

**Practice Midterm #1**  
October 2013

You have 90 minutes to complete this exam. Please answer each question in the space provided and show all of your work. You may consult one page of notes and a calculator, but devices capable of wireless transmission are prohibited.

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, or tolerate those who do.

---

(Name and Signature)

Year	$Y/L$	$K/L$
1990	2.489	2.396
2011	6.582	24.722

**Table 1.** Aggregate data for Vietnam.  $Y$  is real GDP,  $K$  is the stock of capital, and  $L$  is the number of people working. The numbers are thousands of 2005 US dollars. Source: Penn World Table, Version 8.0.

1. *Prospects for Vietnam (40 points).* You have been asked to provide a short overview of Vietnam's economic prospects for a group of international business leaders who have come to Washington DC for the annual IMF meetings. To many in the United States, Vietnam brings up painful memories of war and Oliver Stone movies, but its economic performance over the past two decades has been extraordinary. GDP per capita remains low at about 3600 USD, but its GDP growth rate since 1990 has been over 7 percent per year.

In preparing your report, you start with some basic data from the Penn World Table, reported in Table 1. Then you turn to the Economist Intelligence Unit, where you find (quotes from reports, edited lightly for continuity, with additional data from other sources):

- The Communist Party remains the dominant political force. The government, the army, and the bureaucracy are subordinate to it.
- Vietnam's economic success over the last two decades followed the Party's 1986 commitment to "economic renovation." By the end of the 1980s economic reforms had become part of the new consensus.

- Regulatory conditions and market access for foreign investors have continued to improve in recent years, reflecting Vietnam's efforts to fulfil its commitments on accession to the World Trade Organisation (WTO) in January 2007.
  - The EIU democracy index puts Vietnam among the most authoritarian regimes in the world. In the functioning of government, however, Vietnam fares much better, and the public's confidence in the government and the party is high. Vietnam also scores well in the degree of societal consensus and cohesion. The judiciary is relatively weak and not independent of the Communist Party.
  - The World Bank's Doing Business now ranks Vietnam 99th (of 185) on overall ease of doing business, which is below China (91) and above India (132). The World Bank's Governance Indicators rank Vietnam in the 43rd percentile on overall government effectiveness and the 39th percentile on rule of law. The Heritage Foundation rates Vietnam 15 (of 100) on rule of law but 64 on business freedom and 79 on open markets.
  - A recent slowdown in growth coincided with growing evidence of corruption and rising prices gas, food, and utilities, which led the prime minister to make a public apology. The trouble stems in large part from the Communist Party's failure to discipline state-owned enterprises, which account for 40% of output, and to clean up bad debts lurking in state-owned banks. Some state-owned firms are reported to be so cash-strapped they have stopped paying workers.
  - There has been debate in the party between conservative hard-liners pushing for stability and reformist moderates who would like to see further liberalization, including privatization of state-owned firms. One Western diplomat says the question now isn't whether real reform will happen, but how fast.
- (a) Using the data in the table, compute the continuously-compounded annual growth rate of GDP per worker for the period 1990-2011. (5 points)
  - (b) Identify the sources of growth in Vietnam over the same period. (This is an indication that you should do the usual growth accounting calculations. Be sure to include calculations of productivity.) What is the primary source of growth? (15 points)
  - (c) Between 1990 and 2011, average years of schooling for adults rose from 5.3 to 6.3. By how much would you estimate this increased GDP? (5 points)
  - (d) Continued high performance in developing countries is often connected to continued improvement in institutions. Which institutions are important, in general? From what you've read above, how does Vietnam rate on them? Using the information presented, and your own good judgement, how attractive do you think Vietnam will be over the next ten years to international firms looking to do business there? (15 points)
2. *Zambeef looks for opportunities (20 points).* Zambeef, the Zambia-based meat distributor, is looking for new opportunities. The Economist reports: "Zambeef

