Determinants of Healthcare Expenditure in the Organization for Economic Cooperation (OECD) Countries

Harry Waterton[a]

Abstract:

This paper investigates the factors that determine the expenditure in healthcare within the Organization for Economic Co-Operation and Development (OECD) countries. The study will contain and be based around a regression model, using healthcare expenditure per capita as the dependent variable, for 10 of the 34 OECD countries. The data that will be analyzed ranges from 2000 to 2010 using the panel data analysis format, and will be extracted from the World Bank and OECD statistics websites.

JEL Classification: I11, I12, I15

Keywords: Expenditure, Healthcare, Per Capita, OECD

[a] Economics Undergraduate, Bryant University, 1150 Douglas Pike, Smithfield, RI02917. Phone: (401) 965-8676. Email: hwaterton@bryant.edu

---

The author thanks the World Bank and OECD statistics website for providing data and gratefully acknowledges the help and guidance from Professor Mohan of Bryant University.

1.0 INTRODUCTION

The time selected for this study certainly covers a time where economic prosperity was minimal, the 2008 Financial Crisis. In relation to the Organization for Economic Development and Development (OECD) countries, this was a time where healthcare spending had stopped growing faster that Gross Domestic Product (GDP), this had an effect of country trends in the ratio between healthcare spending and GDP. Regardless of this moment in the 21st Century, on the whole most OECD countries have been allocating more of their percentage of GDP towards the healthcare sector; thus having a direct and positive affect on healthcare expenditure per capita. According to OECD (2013) the rate of growth in healthcare spending between 2000 and 2009 was 4.1% compared to the considerably lower GDP growth of a mere 1.5%. Due to the majority of the OECD countries considered to be developed nations, some of whom also considered some of the more powerful countries in the world, and the rest declared as developing nations the level of expenditure towards healthcare is apparent and, on a global scale relatively high. Therefore, according to the World Bank (1993) the more affluent countries see healthcare as more inelastic, whereas for those less developed countries, it is measured as more of an elastic good.

The increase in the expenditure towards healthcare is faster than the rate of GDP, which is seen particularly in the OECD countries, due to many factors including the continuing advancements in technology, the number of people living to far older ages than many decades ago and an increase in the need and demand for healthcare from the public.

This increase in healthcare expenditure has certainly not gone without any positive results. In order to determine how much expenditure is set aside for the healthcare sector, particular variables need to be looked at. Ease of access to healthcare is something that is fundamental to citizens of developed and developing countries and an effective way to look at this access would be to consider both infant mortality and the aging population but also the number of physicians per thousand people. Since 1960 all recorded countries have shown an increase in life expectancy at the age of 65 as seen in figure 1. Also, for the infant mortality rates there has been a decline, see figure 2, from 1970 to 2011.

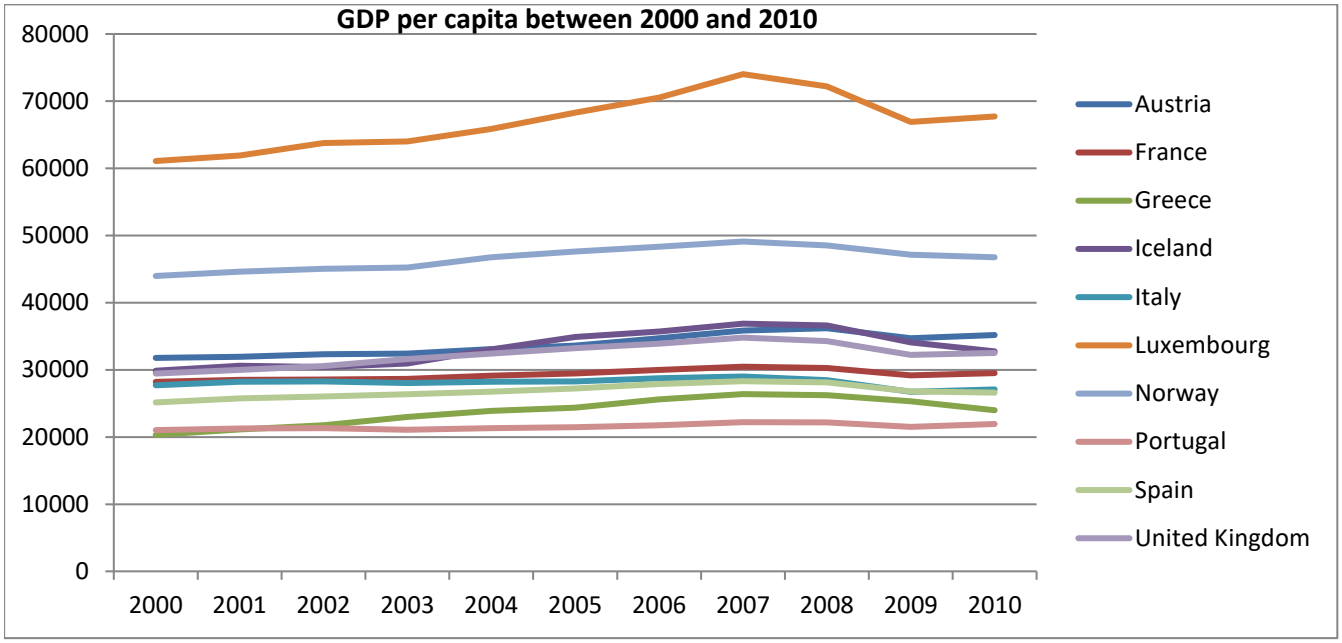
This paper will look to aid in the understanding as to what factors are considered to determine how much countries spend of their total GDP on healthcare. It will also determine

which of the chosen socio-economic and demographic variables holds the most significance as to the allocation of a country's GDP.

