

# Introduction to Macroeconomics

ECO1102 Section E, Winter 2013  
(Lecture #3, Jan. 21)

# Announcement: TA hours

	Monday	Tuesday	Wednesday	Thursday	Friday
08:30					
10:00		Chen Di* (DMS 11143)		Ainur Yernekaliyera* (FSS 2024)	
11:30					
13:00	Nguyen Bao Anh* (FSS 9004)			Nguyen Bao Anh* (FSS 14005)	Serge Nadeau (FSS 9037) 13:00-14:00
14:30			Jingwen Gao* (FSS 10003)		Jingwen Gao* (TBT 343)
16:00		Serge Nadeau (FSS 9037) 15:30-17:00	Jingwen Gao* (LMX 342)		
17:30					

\*Starting January 21.

## Announcement

- APLIA assignment #3 (Chap. 6) due January 27, 23:00.

# Chapter 7: Production and Growth

## Key objectives:

- Consider why productivity is the key determinant of a country's standard of living
- Analyze the factors that determine a country's productivity

# The Variety of Growth Experience (Table 7.1, p. 141)

Country	Period	Real GDP/Person at Beginning of Period		Real GDP/Person at End of Period		Growth Rate (% per Year)
		Amount*	Rank	Amount*	Rank	
Japan	1890-2006	\$1597	6	\$37,595	4	2.76
Brazil	1900-2006	827	9	10,071	8	2.39
China	1900-2006	760	11	8,778	9	2.34
Mexico	1900-2006	1230	11	12,940	7	2.24
Germany	1870-2006	2319	5	36,098	5	2.04
Canada	1870-2006	2522	3	39,251	3	2.04
Argentina	1870-2006	2435	4	17,454	6	1.88
U.S.	1900-2006	4255	2	50,195	1	1.83
India	1900-2006	717	12	4,310	10	1.71
U.K.	1870-2006	5106	1	40,351	2	1.53
Indonesia	1900-2006	946	8	4,480	10	1.48
Bangladesh	1900-2006	661	13	2,654	12	1.32
Pakistan	1900-2006	783	10	2,835	13	1.22

## Key Question: Why do some countries grow faster than others?

- Put another way: What Are the Determinants of a Country's Standards of Living?
- Fact:
- Mathematically:

# The Determinants of a Country Standards of Living

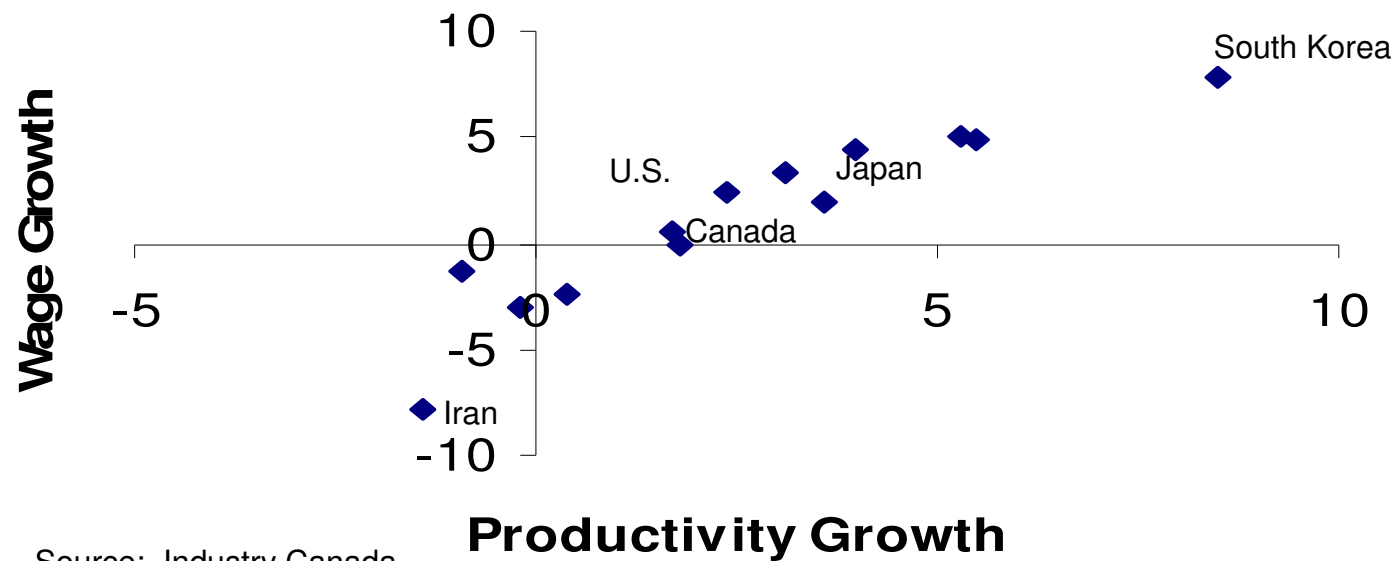
- So, a country's standard of living basically depends on two things:
  - How many people work (and how many hours they work); and
  - How productive they are when they work.
- Focus of this lecture is on the second component: **“Productivity.”**
- The level of employment is an important determinant of a country's standard of living, but for developed countries, productivity is even more important.

