The Age of Crises and Opportunities: Taiwan and the World in Transition

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Outline

• The Global Challenges Facing Taiwan and the World
  – The Economic and Financial Crisis
  – Globalization and the Rise of Emerging Market Countries
  – Energy and Environmental Constraints as the Potential Limits to Growth

• Economic and Environmental Tests from the Inside of Taiwan
  – Confronting the Economic and Financial Crisis
  – Foreign Trade Structure
  – Industrial Structure
  – Employment in Transition
  – Population Aging
  – Energy Consumption and CO₂ Emissions
  – Fiscal Robustness

• An Integrated and Consistent Approach to the Remedy for the Economic and Environmental Quandaries
An Illustrated Framework

External Challenges

- The Global Imbalance
- Monetary Stimulus
- Market Failure in the Financial Markets
- Global Economic and Financial Crisis
- Globalization and the Rise of Emerging Market Countries
- Global Energy and Environmental Crisis

Tests from the Inside of Taiwan

- Confronting the financial crisis
- Structure of Foreign Trade
- Industrial Structure
- Employment
- Population Aging
- Energy Consumption and CO2 Emissions
- Fiscal Robustness

Sustainable Growth
The Age of Global Crises and Opportunities

- The economic and financial crisis
- Globalization and the rise of emerging market countries
- The energy and environmental pressure
The economic and financial crisis: a severe yet likely short-term disturbance

• Symptoms
  – Ubiquitous financial risk
  – Credit Crunch
  – Drastic and potentially prolonged contraction in labor markets
  – Violent slump in consumption, investment, and production
Causes suggested

- Interest rate manipulation and monetary laxation after the dot-com bubble burst, which might have helped form hyper-optimistic expectations proved to be wrong, encouraging excessive risk taking
- Global imbalance
  - Overspending in the USA, exemplified by its twin deficits
  - A global glut of savings supplied by many of the emerging market countries
- Market distortion
  - Mercantilism that might have been helping generate the global glut of savings of many of the emerging market countries
    - Export subsidies
    - Import barriers
    - Exchange rate manipulation
  - Labor market rigidity
    - Minimum wage law impedes adjustments in the labor market, likely leading to large amount of layoff when the economy contracts, which in turn tends to slow the speed of recovering
- Market failure
  - Asymmetric information in contractual arrangement and excessive risk taking in financial markets
Countermeasures taken

- Cutting the interest rate and injecting liquidity into the market
- Fiscal stimulus; public money directed to:
  - Forced consumption
  - Public infrastructure
  - New energy
  - Education
  - Social insurance
The unstoppable process of globalization and the foreseeable long-term impacts from the rise of emerging market countries

- The economic and financial crisis, though severe, is largely a short-term adjustment of the economy
- The long-term trend of globalization and the rise of huge emerging market countries will be continuing to play an extremely important role in:
  - redefining and reinforcing international division of labor
  - augmenting the potential of economic growth of the world in general and for many individual countries in particular
  - bringing about employment restructuring and income redistribution within many countries.
Another foreseeable long-term test: The possible limits of energy and the environment

• Symptoms observed
  – The global warming trend
  – CO2 emissions keep going up even in the Annex I countries of the Kyoto protocol
  – Strong and sustained increase in energy demand from Non-OECD countries
  – Stagnation in energy efficiency improvement since the mid-1980s
  – High energy intensity in the industrial sectors in developing countries
  – High energy intensity in the residential, commercial, and transportation sectors in developed countries
  – Drastic and continuing increase in energy prices since 2003
  – Limited potentials of the increase in oil production (Will the Hubbert’s Peak be coming soon?)
## Primary Energy Consumption per GDP

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• Oil demand growth vs. GDP growth in OECD and non-OECD countries
Real oil price has been increasing drastically since 2003.
Causes suggested for the global energy and environmental trouble

- **Income-induced**
  - Income-induced consumption extravagance of the developed countries
  - Catch-up from the emerging market countries

- **Bubble-induced**
  - Inflated asset prices produced pseudo wealth effect, encouraging further extravagance in consumption

- **Price-induced**
  - Long-term market distortion
    - Energy subsidies
    - Price ceiling of energy products in some countries
    - Public subsidies to parking
  - Market failure
    - Market price in itself might not fully reflect the social costs of using energy
    - Hence we have done a lot of things we wouldn’t have done if we had to pay the whole bill
  - Government failure
    - The government often left the market alone when the market failed to signal the full true cost of an economic activity, but frequently intervened in the market and distorted the market signals while the price signal could have correctly signaled a part of the true cost of an activity.
Potential interlinks between the financial crisis and the energy crisis

