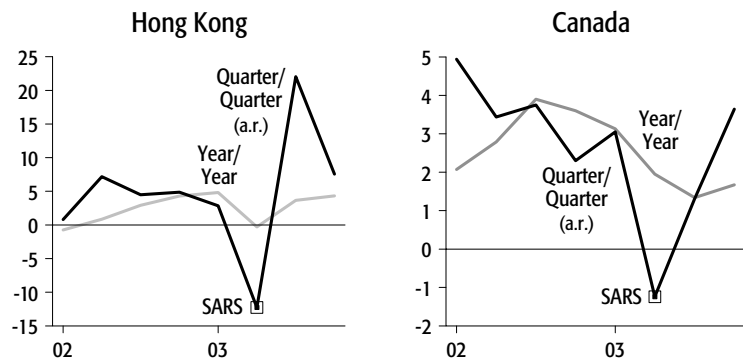
Canada:

- Hospital and School Closings
- 15,000 Quarantined
- WHO Warns Not to Travel to Toronto
- Tourism & Hospitality Business Crushed

Bad Public Relations

SARS ... "Minor" Impact

Real GDP (% chng)



Quick Recovery

Today's World: National Economic Boundaries Blur



- Just-in-Time Management
- Globalization
- Multinational Corporations
- Global Travel
- Competition

More Interconnected than Ever Before

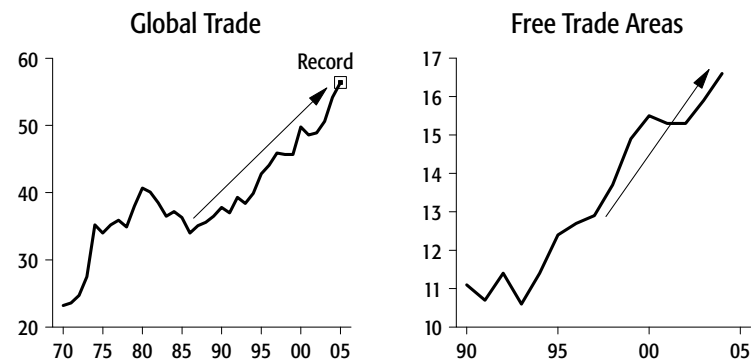
No Country is Self Sufficient



- International Supply Chain
- Shortages Already

Burgeoning Trade

Exports + Imports (% of global GDP)



Markets Without Borders: What if Borders Close?

Free Trade = ANDEAN+ASEAN+EU25+MERCOSUR+NAFTA intra agreement trade Sources: IMF, WTO

Large Companies Have Global Operations



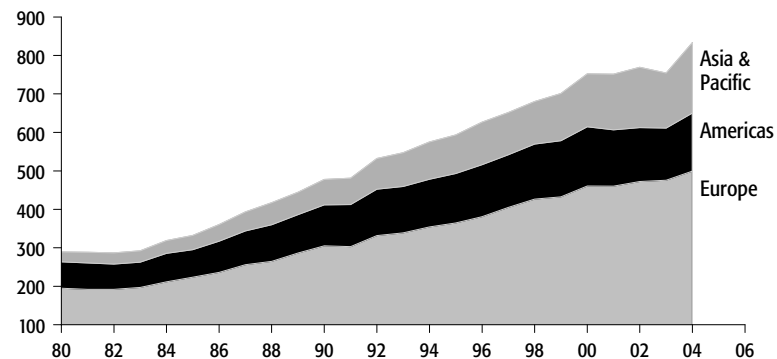
Multinational Corporations:

- 70,000 Worldwide
- 690,000 Foreign Affiliates with almost US\$19 trln in Sales

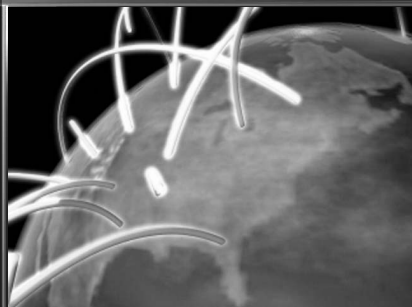
Globetrotters

(mlns)

International Travellers



A Well-Travelled World



World Travel and Tourism:

- 10% of Global GDP
- 8% of Global Jobs

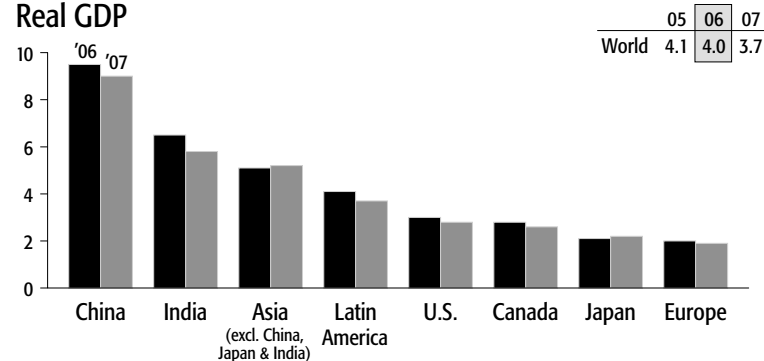
**Generated Over US\$4 trln in 2005
... Employs Over 200 mln People**

Source: WTTC

Global Growth Strong

(ann % chng)

Real GDP



China the Global Growth Leader

Ranked by '06

China: Second Largest Economy

GDP (% of global GDP)

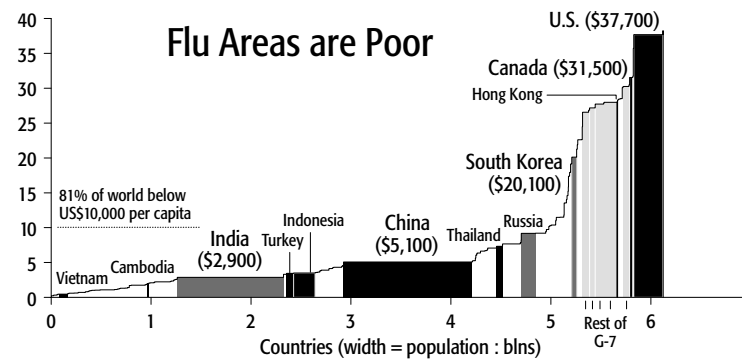
	Today	1989	
United States	21	22	Big Jump!
China	14	6	
Japan	7	8	
India	6	4	
Germany	4	5	
United Kingdom	3	4	
France	3	4	
Italy	3	4	
Brazil	3	3	
Russia	3	5	
Canada	2	2	

Based on PPP
Exchange Rates
Source: IMF

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The Wealth of Nations

GDP per Capita – 2003 (US\$ 000s : PPP-terms)



South Korea GDP per Capita 1/2 of U.S.
... China 1/4 of South Korea

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The Very Poor are Dying of Bird Flu

Gini Index

Brazil	59.3	Indonesia	34.3
Philippines	46.1	Canada	33.1
China	44.7	France	32.7
Hong Kong	43.4	India	32.5
Thailand	43.2	South Korea	31.6
Singapore	42.5	Russia	31.0
U.S.	40.8	Ukraine	29.0
Cambodia	40.4	Germany	28.3
Turkey	40.0	Norway	25.8
Vietnam	37.0	Sweden	25.0
Italy	36.0	Japan	24.9
U.K.	36.0		

GINI INDEX ... measures income inequality: zero represents perfect equality, 100 represents perfect inequality
Source: Human Development Report 2005, United Nations

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Commodity Boom Would Bust with Pandemic



China is Key

Prices on Multi-Year Uptrend
... Huge Boon to Canada

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China's Huge Demand for Resources

China



China's Use of World's Supply:

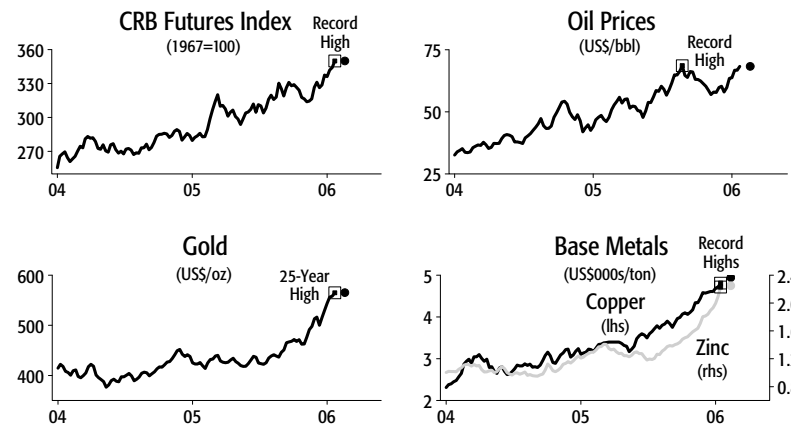
- Cement 47%
- Iron Ore 30%
- Steel 30%
- Aluminum 21%
- Coal 20%
- Paper 14%
- Pulp 12%
- Energy 12%
- Oil 8%