2.0 TRENDS

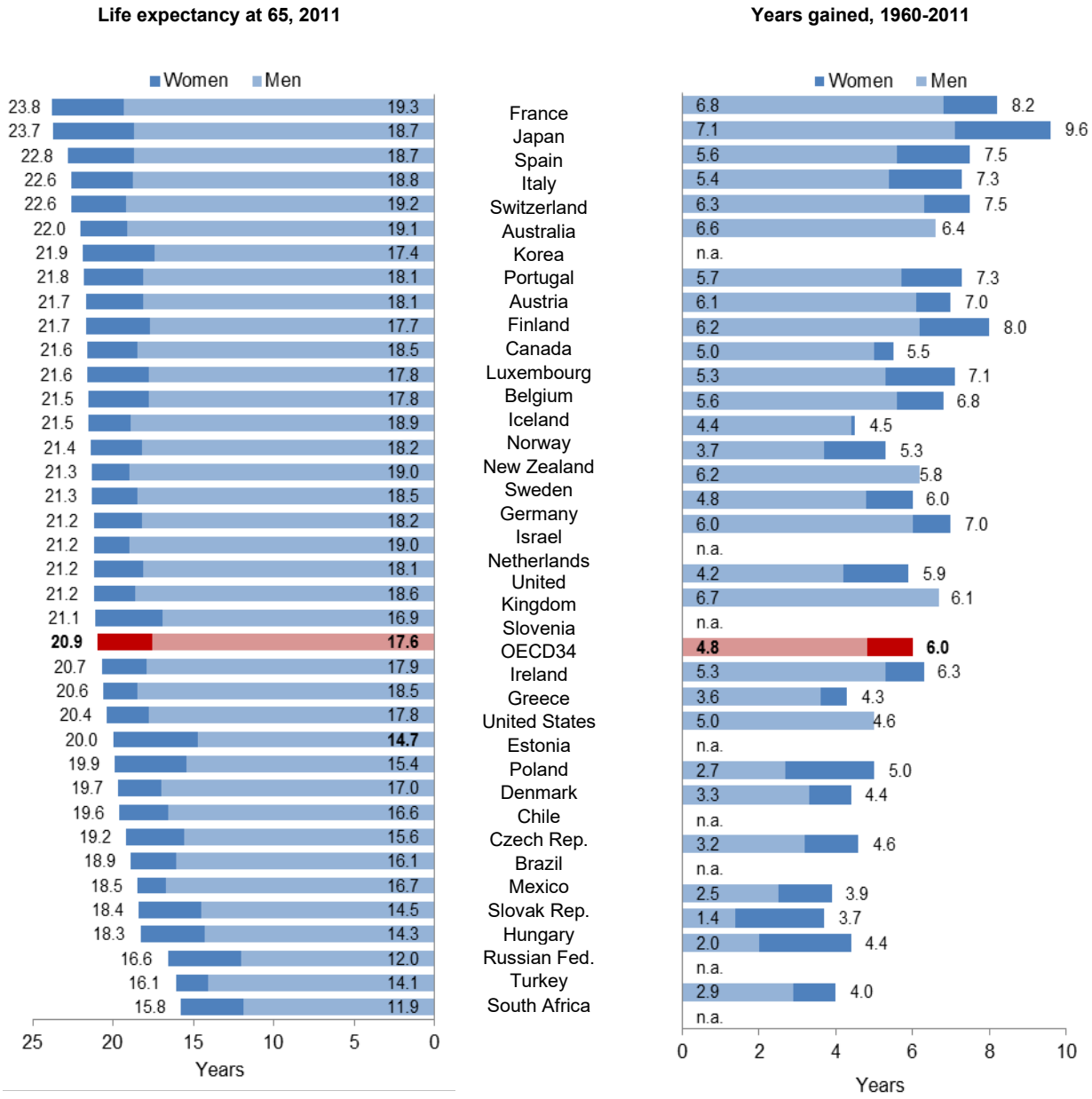
The main noticeable trend that my study has unearthed is that when GDP is increasing the rate at which healthcare expenditure increases is higher. The overall increase in healthcare expenditure relative to GDP growth is down to there being more capital accessible for investment in the healthcare sector but there are factors that affect the rate at which healthcare expenditure increases.

This study ranges over a period of a global recession, and therefore the results and data that this study uses will have a drastic fluctuation around the years 2008 and 2009.

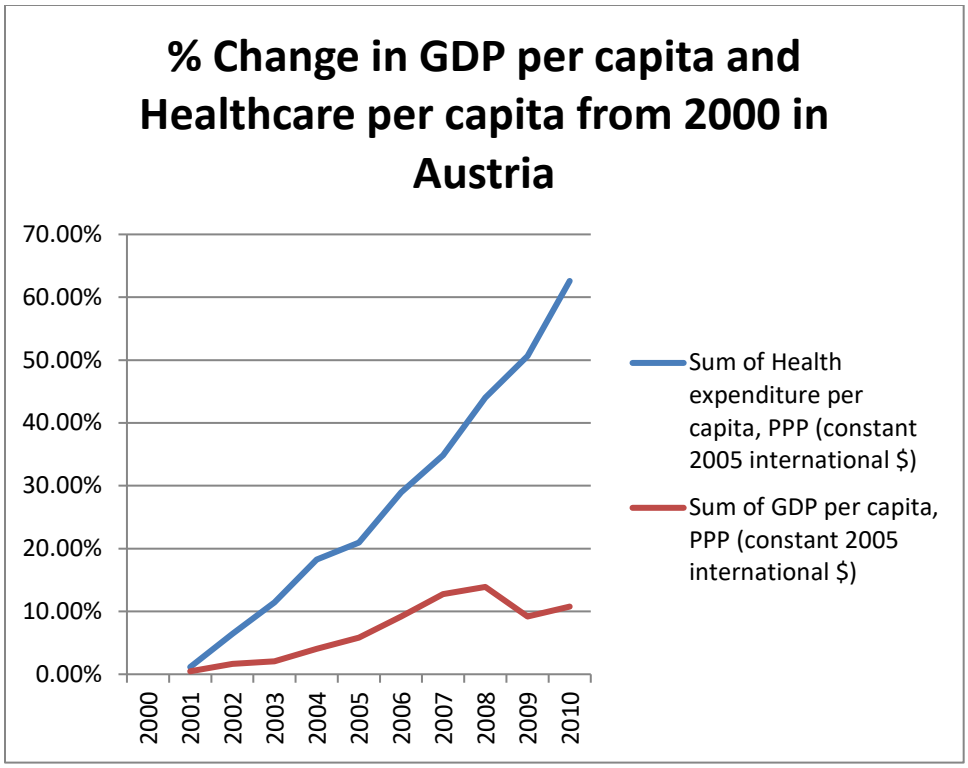


The graph above shows that between the years 2000 and 2010 there are levels of growth within these randomly selected countries. Then in 2008 when the financial crisis occurred, it hit 2009, and this graph features a decrease in GDP per capita, and for the cases of Austria and France, a slightly larger impact. It is clear from this information in this chart that the countries hit hardest were those with a substantial economic base within Europe such as the United Kingdom, which shows graphically as two years of lowering GDP per capita.

In terms of the overall level of health across all of the OECD countries, and using the variables that measure levels of health or are equivalent proxies, there are considerable positive results. Life expectancy increases in all of the countries as seen in this graph below.



Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en; national sources for non-OECD countries.



Using Austria as an example, you can see from the graph above that the rate of growth using 2000 as the base year has grown considerably. GDP per capita took a hit in the years around the recession, 2008/9, where as the heatlthcare expenditure per capita continued to rise at an increasing rate.