Indicator	Zambia	Botswana	Tanzania
<i>General</i>			
GDP per capita (2005 USD)	1690	11,300	1250
Population (millions)	13.5	2.0	44.9
Doing Business overall (percentile)	49	68	27
World Economic Forum overall (percentile)	37	50	16
<i>Governance</i>			
Political stability (percentile)	66	88	48
Govt effectiveness (percentile)	38	68	28
Regulatory quality (percentile)	37	74	37
Rule of law (percentile)	42	75	34
Control of corruption (percentile)	46	79	22
<i>Labor</i>			
Minimum wage (USD per month)	76	92	52
Severance after 10 years (weeks of pay)	87	36	10
Labor market efficiency (percentile)	37	68	67
Literacy (percent of adults)	71	84	73
Years of school (adults)	6.7	9.6	5.8
<i>Infrastructure and trade</i>			
Infrastructure quality (percentile)	20	36	10
Import documents required (number)	8	5	6
Import delay (days)	56	37	31
Import cost (USD per container)	3600	3500	1600

**Table 2.** Economic and institutional indicators. Percentiles range from 0 (worst) to 100 (best). Sources: Penn World Table, World Economic Forum, World Bank, Doing Business.

operates meat counters at all 20 Shoprite stores across Zambia as well as its newer outlets in Ghana and Nigeria. Zambeef also has around 100 shops of its own. The CEO notes that with markets targeting both low and high-income consumers, they are able to sell ‘all of the animal.’ The firm is also vertically integrated; its ‘farm-to-fork’ model includes farms, retail outlets, and ‘cold chain logistics’ with its fleet of 78 refrigerated trucks. The downside of recent expansion, they say, is the demands on its managers.”

Zambeef is now looking to expand, either in Zambia or in nearby countries. As a consultant based in Johannesburg, you have been asked to advise Zambeef on the strengths and weaknesses of neighboring Botswana, Tanzania, and Zambia. You quickly summarize various measures of institutional quality in the three countries; see Table 2. You also turn to the World Economic Forum’s Global Competitiveness Report, which includes a survey of business leaders and tabulates

the most commonly reported problems. For the three countries, the most common complaints were

- Zambia: access to financing, corruption, and inadequate infrastructure.
  - Botswana: poor work ethic of labor force, inefficient government bureaucracy, and access to financing.
  - Tanzania: access to financing, corruption, and inadequate infrastructure.
- (a) Describe the features of an economy that are important to operating a business like Zambeef's. How do Botswana and Tanzania compare to Zambia on these features? (10 points)
- (b) What issues raise the most concern in each country? How might you deal with them? What location(s) would you recommend? (10 points)

3. *Short questions (50 points).*

- (a) In 1960, 41% of women aged 25-54 in the US were employed. In the most recent data, the number is 69%. What is the likely impact on US GDP growth over this period? What is the likely impact on the US employment rate? (10 points)
- (b) Suppose Apple's Irish assembly plant took 230 (millions of euros) in parts produced in Asia and hired workers for 80 to assemble products worth 320, which were then sold in the US. What is the value-added of the plant? Which of these transactions appears as an expenditure in the Irish national accounts? (10 points)
- (c) Describe, in Ricardo's model, how — and why — free trade affects productivity. (10 points)
- (d) Consider the statement: "When financial institutions fail, we should let them fail." Do you agree or disagree? Why? (10 points)
- (e) Consider the statement: "Germany's high investment rate is supported, in large part, by flows of capital from other countries." Do you agree or disagree? Why? (10 points)

**Practice Midterm Examination #2**

October 2012

You have 90 minutes to complete this exam. Please answer each question in the space provided. You may consult one page of notes and a calculator, but devices capable of wireless transmission are prohibited.

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, or tolerate those who do.

---

(Name and Signature)

*Note: These questions come from old exams, so the topics and numbers may be out of date. But be assured: good analysis lasts forever.*

**Figure 1.** GDP Per Capita and GDP Per Worker in Brazil.

1. *Brazil.* As a successful European investment banker, you happen to have lunch with Rupert Murdoch. Looking for a mutually beneficial topic of conversation, you mention the limitless opportunities of Brazil, which you've seen first-hand while arranging mergers between Brazilian and European companies. Murdoch calls your bluff, and asks why you see Brazil as an opportunity, when its recent growth experience has been modest. You change subjects after promising to send him a short memo the next day.