Energy = Oil, Gas, Coal, Electricity

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Commodities Surge

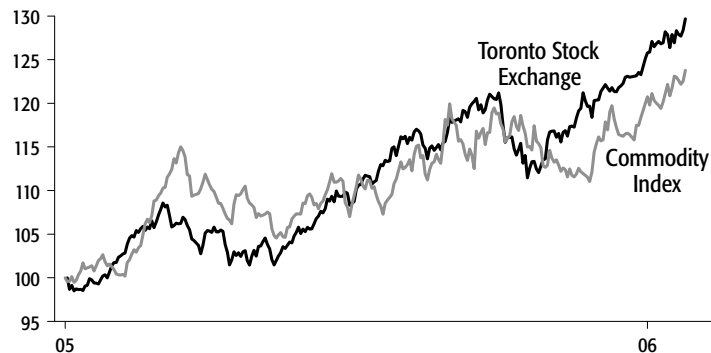
(as of January 30, 2006)



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For Better or Worse

(January 1, 2005 = 100)



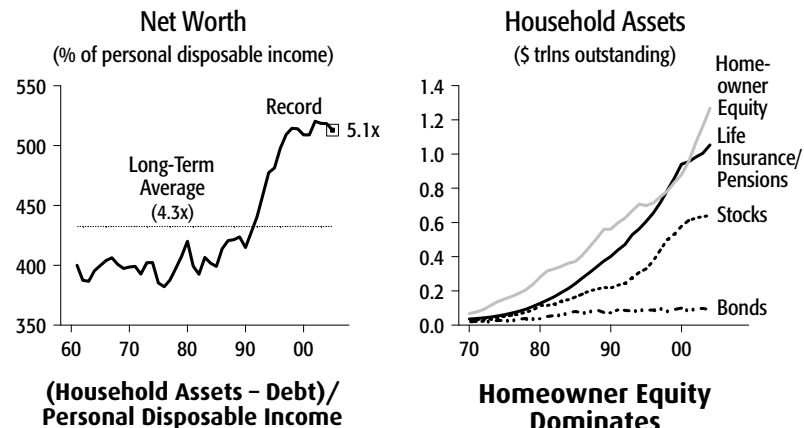
Commodities Drive TSX

Commodity Index = CRB Futures Index

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Wealth At Risk ... All Gains on Paper

Canada



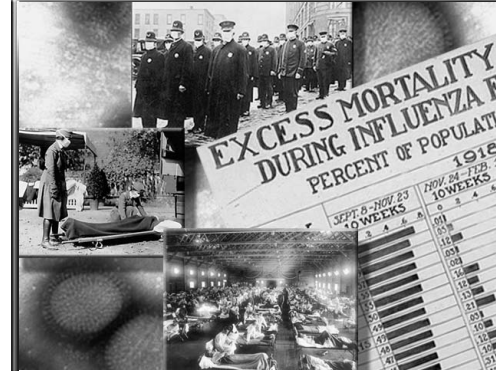
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Severe Pandemic



- Initial Panic
- Border Closings
- Absenteeism
- Months of Slowdown
- Economy Hit Hard

Pandemic Unlike Other Natural Disasters



- Pervasive
- Prolonged

Fear and Panic



- Unruly or Criminal Behaviour
- Inadequate First Responders

Security and Safety

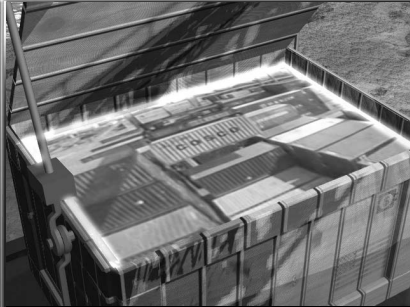
Communication Essential



- Clear and Frequent
- Pandemic Action Plan

To Offset Media Hype and Rumours

Supply Risks



- Just-in-Time Management
- Travel and Transport Disruptions
- Shortages
- Loss of Labour

Global Phenomenon ... Nowhere to Hide

Prolonged Government Service Disruptions Possible



- Waste Management
- Clean Water
- Electricity
- Fuel
- Credit Card and Cash Machines
- Flow of News / Internet

Continuity Planning Essential

Some of the Big Immediate Losers



- Tourism
- Travel & Transport
- Hospitality Industry
- Life & Health Insurers
- Entertainment Industry

All Public and Private Gatherings Shut Down

Demand Effects



A Run on Essentials:

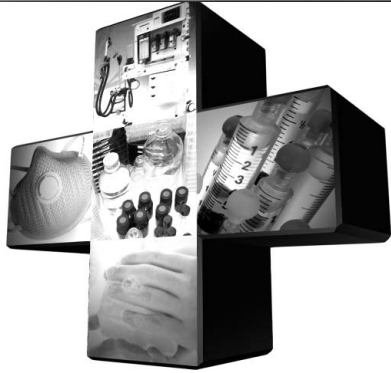
- Prices Rise
- Shortages

Reduced Demand:

- Social Distancing
- Business Shutdowns

Fear and Panic

Medical Shortages



- Ventilators
- Respirators
- Syringes
- Anti Bacterial Soap
- Antivirals
- Vaccines ...