3.0 LITERATURE REVIEW

It is safe to say that according to Bloom et al (2004) that health, more specifically good health has a large, positive effect on the output of a country, their GDP. Other papers have backed this up by saying how health care expenditure responds to changes in the GDP of a country, stated by Okunade (2005) who writes in regards to African countries. The level of expenditure is at an increasing rate in relation to GDP but at a far higher rate, stated by Gerdtham and Jonsson (2000).

Okunade (2005) discusses that, in relation to the amount that a country will spend and the reasoning that they will have higher or lower rates of healthcare expenditure, it comes down to how a country and its population see healthcare, whether it is luxury or necessity. He states that high income countries will use healthcare in a manner that relates more to care as opposed to a lower income country may use it to cure. He implies that the higher income countries are using it

as a preventative as opposed to using it as a way of ridding an already existing disease spread throughout a population.

Education is a proxy for literacy rates and there are many arguments posed by economists discussing whether or not education plays a part in one's requirement and demand on healthcare. The theory that the higher the level of education an individual has the higher their demand is on the healthcare system was argued by Grossman (1972). However, countering this were more recent studies looking at more developed economies such as the US, and certain European countries like Denmark and Sweden that were unsuccessful in proving that higher education will in turn lead to higher levels of health (Fuchs, 2004, Spasojevic, 2003; Arendt, 2002; Lleras-Muney, 2002). In some cases, studied by Ellis and Mwambu (1991) and Gertler and van der Gagg (1990), there is no significant evidence to confirm a relationship between health and education.

In the paper written by Okunade (2005) he uses the variable of percentage of births attended by health care personnel. He claims that healthcare expenditure is probably going to increase the higher the percentage, and then claims it will be positively correlated if there is high standards of education, a young population, and the area to be relatively urbanized.

4.0 DATA AND EMPIRICAL METHODOLOGY

4.1 Data

This study uses data starting at 2000 and uses a panel analysis method every year, with the final year being 2010. The data was all taken from the World Bank website, given this study some consistency in terms of the source of the data.

4.2 Empirical Model

Following the original model that was created by Okunade (2005), this study has adapted and modified the model to best fit the countries under investigation and the data available. The original study by Okunade was looking at African countries and most of which are less developed countries

compared with the higher levels of development in the OECD countries that will be the attention of this study. That is why many of the variables have been switched or eliminated, with the addition of some that will best indicate the most important variables that will affect the expenditure of healthcare per capita. What was eliminated from the original model was the Gini coefficient which showed the income distribution. Others include the 'ODA' variable, the 'War' variable, Corruption, BATD that shows the percent of births attended by trained health care professionals, and finally 'LT15YE' which represented the dependency ratio of population.

The variables that have been added are proxies for other variables because in some cases there is so little data that a regression cannot be run on it. The variable regarding population to the number of doctors and nurses was adapted into the number of physicians per 1000 people, percentage population above 65 years old was used as a proxy to 'GT15YR' which was percent of population >15 years. The variables that have been added were the secondary school enrollment which is a proxy of literacy rate due to the lack of data; also secondary school duration is a second proxy to that variable. Infant mortality was added as a proxy to avoidable deaths.

The model is written below:

$$\mathbf{HEXP(\lambda 0) = \beta 0 + \beta 1 GDP/CAP_{it} + \beta 2 AgingPop_{it} + \beta 3 Enrollment_{it} + \beta 4 Physicians_{it} + \beta 5 InfMort_{it} + \beta 6 Duration_{it} + \xi}$$

Independent variables consist of six variables all obtained from the World Bank data source. Appendix A and B provide the acronyms of each variable and their description, expected signs and justification for using each of the variables. The regression will be run using the format of panel data analysis over 2000 to 2010, using a fixed effects method. I chose the fixed effect method after running the Housman test and with the results found I rejected the null hypothesis, therefore the random effects method would be inefficient, thus the choice of fixed effects.

First GDP/CAP represents Gross Domestic Product per Capita of the host country at the specific year given. Second, AgingPop represents the percentage of the population above the age of 65 which is a variable highlighted by the model by Gan and Frederick (2010). Third, Education shows the how many children are enrolled into secondary education. The variable is the gross enrollment ratio (GER) of secondary education, regardless of age as a percentage of the population of those that fall into the age range of secondary school. The GER can surpass 100% due to the inclusion of the over or underage students enrolled into secondary education. The fourth variable, Physicians represents the number of

physicians there are per 1000 of the population. The fifth is infant mortality; this variable represents the death of infants who die in their first year, per 1000 live births in a given year. This is a proxy for avoidable deaths. The sixth and final variable is the duration that secondary education is in any given country. As the third variable indicates the enrolment in a given year, the secondary education shows how long they are enrolled for.

5.0 EMPIRICAL RESULTS

Table 1: Regression results

Variable	Coefficient (Standard Error)	t-statistic	Probability (P>|t|)
GDP	0.0708 (.0196)	3.60	0.001***
Education	-5.943665 (10.079)	-.59	.557
Physicians	321.5802	2.86	.005***

	(112.2482)		
Mortality	-601.4943 (96.07211)	-6.26	.000***
AgingPop	-113.9711 (91.87425)	-1.24	.218

Note: ***, **, and * denotes significance at the 1%, 5%, and 10%, respectively. Standard Error in parentheses

Table 2: R-Squared values

R-squared	
Within	.7793
Between	.8569
Overall	.8239

The results of the regression using the variables described in Appendix A and B are shown in Table 1 and 2.

Table 1 shows the coefficient, the standard error, the t statistic, and the 'p' value with the significance indicated with '*'s. From the findings from running the regression it is clear to say the significance is highest for the Infant Mortality variable, GDP per capita and the number of physicians' variable.

Looking at the first of the six independent variables, infant mortality, the regression has shown it has high significance with a t statistic of -6.26. When taking into account the coefficient, the study shows that for every one child that dies per 1000 births, healthcare expenditure per capita decreases by $601 at a level significance of 1%.

The second of the independent variables, GDP per capita, has a very high significance too, at a 1% level of significance. The t statistic is showing that it does have a high significance also by having a value of 3.60. When considering the coefficient, there is a positive relationship to that if

there is a $1 increase in the GDP per capita then there will be a $0.07 increase in healthcare expenditure per capita.

The results from the regression of the third variable, education or specifically the number enrolled in secondary education were contrary to the study carried out by Grossman (1972). It agreed more with the studies of Fuchs (2004), Spasojevic (2003); Arendt (2002); Lleras-Muney (2002). They found with their studies that there was no proof that education was a factor of determining how healthy someone was and therefore their demand of healthcare expenditure. The results obtained from my study backed up their claim due to its low significance of -.557.

The fourth variable of aging population statistically showed no level of significance as a determinant of healthcare expenditure. This goes against the findings of Gan and Frederick (2010) with their findings of how significant the aging population is when considering the level of expenditure towards healthcare.