# Productivity

- Formally, *Productivity* refers to the amount of goods and services that a worker can produce from each hour of work.

# The Fruits of Higher Productivity

## Wages and Productivity across Countries (1980-1992)

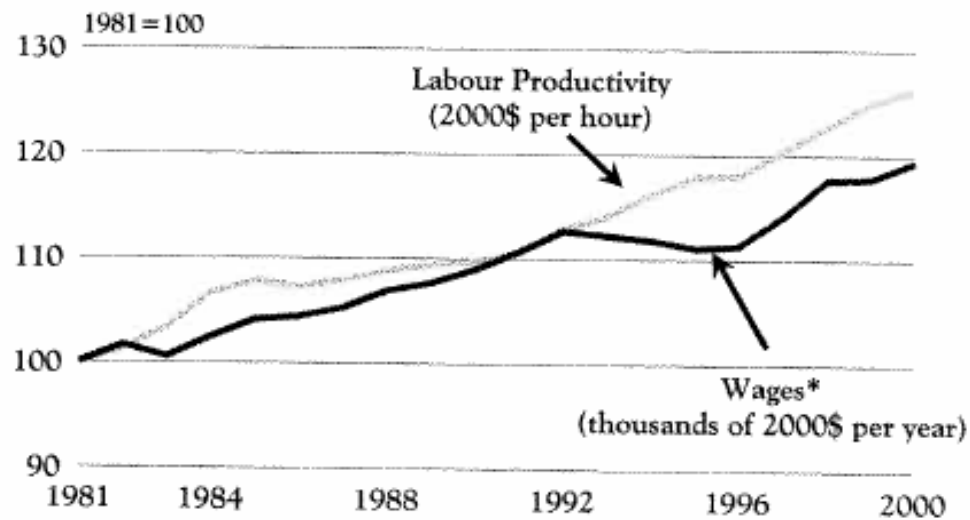


Source: Industry Canada

# Wage and Productivity in Canada

FIGURE 2

WAGES AND PRODUCTIVITY IN CANADA, 1981-2000



Note: \* Real producer labour compensation (wages/salaries plus benefits) per worker.  
Source: Statistics Canada.

# Canada's recent productivity performance

## Issues:

- Very slow productivity growth in Canada.
- It means that Canada's standard of living is stagnating
- The U.S. has been doing much better

ECONOMY NP, Sept 11/2008

## Poor productivity Canada's biggest problem: economist

Declined again in second quarter, StatsCan says

BY JACQUELINE THORPE

Canadian productivity, or output per hour worked, fell 0.2% in the second quarter of 2008, after declines of 0.6% in each of the previous two quarters, Statistics Canada reported.

"This is the longest series of consecutive quarterly declines since 1990," StatsCan said.

Productivity growth has been crushed as Canadian GDP grew only an annualized 0.3% in the second quarter and declined 0.8% in the first, while employment growth and hours worked has remained fairly robust.

Furthermore, hiring and investment have been in resource-heavy businesses, where output has not yet been particularly robust as production continues to ramp up.