Virtually Everything

Inadequate Death Management



- Refrigerated Trucks
- Crematory Facilities
- Disrupted Funeral Services

Long-Term Psychological Trauma

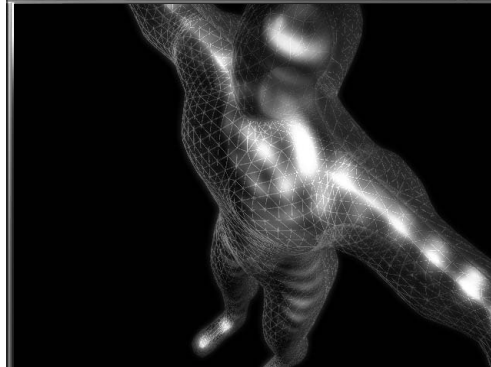
What if it's a Cytokine Storm à la 1918?



Fatality Rates Highest for:

- 15-30 Year Olds
- Pregnant Women

1918: Cytokine Storm

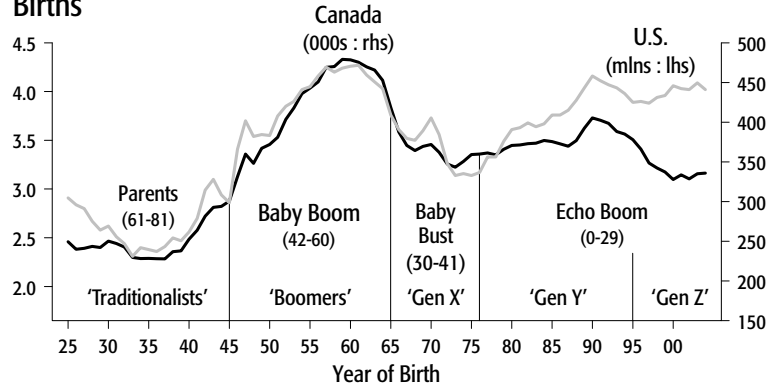


- Lose Most Productive People
- Birth Rates Plunge
- Average Age Rises
- Effects are Lasting

Canada's Population Growth Already Slowing

Profound Demographic Implications

Births



() = youngest/oldest age in 2006

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Business Continuity Planning



- 30% Reduction in Workforce
- Cross-Training / Redundant Labour
- Telecommuting
- Security and Safety

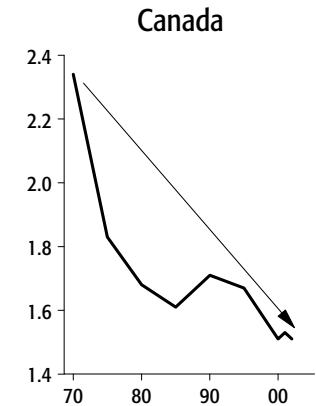
Protect Core Business Activity

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Long-Lasting Effects

Fertility Rates (number of children per woman)

G-7		Asia	
U.S.	2.1	India	3.0
France	1.9	North Korea	2.1
U.K.	1.7	China	1.9
Canada	1.5	Other	
Germany	1.4	Israel	2.8
Japan	1.4		
Italy	1.2		



Source: Statistics Canada

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Business Continuity Planning



- Healthy Work Environment
- Minimize Customer Contact
- Non-Punitive Sick Leave and Family Leave Policies

Mandatory Absence of Sick

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Economic Impact of a Flu Pandemic

(US\$ blns : 2005:Q3)

	Mild Pandemic	Severe Pandemic
Growth Effect (percentage points)	-2 ppts	-6 ppts
Global Economy	1.1 trln	3.2 trln
U.S.	220	670
Eurozone	165	490
Japan	70	220
U.K.	30	100
Canada	20	60
Other Advanced Economies	70	210
China	140	420
India	60	190
Africa	40	100
Other Emerging Economies	250	750

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Global Economy Survives



- More than 98% of Population Survives
- Borders Open
- Trade Re-Commences

Business and Governments Learn Lessons

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