The fifth variable, physicians per 1000 of the population, statistically shows a significance of 1%. This also shows that there is a positive relationship between healthcare expenditure per capita and the number of physicians due to the coefficient being positive at 321.58. This means that every one more physician assigned to 1000 people, there is $321.58 more money towards healthcare per capita.

The values in the R-Squared value table show that the regression considers and explains around 82% of changes in the data.

The findings of this study show that three of the variables are significant at the 1% level. I thought from the research that I have conducted that there would be significance in all of the variables. The results only gave me three variables with significance and the variable aging population was not one of those which was surprising because I thought that if the age of someone increases that their demand of the healthcare system would increase. However, according to the results from the regression, there is no significance between this independent variable and the dependent variable. A reason to explain this insignificance maybe that the data experienced no major fluctuations causing a relatively similar change in the dependent variable. It was clear when looking at the data that there was a positive relationship between the two variables, including a very slow increase in an aging population between 2002 and 2007.

Another empirical result that was not predicted was the no significance between the education variable, with the proxy of secondary school enrollment. I thought that using the number of students entering into secondary school would reflect high levels of intelligence thus illustrating that they understand basic healthcare and how to look after themselves hygienically. The trend of secondary education enrollment was an increase to around 2007 then a steady decline. The reason for this result could be that a lot of the European countries say that secondary school up to the ages of 16 or 18 is mandatory for all children that fall within that age group. This would mean people are being sent to school, but with no variable or data suggesting the actual grades and therefore level of intelligence, it would be hard to say as to whether or not the students of these schools hold a good academic standing.

In regards to physicians, from research conducted I thought there are reasons as to how the number of physicians could be either positively or negatively correlated with healthcare expenditure per capita. When physicians act positively towards healthcare expenditure one could theorize that when another physician is added per 1000 of the population more money will have to be spent in order to compensate the increase in the amount of wages that are being paid. Countering that argument could be that the increase in physicians could show surplus in supply and therefore people are getting easier access to healthcare, the average level of healthcare would increase and therefore the government could afford to cut the spending towards that sector, per capita. However, the results followed the first theory of positive correlation with healthcare expenditure per capita.

Now, if we turn our attention towards the variable, infant mortality, and to Appendix B, the original prediction was that the higher the infant mortality the higher the amount if healthcare expenditure due to there we avoidable deaths taking place, therefore the need for more money to eliminate or at least lower this problem. However, looking at the data and the results we can say that this is not the case. Throughout the years in question, the infant mortality rate dropped across all of the countries where as the healthcare per capita did the opposite. So being the independent variable the linkage between them is changes in infant mortality should cause certain changes in the dependent variable, healthcare per capita, but there is only a negative relationship. However, if the variables were to change over, then explaining the decrease in infant mortality cause by the increase in healthcare per capita would make more sense. In other

words, the decrease in infant mortality was not significant therefore holding no reason as to the change in healthcare expenditure. So looking at the results and the data, next time mortality would be omitted or replaced with a proxy variable.

Finally, the variable of GDP per capita was the variable with most certainty in terms of the effect that it would have over the dependent variable. It holds no surprise that when the GDP per capita increases the healthcare per capita increases too. It is clear to see that from the data extracted from the World Bank databank that healthcare per capita is increasing at a far faster rate than GDP. It is a safe assumption to make that when more capital is available to the individual, that they would spend it on their wellbeing, more specifically healthcare.

6.0 CONCLUSION

In summary, this study assessed the significance of specific variables and determinants that affected the amount of total gross domestic product spent towards healthcare per capita in a collection of 10 countries from the possible 34 countries of the OECD. The results found that infant mortality had the greatest significance with GDP per capita and the numbers of physicians per 1000 of the population too, were highly significant in terms of factors affecting healthcare expenditure per capita. The statistically insignificant variables were education, showing the population in secondary education as a percentage of total population above the age of 65. A conclusion can be drawn in that there is no link between education and the healthcare expenditure as too the same situation with aging population. Regardless of how old you are, you have the same demand on healthcare, and therefore expenditure is the same for all ages. A change would have been doing each of the different age groups. Another study that I would conduct would then consist of a group below 15 years old, one between 15 and 65 and then one above 65 years old.

If I was to carry out another study on the same topic to further the analysis of healthcare expenditure I would do a number of things. That study would be carried out over a longer period of time, possibly over another 10 years previous to 2000. Another consideration would be to carry out the regression would be to do all of the 34 countries inside the OECD. This would then eliminate some of the potential bias towards the countries chosen from within Europe. Adding a

country as large as America, for example, would result in vast changes in the regression results. Other changes that I would consider would be using more variables. These other variables would discuss more of a political stand point so to determine, for example, whether or not the country was democratic or not. This many also be seen as a proxy for corruption, which was a variable in the original paper written by Okunade (2005). The study may also include the use of the Gini coefficient in order to cover an area that is untouched in this study in regards to equality from within each country. Another variable that I would look further into would be the education or levels of intelligence of the students enrolled in the secondary education. As many of the countries require the students of that age bracket to partake in education, I should have added in a variable that assessed the levels of grades of these students, not just how many were enrolled, which according to my results only dropped below 90% (in 2000 in Greece).

Appendix A: Variable Description and Data Source

Acronym	Description
GDP/CAP	Gross Domestic Product per Capita in dollars
AGPOP	Population ages 65 and above as a percentage of total population
EDU	School Enrollment, Secondary (%Gross) – total enrollment in secondary education regardless of age as a percentage of total population within the official age of secondary education
PHY	Number of physicians per 1000 people

MORT	Infant Mortality – the number of deaths of infants in their first year per 1000 births
DUR	Duration of secondary education is the number of grades (years) in secondary education

Appendix B: Variables and Expected Signs

Acronym	Measured as	Expected Sign
GDP/CAP	Dollar amount ($)	+
AGPOP	Percentage of total population	+
EDU	% of total with total being all those enrolled regardless of age	+/-

PHY	Number of physicians every 1000 people	+/-
MORT	Children under the age of 1 that died	+
DUR	Length of secondary education	+

References:

Arendt, J. N. (2002), Education Effects on Health: A Panel Data Analysis using School Reform for Identification, *Doctoral Dissertation,* University of Copenhagen, Copenhagen, Denmark.

Bloom, D. E., Canning, D., & Sevilla. J. (2004). The Effect of Health on Economic Growth: A Production Function Approach. *World Development, 32(1), 1-13*

Ellis, R. and Mwabu, G. (1991), The Demand for Outpatient Medical Care in Rural Kenya, *The Institute of Economic Working Papers,* Series No. 140.

Fuchs, R. V. (2004), Reflections on Socio-Economic Correlates of Health, *Journal of Health Economics,* 23(4), pp. 653-661

Gerdtham, U.-G., and Jonsson, B., International Comparrisons of Health Expenditure: Theory, Data and Econometric Analysis, *Handbook of Health Economics,* eds. A.J. Culyer and J.p. Newhouse (North Holland Publishing, Amsterdam, 2000).