Export output has also declined in recent quarters.

"Commodities have been running hot but, unfortunately, have not pandered to the wizardry of productivity," Stewart Hall, economist at HSBC Securities, said.

"The easy fruit in the com-

United States.

Poor productivity growth has helped keep labour costs higher for Canadian firms.

Although costs receded to 1.2% in the second quarter

covered in this federal election campaign because that would involve a discussion of Canada's onerously high personal tax rates — pity!"

Financial Post  
jthorpe@nationalpost.com

### CANADA LABOUR PRODUCTIVITY

Percent, quarterly

Quarter	Percent, quarterly
Q3 2006	-0.1%
Q4 2006	0.2%
Q1 2007	0.5%
Q2 2007	0.1%
Q3 2007	0.1%
Q4 2007	-0.6%
Q1 2008	-0.6%
Q2 2008	-0.2%

SOURCE: STATISTICS CANADA ANDREW BARR / NATIONAL POST

### BUSINESS SECTOR LABOUR PRODUCTIVITY

REAL OUTPUT PER HOUR WORKED INDEX, MARCH 2000 = 100

Year	Canada	U.S.
2000	100	100
2001	102	105
2002	104	110
2003	105	115
2004	106	120
2005	107	125
2006	108	130
2007	109	135

SOURCE: TD SECURITIES NATIONAL POST

Financial Post, 11/17/11

ECONOMY

# Poor productivity vs. U.S. costs Canadians

## \$7,500 SHORTFALL

By ERIC LAM

If Canada had been as productive as the United States in the 20 years ended in 2008, Canadians would have an extra \$7,500 in their pockets by now, says a study by the Conference Board of Canada.

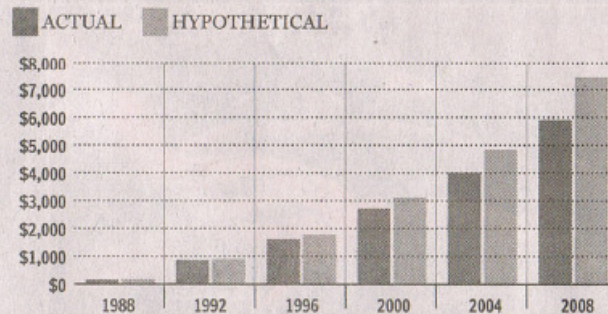
Between 1988 and 2008, Canada consistently lagged the United States in labour productivity growth by 80 basis points, or 1.4% growth compared with 2.2% south of the border, mostly due to weakness in technical innovation and capital investment.

Had Canada's productivity matched that of the United States, the study released Wednesday finds, by 2008 the personal disposable income of the average Canadian would have been \$7,500 higher and corporate profits and government revenue 40% and 31% higher, respectively.

Mario Lefebvre, director of the centre for municipal studies at the Conference Board,

## IF CANADIAN PRODUCTIVITY MATCHED THAT OF THE U.S.

DISPOSABLE INCOME IN DOLLARS



SOURCE: CONFERENCE BOARD OF CANADA AND NATIONAL POST CALCULATIONS  
ANDREW BARR / NATIONAL POST

said the combination of a plunging dollar and massive global recession followed by a jobless recovery forced Canadian business to pull back abruptly on capital investments in the late 1980s.

"It's not like they woke up one day and decided, for the fun of it, not to be so productive anymore," Mr. Lefebvre said.

"Canada also fell way behind in infrastructure spending," he said. "People these days don't even know the mag-

nitude of the infrastructure shortfall. And infrastructure is not a sexy theme either."

To boost productivity to match that of the United States, total business capital investments would have had to reach \$51-billion, or 16% more, by 2008.

To offset this extra spending, average nominal business growth would have come in at 8.2%, versus 6.5%.

That would have led to higher wages, at least in

theory, since higher hourly output ought to produce greater hourly wages. In such a scenario, by 2008, consumer spending would have been 25.5% higher.

Businesses could pay their employees the same amount and enjoy fatter margins, but that would only last so long.

"If you don't raise wages, you can risk it for a year or two but somebody else will eventually," Mr. Lefebvre said. "Salaries will level off if productivity levels off, but otherwise wages will continue to rise."