Back in the office, you ask your assistant to download some Brazilian data. She collects the information in Table 3 and Figure 1. In the table, *POP* is population, *Y* is real GDP, *L* is employment (the number of people working), and *K* is the stock of physical capital (plant and equipment). Population is reported in millions; the other numbers are PPP adjusted, reported in 2000 US dollars. All come from the Penn World Tables, version 6.2.

Using this data, you do a few quick calculations. Since the figure suggests a sharp change in 1980, you decide to look separately at the periods before and after 1980.

- (a) You compute continuously-compounded annual growth rates of GDP, GDP per capita, and GDP per worker for the two periods. What are the important differences? (15 points)

Year	$POP$	$Y/POP$	$Y/L$	$K/L$
1950	53,443	1,802	5,045	8,559
1980	122,958	6,776	17,285	39,064
2003	182,033	7,205	15,462	37,604

**Table 3.** Aggregate Data for Brazil.

- (b) Since GDP per capita and GDP per worker are similar, you decide to focus on the latter and decompose its growth in each period into components due to capital per worker and total factor productivity. Which component accounts for the difference between the two periods? (15 points)
- (c) You are looking for a positive tone to your memo. What exactly can you claim is growing in Brazil? (10 points)
2. *Vietnam*. Since 1991, Vietnam's per capita GDP has been growing at an average rate of 6.75%, positioning the Southeast Asian economy among the fastest growing in the world. According to analysts, an obstacle to even speedier growth will likely be removed shortly when Vietnam joins the World Trade Organization.

Some facts. In 2005, manufacturing and construction accounted for 41% of GDP (up from 38% in 2001) and services for 38% (from 27%), whereas agriculture dropped to 21% (from 23%). Employment is divided among the three sectors in the following proportions: 17%, 25%, and 57%, respectively (the service figure includes 10% in state employment). Female labor force participation is high by world standards, with women accounting for 49% of the labor force. According to the World Bank, school enrollment rates are 100% in primary school, 70% in secondary school, and 10% in university.

The most notable immediate effect of WTO membership will be the scrapping of US quotas on garment imports from Vietnam. While these quotas limit Vietnamese exports to the US, some analysts warn that their removal may have a relatively modest effect: the EU's decision to waive its import quotas this year had only a small effect on shipments, probably because of strong competition from other producers, particularly China. A further difficulty is the spate of strikes in foreign-owned factories, which led the government to raise the minimum wage paid by foreign firms by 40%. See the attached article in *The Economist*.

- (a) In which broad sectors is Vietnam likely to shift its production in the next five years? 20 years? Why? (10 points)
- (b) To comply with the conditions for WTO membership, the Vietnamese National Assembly recently passed two pieces of legislation that may have a substantial impact on the economy. The Anti-corruption Law, which comes into effect June 1st, is intended to improve the detection and prevention of public official corruption. The Law on Investment, also expected to come

into effect in mid-2006, allows investment projects worth less than \$1m to proceed without registration, and projects valued at less than \$19m will need to be registered but will not require licenses.

Describe — concretely — how each of these changes are likely to effect the economy's total factor productivity. (10 points)

- (c) In your view, what government policies are likely to be most effective in raising the living standard of the Vietnamese people over the next 25 years? Why? (10 points)