Gertler, P. and van der Gagg, J. (1990), The Willingness to Pay for Medical Care: Evidence from Two Developing Countries, *Baltimore: The Johns Hopkins University Press.*

Grossman, M (1972), On the Concept of Health Capital and the Demand for Health, *Journal of Political Economy,* 80(2), pp. 223-255

Lleras-Muney, A. (2002), The Relationship between Education and Adult mortality in the United States, *National Bureau of Economic Research,* Working Paper No. 8986

Spasojevic, J. (2003), Effects of Education on Adult Health in Sweden*, Results from a Natural Experiment, Doctoral Dissertation,* City University of New York Graduate Center, New York.

World Bank (1993), World Development Report, *Oxford University Press, New York.*

“Risk Off”
The Economist
Why some people are more cautious with their finances than others

- Long term growth becomes affected by less risk…no one risks ‘start-ups’ or expanding

Reasons for recent risk adversity:

1. **Genetics**
- Study on twins
2. **Financial history**
- Those who experience high returns early in life are likelier to report a higher tolerance for risk
3. **Economic turmoil**
- Dampens appetite for risk
- Huge crash in Finland (early 1990s) – people hit by unemployment harder were less likely to own stocks a decade later

- 4. Natural disasters
  - Tsunami in South East Asia or the Korean war
- 5. Financial trauma
  - Study examined investments of clients pre and post “08 crash
  - Risk aversion rose sharply post crash (even from those who suffered no losses)

CONCLUSION:

Slumps in Europe and America will ‘scar’ many people

Financial crisis will inhibit people from taking risks

Policy-makers and regulators need to address less risk-takers, not excesses

It’s All Lights Out in **Pakistan**

By Harry Waterton

Agenda

- Economic Indicators and Facts
- Overall Economic Situation
- Other Problems
- Electricity Dilemma
- Reasons for Dilemma
- The “Big Task”
- Not All Doom and Gloom
- Conclusion

Economic Indicators and Facts

- Population – 179.2 million (2012)
- GDP Per Capita – 1,290.36 USD (2012)
- GNI – 543.6 billion PPP (2012)
- GDP – 231.2 billion (2012)
- Inflation – 8.53% (3/15/2014)
- Currency – Pakistani Rupee (1 Rupee = 0.010 USD)

Economic Problems

- Bankrupt in the last 6 months
- $10billion in emergency funds from to prevent defaulting:
  - World Bank
  - Asian Development Bank
- Cost of insurance on Pakistan's debt exploded
- Investors not comfortable as insurance of $10million of sovereign bonds costs $2.2million year

Current Situation

- One of the poorest countries in the world
- Most of the population are living in poverty
- Makes it hard to have a good healthcare policy
- Main problem stems from unstable government
- Scarce resources
  - Export one good only

Government

- Unstable government
- Due to constant changes of government power and policies
- Not attractive for FDI
- They have made positive steps towards economic growth
- However, this has been accompanied with huge inflation
- Leaving most of the population worse off

Exporting

- Main export is textiles
- Susceptible to price changes but more importantly demand changes
- Demand changes to another country or global demand decreases would great huge problems
- Need to diversify their products used for exporting

Results of Both (Govt. and Poor Diversification)

Other problems

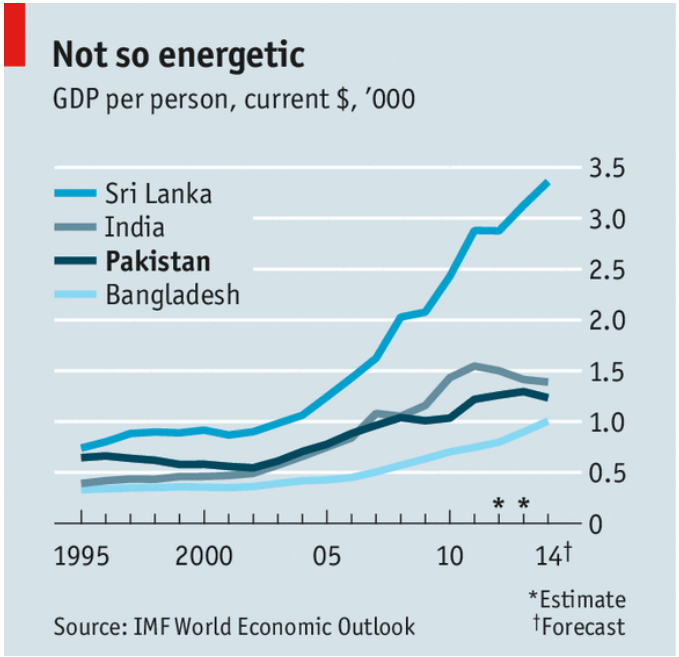
- Poor standards of education make for poorly skilled workers
- Not a prospect for foreign investment
- Also the demand for electricity far exceeds the supply
- So they wouldn’t be able to keep up with huge infrastructure improvements

Electricity

- http://www.youtube.com/watch?v=x3h2hhy7H_E

Electricity Problem

- Constant blackouts and unreliable power, the dismal economic growth will continue



Results of Poor Economic Growth

- Poor GDP growth will hurt the GDP per capita
- Leading to poor jobs prospects and high rates of unemployment
- The resultant poverty and bleak prospects are a direct cause of violence that rocks the country
- Unemplyment has been rising fast
  - 9% in 2004 – 20% 2010 (World Bank)

Why such a mess?

- Management by state run firms are awful
  - Gross over staffing
  - Incompetent Engineers
  - Poor financial control
- Shahbaz Sherif (Chief Minister) says consumers are stealing electricity and gas
- Religious schools don't pay because they know that they won't be shut down
- Consumers claim that if they get more bang-for-their-buck then they will be more inclined to pay

How to fix this…

- Private firms must be found and take over
- “The government can’t spend any more” – Mr Zabair (privatization minister)

The “Big Task”

- Change the country’s ill-judged energy mix
- 1/3 of electricity comes from oil-fired power stations
- Commissioned in the 1980s
  - Crude oil was cheap
  - Oil is $100+
  - Power stations are far too expensive
- Pakistan spends $14b importing oil and other energy products

Biggest Task (cont.)