• Inflated asset prices fostered by low interest rates and slack money supply produced pseudo wealth effect in wealthy countries, which built more and more houses and bought more and more stuff, which was made in more and more Chinese factories powered by more and more coal that earned more and more dollars to buy more and more U.S. T-bills that got recycled back to America in the form of cheap credit to build more and more houses and to buy more and more stuff that gave rise to more and more Chinese factories. ... (adapted from Thomas Friedman)

• Eventually, this system reached its financial and energy limits, leading to a general inflation pressure, prompting the Fed to rapidly raise its target interest rates, and then the bubble popped.
Countermeasures adopted against the energy and environmental extravagance

- **Direct regulation**
  - Fuel-economy standards in residential, commercial, transportation, and industrial sectors
  - Eco-labeling
  - Mandatory integrated energy management system
  - Urban planning
- **Market-based quantity control**
  - Emissions trading
- **Price Policy**
  - Subsidies specifically directed to the use of new energy
  - Taxation on carbon or energy products
- **Public R&D investment in energy science and technology**
- **Some of these measures make sense. Yet quite a few are just counter-productive**
Peak Oil?
New Oil Discoveries Worldwide (1900-2004)

It is close to peak production.

Figure 4.14 Total Volume of New Oil Discoveries Worldwide: By Year, 1900-2004 [Source: Adapted from Harper (2003) and Oil & Gas Journal (2004)]
Figure 4.16  Hubbert Type Peak Oil Production Analysis: Global Production History and Best Fit Bell Curve (Source: Production adapted from U.S. Energy Information Agency, bell curve from ARC Financial)
Economic and environmental tests from the inside of Taiwan

Troubles in the short run
Economic and environmental tests from the inside of Taiwan

• Troubles in the short run
  – Global financial tsunami’s impact on Taiwan
    • Exports slump
    • Sharp rise in unemployment rate
      – From 3.81% in April 2008 to 5.75% in February 2009, the highest monthly level in the last 50 years
      – The unemployed previously worked in the manufacturing sector accounted for 32.58% of all unemployed
    • Growth rate of the real wage in 2008 was -3.37%, the sharpest slide in history
### Export growth rates of China and the four Asian Tigers

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<th>Hong Kong</th>
<th>China</th>
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<td>24.6</td>
<td>16.1</td>
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<td>2005</td>
<td>8.8</td>
<td>12.0</td>
<td>27.8</td>
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<td>2006</td>
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<td>14.1</td>
<td>10.1</td>
<td>8.4</td>
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<td>2008</td>
<td>3.6</td>
<td>13.6</td>
<td>16.3</td>
<td>6.0</td>
<td>17.3</td>
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Unit: %

Source: MOEA, ROC

**Taiwan have experienced a more severe slump in exports than other export-led East Asian countries.**
Measures taken by the Taiwanese government to fight the economic slump (basically in the same tone as most other countries)

- Monetary measures
  - Lower target interest rate to near zero

- Fiscal stimulus
  - The NT$ 85.2 billion shopping vouchers (semi-tax-rebate)
  - The NT$ 58.3 public expenditure project
    - Some of the expenditures directed to containing unemployment
      - Governmental hiring
      - Subsidizing private sector’s hiring
    - A four year stimulus project of NT$ 500 billion

- Taiwan’s budget deficit now equals 2% of its GDP
- Its government debts match about 35% of its GDP when excluding the hidden debts and are roughly equivalent to its GDP after the hidden debts are incorporated
• Trying to cure the overspending disease by spending more
  – What are the causes of the financial crisis?
  – The crisis is a result of overspending (hence we had the bubble), but not of under-spending
  – With a huge budget deficit and trade deficits, and a near zero saving rate, it is hard to argue that the US was in a lack of demand
  – The post-2001 manipulation (by monetary measures) on aggregate demand fueled consumption and risk taking
  – The root of the mess was and is in the financial markets, not a lack of aggregate demand
  – But now you want to borrow more and spend more to cure the disease caused by overleveraging and overspending
Pitfalls of the fiscal stimulus measure (cont’d)

• There is also no clear signs of market failure (or of a missing market) outside the financial market. There is no market failure in goods market and labor market (which only has such intervention as the minimum wage constraint).