3. *Miscellany.*

- (a) *Bridge to nowhere.* In the context of our production function, would the construction of an economically useless bridge in Alaska lead (once it's completed) to a change in total factor productivity? Please explain your answer. (10 points)
- (b) *Labor markets and trade.* An analyst at the OECD commented that the difficulty Italy has had adapting to increasing international trade was a reflection of its rigid labor markets, which discourage Italian businesses from the restructuring needed to compete in global markets. Do you find this argument persuasive? Why or why not? (10 points)
- (c) *Off-shoring.* The term *off-shoring* refers to the relocation of work from one country (the US, say) to another (India, for example). Greg Mankiw, Bush's former economic advisor, suggested that such trade in labor services was no different than trade in goods: the goal remains for countries to perform those tasks it does relatively efficiently. Do you agree? Why or why not? Would your answer change if you viewed the issue from the perspective of the in-shoring country? (10 points)

Trouble at the mill  
Jan 26th 2006 — HANOI  
From The Economist print edition

Strikes and pay rises afflict the new South-East Asian tiger

FACTORY workers in Vietnam have an extra reason to celebrate Tet, the lunar new year holiday that begins this weekend. Their government recently decided to raise the minimum wage in foreign-owned factories by up to 40%, starting on February 1st. Pay packets in Hanoi and Ho Chi Minh City will now start at \$45 a month, the first mandated rise in several years. Experienced workers can expect an extra 7% increase on top of that.

What is especially unsettling for investors is how the workers got their extra dough. Since late December, wildcat strikes have swept through the industrial zones surrounding Ho Chi Minh City. Tens of thousands of workers joined the protests over wages and conditions. Some of these turned violent, and machines were wrecked at one Taiwanese-owned plant. Bosses claim that outside agitators stoked the protests, distributing notes at factory gates while police stood idly by.

Apparently caught off-guard, the government issued a decree earlier this month raising the minimum wage in foreign-owned factories. Most strikers have now returned to work, but some have not, and investors are fuming over production stoppages and a higher wage bill. The European Chamber of Commerce has gone so far as to write a tart letter to the prime minister, Phan Van Khai, reminding him that investors set up shop in Vietnam precisely because “the workforce is not prone to industrial action.”

At least, not until now. Workers in Vietnam have staged walkouts before, particularly over alleged mistreatment by foreign managers, but the scale and co-ordinated nature of the latest strikes are, well, striking. Some observers find it implausible that they could occur without the prior knowledge of the ruling party, which forbids independent trade unions. As in China, workers are allowed to join only a pliant, party-affiliated union.

Most of the affected factories are owned by East Asian companies, the biggest investors in Vietnam. At Song Than industrial zone, on the outskirts of Ho Chi Minh City, 80% of the factories are owned by Taiwanese, producing clothing, shoes, furniture and bicycles for export. They grumble that higher wages will drive away foreign investment, running at \$5.8 billion last year, and give warning that Vietnam needs to stay competitive. “Chinese wages are higher. But the quality and efficiency are also higher, said Chen Chi Young, an official at Taiwan’s de facto embassy.

So why didn’t Vietnam crush the illegal strikes? One reason, say observers, may be internal jockeying ahead of the party congress in April, a five-yearly affair. The aim could have been to embarrass the provincial officials where the unrest began, or to



burnish the leadership's credentials, or both. The factories most affected may also be a clue: Vietnam and Taiwan both claim ownership of the Spratly Islands, along with several other countries. On December 15th, Taiwan said it was building a landing strip on one of the islands.

Or perhaps the workers were simply fed up with low pay and stingy bosses, and were too numerous to repress. Vietnam has one of the world's fastest growing economies. Now it is learning that higher output means higher expectations.

**Practice Midterm Examination 2**

Revised: October 9, 2014

You have 90 minutes to complete this exam. Please answer each question in the space provided. You may consult one page of notes and a calculator, but devices capable of wireless transmission are prohibited.

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, or tolerate those who do.

---

(Name and Signature)

1. *Mexico and Turkey.* Flextronics is an original equipment manufacturer of electronics, making products around the world that are sold under other brand names. It is currently looking for a location to produce the next generation Xbox for Microsoft. They would be sold (primarily) in the US and Europe. Your mission: to provide a quick assessment of the productivity and labor market conditions for two countries on the short list, Mexico and Turkey. Mexico, of course, has both proximity to the US and access to the US through NAFTA. Turkey has proximity to Europe.