- Building liquefied natural gas terminals to increase capacity
  - As it is cheaper
- Plan to bring more gas from Iran but US won't let them
  - US are their biggest donors

Fixing The “Big Task”

- Not going to be easy or quick
- Mohammad Mansha (richest man in Pakistan) is optimistic about the government to grapple the power sector issue
  - Lead to more consumer confidence and prosperity towards economic growth
- Cross border trades with India are a possibility
- India offered to extend their power grid to them
- India would gain vast sums of coal due to large coal reserves in Pakistan
- Still in talks though

Not All Doom and Gloom

- Asia Development Bank predicts a 4% growth in next fiscal year
- Political stability is weak
- Collapse could be any month now
- Which is good because…
- This could be the opportunity for political reform and prosperity

Conclusion

- Unstable government is the cause of many problems
- State run electricity sector hurts economic growth due to low international confidence and no FDI
- Need to privatize the electricity plants and stations
- Change Pakistan's poorly judged energy mix
- Better relationship with India to trade energy with them (electricity for coal)

MEXICO: CRISIS AND COMPETITIVENESS

HARRY WATERTON AND KUAN LU

AGENDA

- Introduction
- Modern Policy History
- Relationship with the United States
- Comparative advantage
- Issues in the industry
- Finance and credit
- Education
- Structural reforms
- Conclusion

INTRODUCTION

- 2009: 7% decline in GDP
- Mexico's economy had only grown 1.4% in 2001
- Between 1994 and 2001 Mexico operated under an open-economy, export led growth strategy
- 25.2b barrels of oil (1998), shrunk to 10.4b barrels in 2010
- FDI poured into Mexico manufacturing and services sectors

STABLE TO UNSTABLE DEVELOPMENT IN THE 1970S, 80S AND 90S

- President Luis Echeverria spent heavily on health, education and infrastructure
- Debt rose to $18 billion
- 1980s: oil prices rose, so exported this to fuel Mexico's growth
- Spending spiraled out of control, budget deficit reached 17% of GDP
- Federal Reserve tried to lower inflation
- Jose Lopez Portillo had to devalue the peso and nationalize banks

STABLE TO UNSTABLE DEVELOPMENT IN THE 1970S, 80S AND 90S

- 1982: new President Miguel de la Madrid signed a letter that issued a bailout from the IMF
- He also started cutting expenditures
  - Like inefficient company bailouts
- An earthquake hit Mexico city plunging it into another deep recession
- So de la Madrid negotiated the first "Pacto"
  - An agreement to hold down prices in the business, labour and government sectors

RECOVERING ECONOMY

- President Carlos Salinas took over the recovering economy in 1988
  - Kept fiscal and monetary policies tight
  - Widespread privatization
  - Curtail corruption
  - Opened country to more FDI
- As a result…Mexico's debt dropped from $102b to $79b

TEQUILA CRISIS OF 1994-1995

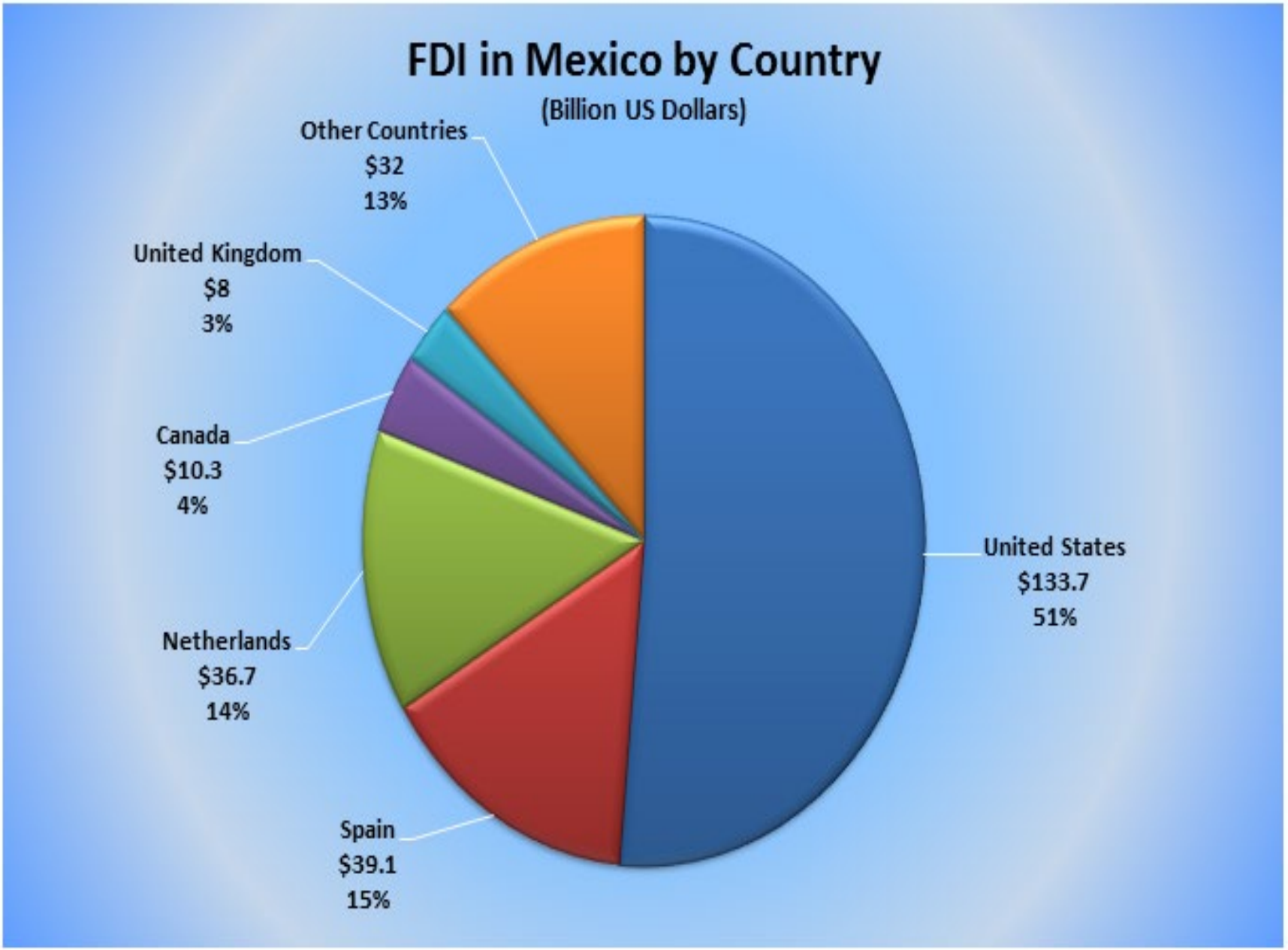
- President Salinas fixed the peso
- Resulting in a worsening trade deficit
- Financed by dollar denominated bonds
- 1994: Foreign exchange reserves were dissipated so Salinas increased interest rates
- International currency market panic lead to collapse of peso
- Clinton bailed them out with $52 billion
- Mexico thrived through export led, NAFTA fueled growth