• So why intervene in these markets by way of public purchasing?
• Now there is a logic of paradox of thrift, which proposes to cure the overspending mess by spending more
  – Whatever the causes for this mess, this argument goes, diminishing expectations for the future cause insufficient aggregate demand and more savings
  – The diminishing expectations could become a self-fulfilling prophecy that leads to downward spiral in consumption, investment, and output
  – So trying to save more might well end up with less savings
  – To contain such kind of vicious cycles, you need something, such as public spending, to turn the tide around, moving the economy out of a possible vicious cycle.

• This kind of argument, however, has little to say how people’s expectations could be changed by public spending. Would they not be worried about where the money is from and whether they have to pay back in years ahead?

• In the past, massive defense spending usually didn’t do good to output and productivity
Pitfalls of the fiscal stimulus measure (cont’d)

• Overlooking the cost-benefit principle
  – Fiscal expansion used to stimulate aggregate demand needs to be evaluated on the cost-benefit criterion. And the cost and the benefit evaluated, naturally, must be the social ones, including the resources that are crowded out by such a project

• Overlooking individual incentives and the moral hazard problem
  – Fueling aggregate demand by using taxpayers’ money when the chaos was the result of individual misjudgment or even irresponsibility, is most likely, in the long run, to invite people irresponsibly repeating this “profits privatized, losses socialized” game, fostering a new round of “Ponzi game”
  – By stimulating macroeconomic aggregates, without consideration for the underlying incentives that lead to the formation of these aggregates would do no good to correcting the market failure of the financial market (Luigi Zingales)
Pitfalls of the fiscal stimulus measure (cont’d)

- Overlooking private incentives in the process of public choice
  - In a time when the government rushes to spend, it is optimal for a politician to sneak into a stimulus package the most useless projects that are hard to win public permission in the ordinary days. The stimulus justification becomes the best way to sell the un-sellable. And since they are by choice the most unlikely projects, they are also the ones less ready
  - When the stimulus idea removes the budget constraint, it is harder to contain the lobbying pressures (Luigi Zingales)
Suggestions for countering the ongoing crisis with a longer term view

- Safeguarding market mechanism, which, by penalizing misjudgment and rewarding wisdom, eliminating the incentives of playing games that leads to privatized profit and socialized losses
  - Aggregate demand management often leads to market intervention that easily distorts price signals, individual incentives and skips serious cost-benefit analysis
  - Upholding voluntary cross-border trade, especially in a slump time
  - Repealing the rigidity in labor market to help avoid large amount of layoff, which in turn tends to accelerate the speed of recovering
Suggestions for countering the ongoing crisis with a longer term view (cont’d)

• Intervening in the market on the market failure criterion
  – This means a stimulus package in the form of public spending must justifies itself by passing muster from the perspective of cost-benefit analysis
  – One of the major sources of the financial tsunami lies in the financial market
  – Resources should be directed to the discovery of, and working with, the missing incentives in this market
Economic and environmental tests from the inside of Taiwan

The long-run issue
The industrial and foreign trade structures of Taiwan

- **Exports**
  - Concentrating in a few industries
    - Chemicals, metal products, machinery, electrical materials, precision instruments and apparatus, and electronics and IT products accounted for near 80% of total exports value
  - Focusing on a few big markets (China, USA, Japan, etc.)

- **Industrial structure**
  - The industrial sector has been focusing on chemicals, metal products, and electronics and IT products, whose GDP accounted for near 70% of total GDP of the manufacturing sector
  - These industries are usually most energy-intensive
  - The service sector, although accounted for roughly 70% of Taiwan’s GDP, contributed to the GDP growth rate by an amount only slightly higher than that from the manufacturing sector
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Contribution to GDP growth = the industry’s GDP growth rate × (the industry’s GDP ÷ total GDP)

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Share of contribution to total GDP’s growth (%) = the industry’s contribution to GDP growth ÷ GDP growth

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Source: DGBAS, ROC
Taiwan’s Employment in the Long Run

• Recent trend
  – Taiwan’s unemployment rate rose from stably below 2% before 1996 to on average above 4% since 2001
  – Real wage rate has been virtually stagnated, with little growth, in the last 6 years or so
  – A larger share of non-typical employment than before
Causes proposed

- Globalization and the sudden and huge augmentation of labor supply to the world market from the emerging market countries
  - This change tends to substitute emerging market countries’ labor for Taiwan’s low-skill labor
  - This in turn generates a downward force on Taiwan’s wage rate
- Technological progress and the formation of knowledge-based economy
- Globalization or technological progress or both together have led to a mismatch between Taiwan’s labor and its industrial structure
- The service sector has been making an increasingly larger share in Taiwan’s GDP, now over 70%
  - As services are not storable as inventories in the manufacturing sector, the service sector demands a more flexible type of labor
Implications of free trade on Taiwan’s employment structure

• As long as Taiwan keeps integrating itself into the world, a mismatch between the labor and the industry will remain until a new generation of human capital better-equipped for confronting the new challenge entering the labor force.