The proof can be seen in purchasing power parity. In 2008, the gap between Canadian and U.S. consumer buying power stood at about \$13,000. With equal productivity, that figure slips to less than \$7,000.

"People, businesses, even governments don't realize how much dinero they've left on the table because of this," Mr. Lefebvre said, noting the federal government would have had \$66-billion in additional revenue in 2008.

Financial Post  
erlam@nationalpost.com

# Low productivity holding us back

## CARNEY'S WARNING

BY PAUL VIEIRA

OTTAWA • Bank of Canada governor Mark Carney has issued a cold dose of reality to Canadians: The country won't "fully benefit" from a much-improved U.S. and global economic outlook after failing to maintain its competitive stature over the past half-decade.

With household-debt issues now a tad less worrisome as a result of tougher mortgage-lending rules, the central bank turned its focus Wednesday toward the country's sickly productivity record and how

it is holding Canada back even though its largest trading partner, the United States, is beginning to shine.

"We have lost competitiveness over a number of years," Mr. Carney told reporters in Ottawa after the central bank issued its latest quarterly economic update. "This is a product of the level of the currency. It is also a product of a relatively poor productivity performance vis-à-vis the U.S., but also Canada compared to other countries that export into the United States as well."

In its latest economic update, the central bank sharply revised upward its 2011 forecast for U.S. economic expansion, to 3.3%, or by a full per-

centage point from the fall. The Bank of Canada also boosted its 2011 forecast for global growth, to 4% from 3.5%, but opted to only nudge upward the outlook for Canadian expansion, to 2.4% from 2.3%.

"We are starting to see manifest the impact of these [competitive] shortfalls," Mr. Carney said, in reference to the slight uptick in Canada GDP growth.

This downbeat tone on competitiveness adds to the list of concerns — from overstretched consumers to Europe's sovereign debt woes — that has analysts suggesting the Bank of Canada is in no hurry to begin raising rates.

See FORECAST on Page FP4

# The Determinants of Productivity

- The inputs used to produce goods and services are called the **factors of production**.
- The factors of production directly determine productivity—The more of these factors an economy has, the more productive it will be and the richer it will be.
- The Factors of Production
  - Natural resources
  - Physical capital
  - Human capital
  - Technological knowledge

# The Determinants of Productivity (cont.)

- *Natural Resources*
  - inputs used in production that are provided by nature, such as land, rivers, and mineral deposits.
    - Renewable resources include trees and forests.
    - Nonrenewable resources include petroleum and coal.

## The Determinants of Productivity (cont.)

- *Physical Capital*
  - is the stock of equipment and structures that are used to produce goods and services.
    - Computers, machine tools, robots etc.
    - Office buildings, schools, etc.

## The Determinants of Productivity (cont.)

- *Human Capital*
  - the economist's term for the knowledge and skills that workers acquire through education, training, and experience

## The Determinants of Productivity (cont.)

- *Technological Knowledge*
  - economy's understanding of the best ways to produce goods and services.
    - Common knowledge
    - Proprietary knowledge (e.g., patents, inventions)
  - How is technological advance good for a country's standard of living? Doesn't it kill jobs?

# Doesn't Technological Advances Kill Jobs?

- Technological advance means new products (new jobs) or better ways of producing (free labour to produce other goods and services).
- Some jobs are destroyed by technological progress, but other (better) jobs are created.

## What can govts. do to increase productivity?

- Govts can do many things to raise productivity and living standards—*just* need to increase the level of factors of production.

# Encouraging Investment in Physical Capital

- One way to raise future productivity is to invest more current resources in the production of physical capital—this involves less consumption now (that is more saving, in other words, some form of sacrifice)
- Another way for governments to increase capital accumulation is to encourage investment from foreign sources.
- Investment from abroad takes several forms:
  - ***Foreign Direct Investment***
  - ***Foreign Portfolio Investment***

# Macroeconomics in the News

- According to the Conference Board of Canada, « tax reform in crucial is sparking a revival in business investment in machinery and equipment which has slowed considerably since the 1980s and might help explain Canada's awful productivity record. »



Example, MKMR,  
p. 163, #9

9. In the 1960s American investors made significant direct and portfolio investments in Canada. At the time, many Canadians were unhappy that this investment was occurring.
  - a. In what way was it better for Canada to receive this American investment than not to receive it?
  - b. In what way would it have been better still for Canadians to have done this investing?