RELATIONSHIP WITH THE UNITED STATES

- Fragile since the Mexican/US war
- Commercial production of oil in 1901
- Exports 1.22 million barrels of oil out of 2.61 million to the US
- NAFTA has reduced tariffs and non tariff barriers (1994)
- In 1997 rules governing FDI were loosened
- Exports to North America increased by 18% and imports by 15%
- After NAFTA employment rose 86% as did the per hour wage from $0.75 to $1.80

FOREIGN DIRECT INVESTMENT

- Cheap labor, freer trade relations caused a huge boom in FDI
- From $4b to $13b (2000)
- American banks and investors were willing to lend to Mexican companies


FDI in Mexico by Country
(Billion US Dollars)
Other Countries
$32
13%
United Kingdom
$8
3%
Canada
$10.3
4%
Netherlands
$36.7
14%
Spain
$39.1
15%
United States
$133.7
51%

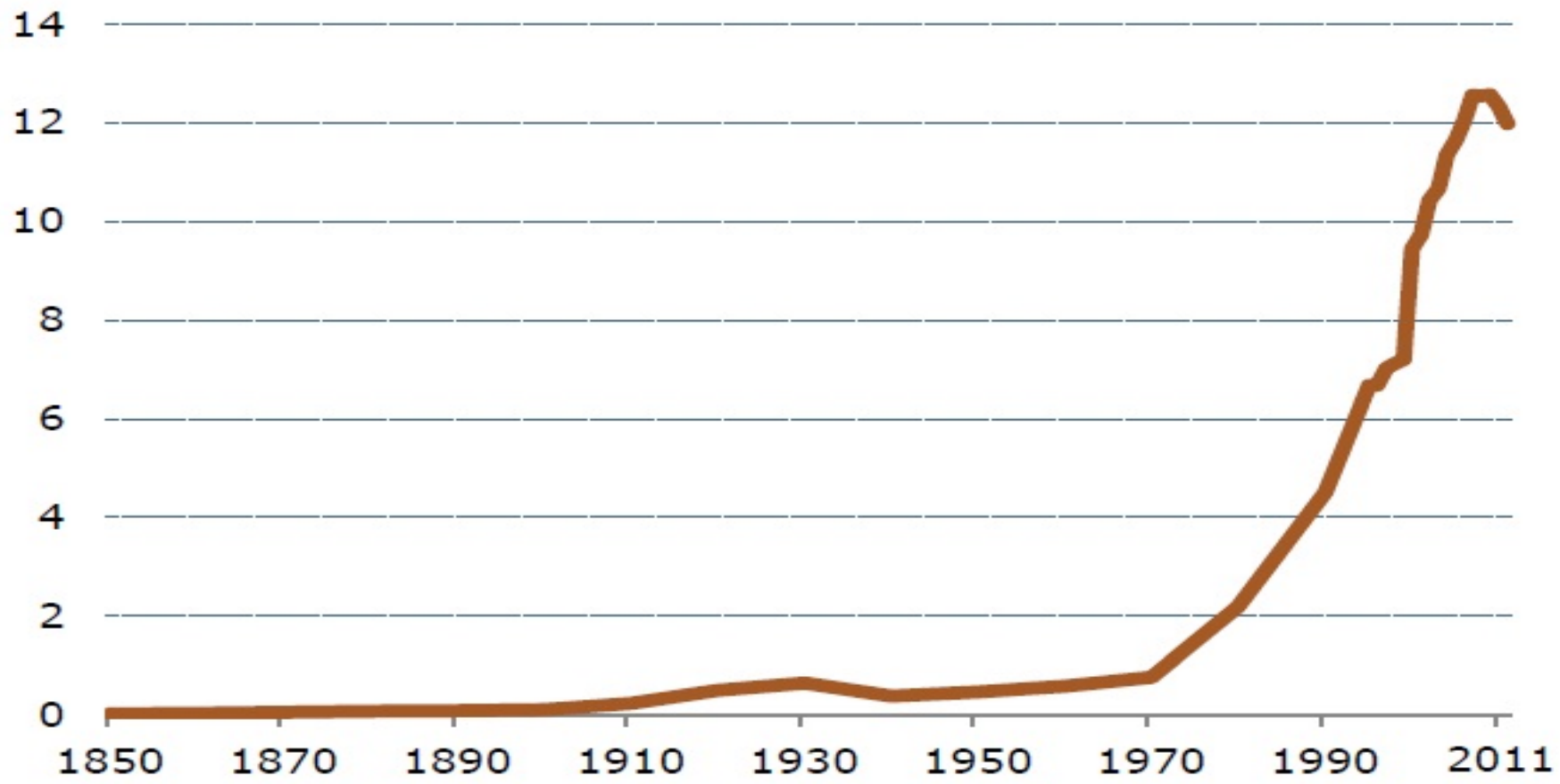
EMIGRATION AND REMITTANCES

- 2007: 485,000 Mexicans emigrated to America
  - 11% illegally
- Friction occurred due to illegal movement of Mexicans
- Internal pressures on various sectors resulted in a backlash towards Hispanics
- Remittances became a major source of foreign exchange ($25.1b)
- Remittances dropped 16% in 2009 due to financial crisis

Figure 1.1

Mexican-Born Population in the U.S., 1850-2011

(in millions)



Source: For 1850 to 1980: Gibson and Jung (2006); For 1990 to 2010: Pew Hispanic Center estimates from augmented March Current Population Surveys and Decennial Censuses adjusted for undercount

PEW RESEARCH CENTER

COMPARATIVE ADVANTAGE

- 1) Third largest partner of the United States
- 2) Second fastest growth in the share of total world exports between 1994 and 2004.
- 3) Transitioned from primarily an oil exporter in 1980s to primarily an exporter of manufactures by 2000.

MAIN TRADING PARTNERS OF THE UNITED STATES (SHARE OF UNITED STATES IMPORTS, EXCLUDING OIL)

Country	1994	1997	2000	2005	2009
Canada	19.5	19.5	18.9	17.3	14.4
China	6.3	7.8	9.2	16.8	19.1
Mexico	**7.0**	9.4	10.8	9.6	**11.3**
Japan	18.9	14.8	12.9	9.2	6.1
Germany	5.0	5.3	5.2	5.6	4.6

Source: Foreign Trade Division, U.S. Census Bureau

COMPARATIVE ADVANTAGE

- However, some of the advantages disappeared
  - Reason: China joined WTO in 2001
- Losses: products directly competing with China
  - Televisions, computers, and office machinery
- Survivals: the sectors that have high transport costs. Also some businesses can be benefited from a common time zone or English language.