Recent data for the two countries includes

	POP	Y/POP	L/POP	K/Y	Education	Hours
Mexico	104.3	7938	0.423	2.53	7.4	1871
Turkey	71.3	5633	0.477	2.03	5.4	1918

POP is population (millions), Y is GDP (2000 US dollars), K is capital (2000 US dollars), Education is years of school, and Hours is annual hours worked per employed person. Y and K are PPP-adjusted. Education and Hours are from the OECD's *Employment Outlook*; the other variables are from the Penn World Tables.

The World Bank's Doing Business website includes these measures of labor market flexibility:

- Mexico: difficulty of hiring workers (33), rigidity of hours (40), difficulty of firing workers (70), and cost of firing (52 weeks of salary).
- Turkey: difficulty of hiring workers (44), rigidity of hours (40), difficulty of firing workers (30), and cost of firing (95 weeks of salary).

Low numbers indicate greater flexibility in each case.

- (a) Which country has higher total factor productivity? (15 points)
- (b) Which country holds more risk of labor issues? (15 points)
- (c) All things considered, which country do you think is the better prospect? Why? (10 points)

Indicator	China	India	UK	Source
GDP per capita (USD)	5,300	2,700	35,300	CIA Factbook
GDP growth (%)	11.2	8.4	2.9	The Economist
Competitiveness	4.6	4.3	5.4	WEF
Regulatory quality	4.8	4.9	9.8	Governance Matters
Rule of law	4.6	5.8	9.3	Governance Matters
Investor protection	5	6	8	Doing Business
Financial sophistication	3.3	4.9	6.2	WEF
Macro stability	6.0	4.2	5.2	WEF
Control of corruption	3.8	5.3	9.4	Governance Matters

**Table 4.** Measures of performance and institutional quality in China, India, and the UK. Competitiveness index is an overall measure of institutional quality.

2. *Investing in China and India.* You work at a British asset management company and have been asked to assess the potential of starting a country fund: a mutual fund for UK investors that would invest in China or India. You realize that both countries are growing rapidly, China more so to date than India, but you wonder whether there are important differences in the institutional environment that might also be relevant.

Your summer intern collects the data in Table 4 and explains what each of the indicators means. In addition, she points out that the World Economic Forum (WEF) collects survey responses about the biggest problems faced by businesses. In China they are: access to financing, bureaucracy, corruption, and policy instability. In India: infrastructure, bureaucracy, labor regulations, and corruption. And in the UK: taxes, education of workforce, and bureaucracy.

Based on this information and your own experience, which country would you recommend? Why? (30 points)

3. *Miscellany.*
  - (a) *Jobs.* Senator Joe Lieberman once said something like: “The only way to increase jobs is to make hiring attractive to businesses.” Use an analysis of the minimum wage to argue for or against his statement. (10 points)
  - (b) *Infrastructure.* An article posted on the discussion board suggested that infrastructure investments (highways, ports, telecommunications) not only

increase the stock of capital, they can also increase productivity. Do you agree? Why or why not? (10 points)

- (c) *Trade balance.* Some have suggested that the US trade deficit ( $NX < 0$ ) reflects inadequate saving, while others have suggested that investment is excessive. In what sense does each claim contain a grain of truth? What evidence would you use to support one claim over the other? (10 points)

**Practice Midterm Examination 3**

Revised: October 9, 2014

You have 90 minutes to complete this exam. Please answer each question in the space provided and show all of your work. You may consult one page of notes and a calculator, but devices capable of wireless transmission are prohibited.

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, or tolerate those who do.

---

(Name and Signature)

1. *Indonesia*. Indonesia is one of the world's most populous countries, but it remains a poor one, with GDP per capita of about 6 thousand US dollars. Its recent trajectory, however, has been strong, with average GDP growth over 5% between 2000 and 2011 and a barely perceptible impact from the global financial crisis.