# Encouraging Investment in Human Capital

- For a country's long-run growth, education (and especially basic education) is at least as important as investment in physical capital.
  
- Government expenditures that improve the health of and nutrition of workers can improve productivity—healthy workers are more productive.

# Encouraging Investment in Human Capital (cont.)

## ***Brain Drain***

- One problem facing some poor countries is the *brain drain*—the emigration of many of the most highly educated workers to rich countries.
- Canada benefits from the brain drain suffered by poor countries. However, Canada also suffers from the brain drain as highly educated workers are attracted to high-paying jobs and lower taxes in the U.S.

Example, MKMR,  
p. 162, #6

6. Societies choose what share of their resources to devote to consumption and what share to devote to investment. Some of these decisions involve private spending; others involve government spending.
  - a. Describe some forms of private spending that represent consumption, and some forms that represent investment.
  - b. Describe some forms of government spending that represent consumption, and some forms that represent investment.

# Promoting Research and Development

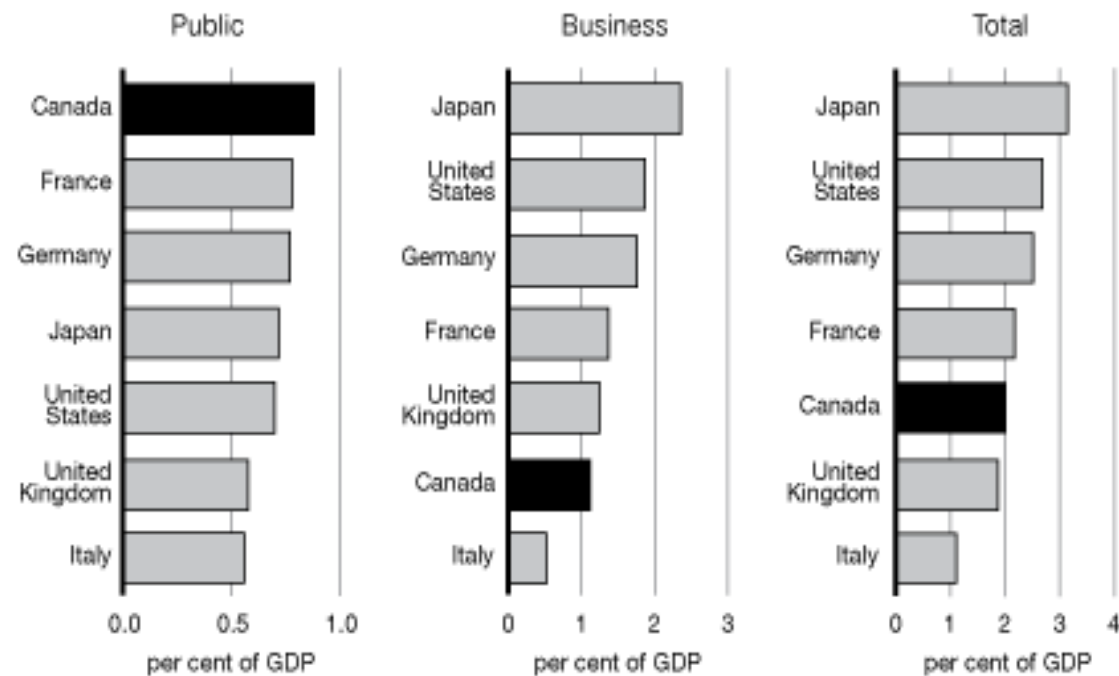
- The advance of technological knowledge has led to higher standards of living.
  - Most technological advance comes from private research by firms and individual inventors.
  - Government can encourage the development of new technologies through research grants, tax breaks, and the patent system.
- Inward foreign direct investment is also a source of technological know how.
- Private research and development is an area where Canada has a relatively poor performance compared to other developed countries.