• Employment mismatch and restructuring would speed up if Taiwan reaches a deal with China or other big but less-developed economies on full-scale economic integration.
Implications of free trade on Taiwan’s employment structure (cont’d)

• Tradeoff between upholding the level of real wage and lowering unemployment rate
  – Minimum wage protects employed workers, forcing comparatively more people unemployed, however
  – Flexible wage rate, adjusting more rapidly when disequilibrium comes into view, although drives wage down when oversupply in labor appears, could absorb more labor within the working force

• Overcoming the structural unemployment and wage stagnation problem will need incessant upgrading of Taiwan’s human capital
  – It may take more than one generation to eliminate serious structural mismatch in employment
Population Aging in Taiwan

- Age at first marriage older than before
- Fertility rate low
  - 1.1 in 2007
- An aging population
  - 10% of the population are over 65 yrs old
- The most serious potential threat from an aging population
  - Current pay-as-go pension may find itself in financial trouble in years ahead
Measures taken and proposed in Taiwan on the population aging issue

• Measures taken
  – Encouraging reproduction
    • Subsidizing childbearing and baby nursing
    • Limited number of public-financed kindergartens
    • Female labor’s option rights of parental leave with pay
    • Pension reform – an increase in the age at which people become eligible for taxpayer-financed benefits for the elderly

• Measures proposed
  – Larger quota for legal immigrants
An Integrated and Consistent Approach to the Remedy for the Economic and Environmental Quandaries

Stick to Where the Incentive Goes!
Policy suggestions from a long-term view for the various structural problems in Taiwan

- Safeguarding the market mechanism, which often signals many true costs of an activity and provides the right incentive to do or not to do something
  - Trade, industries, labor, and aging
    - Exploit the potential benefits in income and growth from international division of labor, specialization in production, and cross-border trade
    - Participating in a regional trade bloc is one way to better take advantage of international division of labor
    - Avoid mercantilism. Do not pick industrial winners at the expense of consumer welfare loss and industry’s disincentives in doing R&D. Bury the industrial policy in the ashes of history
• Repealing the rigidity in labor market to help alleviate mismatch between human capital structure and industrial demand
• Deepening the pension reform that encourages labor participation is a more efficient measure for alleviating the fiscal burden from aging than encouraging childbearing
– Energy and environmental
  • Repealing any price ceiling of energy products to help reflect true internal costs of energy consumption
  • Let the market’s signal works, to reflect true internal costs of transportation services such as parking, etc.
  • Repealing any subsidies to the use (or sale) to any kind of energy
Policy suggestions from a long-term view for the various structural problems in Taiwan (cont’d)

- **Correcting market failure**
  - Signaling the full true cost of energy use, including the external costs
    - Energy tax or carbon tax of a reasonably sizable rate is a must
    - Use the revenue from energy tax to cut taxes that distort working incentives or discourage capital accumulation
  - Public investment in, and only limited to, where the market fails to work efficiently
    - Infrastructure with long term positive marginal returns (a difficult task for the bureaucratic sector to make consistently sensible judgment) but shirked by the private sector, e.g.:
      - Basic research and R&D (knowledge with the nature of non-rivalry in its consumption) that help make potential breakthrough in, say, energy efficiency
    - Some types of education (human capital accumulation) that are inputs intensively used in basic research and R&D
    - Mass transportation
• What we have not proposed
  – Subsidies for production and consumption of any kinds of energy either traditional or renewable
  – Infrastructures that encourage energy extravagance: highways, off-road parking lots
Turning crises to opportunities

- The word for “crisis” in Chinese, weiji (危機), is written with two characters: one (wei, 危) means danger; the other (ji, 機) means opportunity
- Every crisis challenges the status quo and in so doing creates the opportunity for something new to emerge
- When facing an overwhelming shock, however serious and scary it is, it is important to take advantage of the opportunity to push substantial reform, making the society more robust
- By definition, any kind of reform worth doing must have net expected benefits. Hence it is critical to pass muster any proposed project with cost-benefit analyses
Thank You for your Attention
Comments are Welcome