From EIU reports, we find that Indonesia's recent success comes after a tumultuous history. Following independence from the Dutch after World War II, it had several decades of authoritarian rule. The bloody transition from Sukarno to Suharto in 1965 is vividly portrayed in Peter Weir's 1982 film, "The Year of Living Dangerously." Economic performance improved under Suharto, but dissatisfaction with authoritarian rule peaked after the Asian Crisis of 1997, when the currency fell by 80% against the dollar and real GDP fell 14%.

After the crisis, Indonesia made a rapid transition to multi-party democracy, with the first democratic elections in 34 years in 1999 and several more since then.

Your mission is to examine the economic roots of recent success using the data in Table 5.

- (a) What is the average annual growth rate of GDP per capita between 2000 and 2011? GDP per worker? (Here and elsewhere in this question, growth rates are understood to be continuously-compounded.) (10 points)
- (b) What was total factor productivity in 2000 and 2011? Its average annual growth rate? (10 points)
- (c) What are the other sources of growth? What factors account for the growth rate of GDP per worker you computed in (a)? GDP per capita? (10 points)

Year	$POP$	$Y/POP$	$Y/L$	$K/L$
2000	220.0	4,151	8,828	21,408
2011	245.6	6,209	12,672	23,471

**Table 5.** Indonesia: aggregate data on output and inputs. Population is in millions. The other numbers are 2005 US dollars (PPP adjusted, from Penn World Tables and EIU CountryData).

2. *Indonesia and Kazakhstan.* As the junior member of a consulting team, you have been asked to collect information on the pros and cons of building a small manufacturing operation in Indonesia or Kazakhstan. The plant would produce toys aimed at the growing Asian market. Both countries have shown recent signs of economic progress. Both are actively recruiting foreign manufacturers, Indonesia to continue its growth, Kazakhstan to diversify beyond its resource-based economy.

A collection of institutional indicators is given in Table 6. In addition, the political situations are quite different. Indonesia is an emerging democracy. The EIU describes Kazakhstan's political structure as authoritarian:

Nursultan Nazarbayev, the current president and formerly the first secretary of the Communist Party of the Kazakh Soviet Socialist Republic, has ruled Kazakhstan since independence. He has steadily increased his control over Kazakhstan's political structures, which has allowed him to secure re-election several times, the most recent presidential election being in December 2005. Parliament approved amendments that pave the way for him to remain president for life. His party, Nur Otan (Light-Fatherland), won every seat available for election in the new parliament.

As a result, the political situation is thought to be stable.

- (a) Which of these indicators are most important to your venture? How do the two countries compare on them? (10 points)
  - (b) Which country or countries would you recommend to your clients? What are the challenges they would face? (10 points)
3. *True/false.* Please explain why each statement is true, false, or uncertain. The explanation is essential.
- (a) If a product is made in the Mexico but sold to consumers in the US, it is not included in Mexican GDP. (10 points)
  - (b) If the unemployment rate falls, employment has risen. (10 points)

Indicator	Indonesia		Kazakhstan	
	1996	2010	1996	2010
<i>Governance</i>				
Political stability (percentile)	13.5	18.9	28.4	61.8
Govt effectiveness (percentile)	40.0	47.8	13.2	44.5
Control of corruption (percentile)	30.7	27.3	9.3	15.3
<i>Labor</i>				
Minimum wage (ratio to average)		0.41		0.13
Severance after 10 years (weeks of pay)		56		4
Mandatory vacation (days per year)		0		13
Flexible hours? (yes, no)		yes		yes
<i>Transportation infrastructure</i>				
Overall quality (percentile)		42		40
<i>International trade</i>				
Documents required (number)		4		9
Delay (days)		17		76
Cost (USD per container)		644		3130

**Table 6.** Institutional indicators for Indonesia and Kazakhstan.

- (c) Firms find it costly to search for workers with the right skills. For that reason, regulations that discourage labor turnover are good for the economy. (10 points)
- (d) A tax on labor tends to reduce employment. (10 points)
- (e) In Ricardo's model, free trade is good for consumers but bad for workers. (10 points)