# Canada's R&D Performance

Chart 4.1

## Canada's Lagging R&D Intensity Is Concentrated in the Business Sector

R&D Expenditures as a Percentage of GDP (2003)



Note: Public expenditure includes expenditure on government and higher-education research.

Source: OECD, *Main Science and Technology Indicators*.

## Promoting Free Trade

- Trade allows a country to specialize in what it does best.
- A country that eliminates trade restrictions will experience the same kind of economic growth that would occur after a major technological advance.
- In addition to allow specialization, free trade pushes domestic firms to be more innovative if they want to compete effectively.

# NAFTA—A digression

- 1988: Canada-US Free Trade Agreement
- 1994: North-American Free Trade Agreement (Canada, US, Mexico)
- There was a lot of opposition to these agreements :

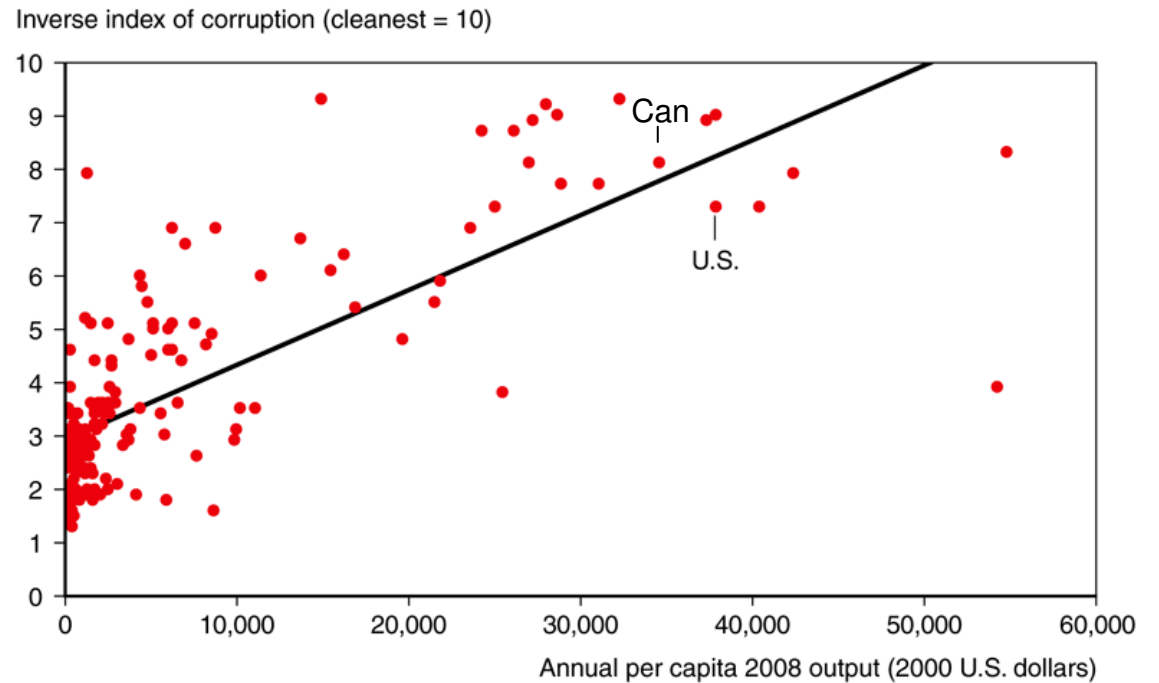
« How could a small Canadian company compete in its own national market against U.S. giants, given all their advantages of scale and marketing »

- By 1999, Canadian exports to the U.S. had doubled but imports had risen by only 20%.

## Establish secure property rights and maintain political stability

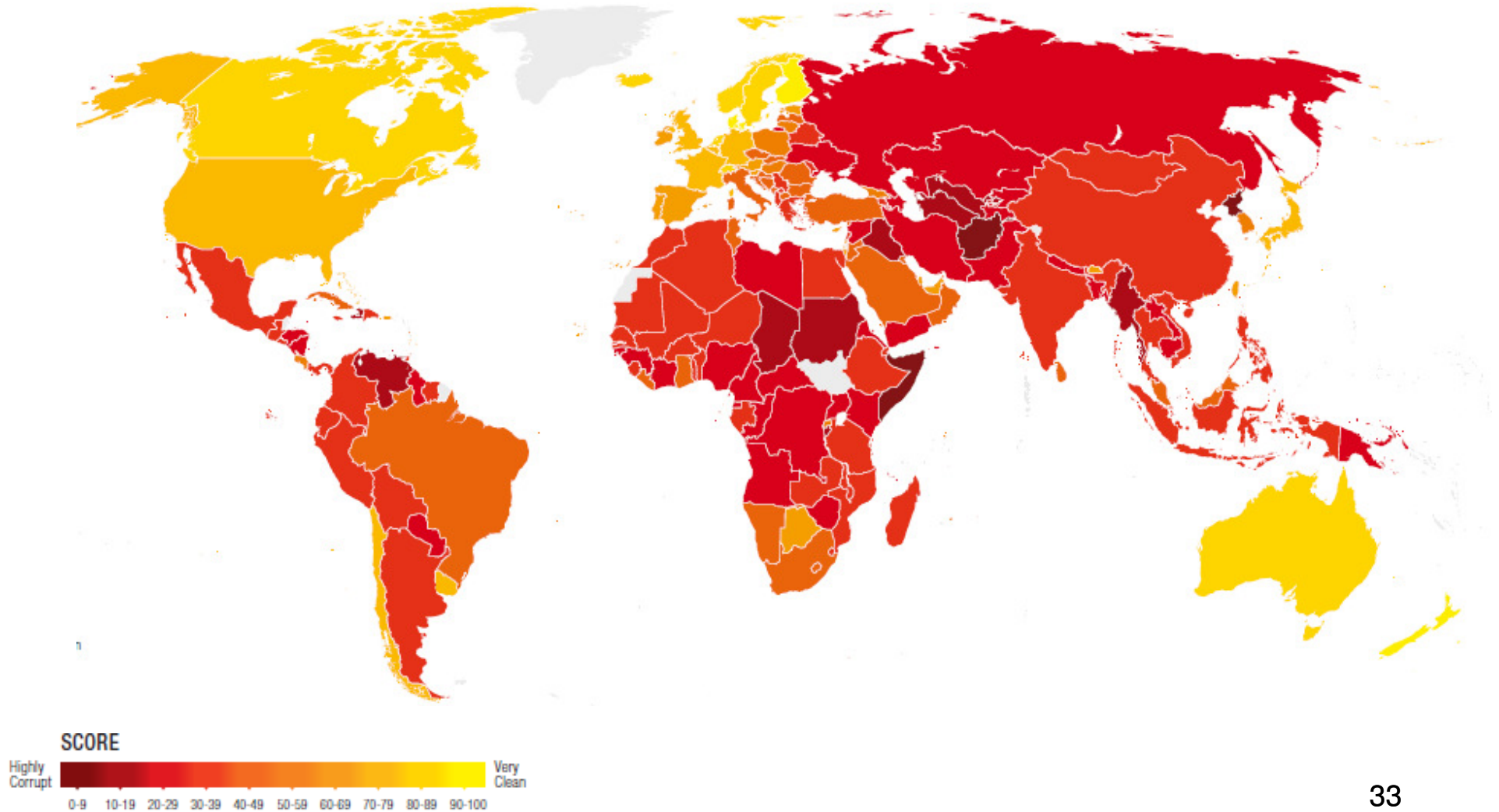
- ***Property rights*** refer to the ability of people to exercise authority over the resources they own.
  - An economy-wide respect for property rights is an important prerequisite for the price system to work.
  - The fact is that nobody will invest if they feel that their investment is not secure.

# Corruption and Real GDP per Person



# « Perceived » Corruption Around the World

## Corruption Perceptions Index 2012



Source: *Transparency International, 2012*

# Population Growth

- Economists and other social scientists have long debated how population growth affects a country's standard of living
  - On one hand, it stretches natural resources and the education system, and dilute the capital stock per worker
  - On the other hand, it promotes technological progress—if there are more people, there are more scientists and inventors to contribute to technological advance.

# End Chapter 7