MOST DYNAMIC EXPORT INDUSTRIES, 1997-2005

Product/ Industry	Share of U.S. imports		Change in Market share for	
	1997	2005	Mexico	China
Meals and flour	2.0	27.5	25.5	-0.4
Road motor vehicles	4.2	21.9	17.7	0.0
Old clothing and other old textile articles	17.2	32.7	15.5	1.1
Live animals chiefly for food	11.0	26.2	15.2	0.0
Zinc	9.3	23.8	14.5	0.0
Milk and cream	2.3	11.6	9.3	0.1
Ingots and other primary forms, of iron or steel	11.2	20.1	9.0	0.6
Sugar and honey	3.2	11.8	8.6	0.5
Sugar confectionery and preparations, non-chocolate	16.7	25.1	8.4	5.9
Iron or steel wire, not insulated	4.0	11.8	7.9	10.9

LEAST DYNAMIC EXPORT INDUSTRIES, 1997-2005

Product/ Industry	Share of U.S. imports		Change in Market share for	
	1997	2005	Mexico	China
Television receivers	69.3	44.8	-24.5	22.0
Fuel wood and wood charcoal	40.9	21.6	-19.4	11.8
Lead	23.0	4.7	-18.3	7.6
Trailers, and other vehicles, not motorized	38.1	20.6	-17.5	31.9
Sulphur and unroasted iron pyrites	42.4	26.8	-15.5	0.0
Coffee and coffee substitutes	16.9	6.7	-10.3	0.0
Manufactures of leather	17.1	8.8	-8.2	30.8
Equipment for distribution of electricity	64.3	56.4	-7.8	8.0
Pesticides, disinfectants	14.7	6.9	-7.8	7.1
Synthetic fibers suitable for spinning	15.2	7.8	-7.4	14.6

ISSUES IN THE INDUSTRY

- Major issue
  - Highly monopoly and oligopoly
  - Lead to unfair competition
- Three major industries
  - Telecommunications
  - Oil
  - Electricity

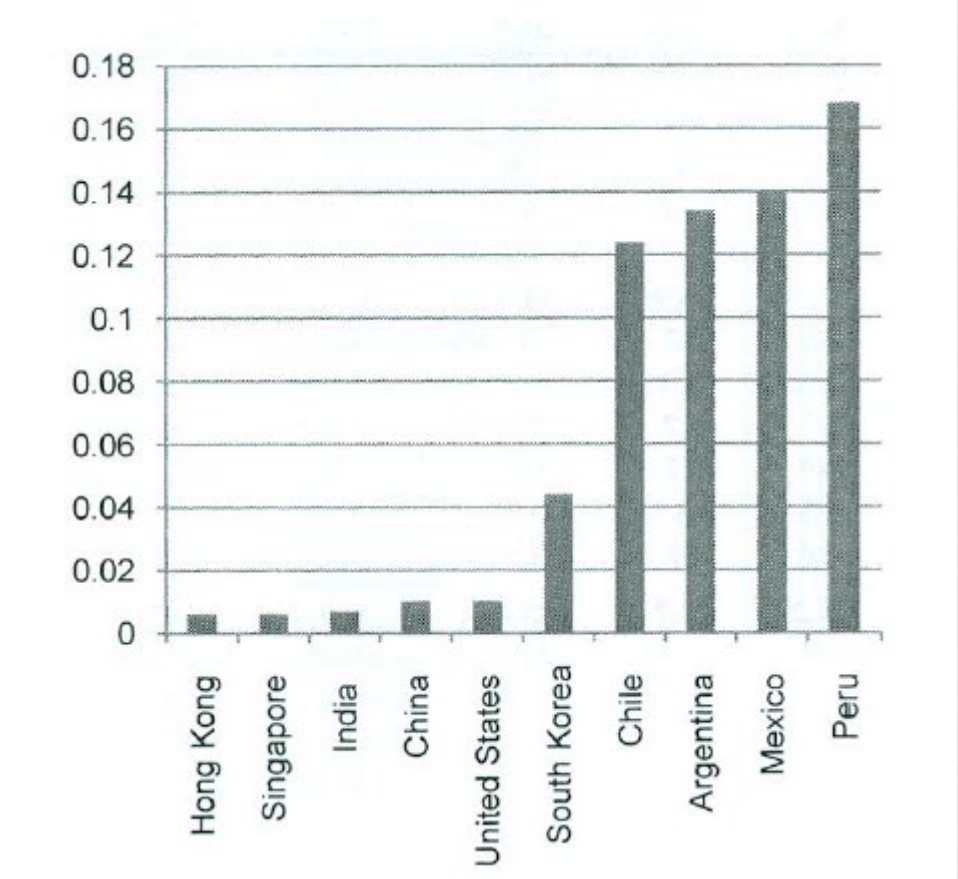
TELECOMMUNICATIONS

- Fixed-Line Telephony: Telmex controlled 92% of market
- Mobile Telephony: Telcel controlled 76% of the market

TELECOMMUNICATIONS

- Broadcasting: Televisa controlled 62%, Television Azteca controlled 35%
- Broadband internet: Telmex controlled 68%, Cablevision(subsidiary of Televisa) controlled the rest

INTERCONNECTION COSTS



OIL

- Was one major export in 1980s
- Monopolized by Pemex
  - Politicized institution
  - Little loyalty to top management
- Problems
  - Terrible management and corruption
  - Too little re-investment

ELECTRICITY

- Two state-owned enterprises generated most of the electricity in the country and controlled the distribution network
  - CFE (Comision Federal de Electricidad)
    - 80 million users
  - LFC (Luz y Fuerza)
    - 20 million users

SOLUTIONS

- Very difficult
  - Monopoly constrained growth
  - Some politicians get profits from it
- Regulation of entry
- Improve legal system
- Structural reforms

FINANCE AND CREDIT

- Reorganized the credit system
- Positive change:
  - Small and medium enterprises (SMEs)
  - Mortgages
- Foreign entry into commercial banking
  - Merged and acquired the largest banks in Mexico
  - Improved the efficiency of the system

EDUCATION

- Poor quality of education caused slow growth
- Teacher's Union is powerful and they fought any wage decreases
- Wage was not associated with performance
- Government made progress in the education system since the early 1990s
  - Attainment in population rose from 6.8 to 7.9 years in 15 year olds
- Education spending increased from 3.7% (1990) to 6.6% of GDP (2009)

STRUCTURAL REFORMS

- President Felipe Calderon
- Get some achievements in 3 years
  - Energy reform
  - Fiscal and pension reform
  - The politics of reform

ENERGY REFORM

- Modernize Pemex
- Two steps
  - 1) improved the decision making process
    - Include new executive boards with independent members
  - 2) give managers more autonomy
    - In investment and financial decisions

FISCAL AND PENSION REFORM

- Pension system for government workers
  - Managed by ISSTE (social security institute for government employees
  - From pay-as-you-go to fully funded individual accounts

- Fiscal reforms
  - Focused on increasing non-oil revenues
    - Result: Increase nonoil tax revenues from 9& of GDP to 12% in 2012.

THE POLITIES OF REFORM

- Strategy
  - Form consensus
  - Or at least build majorities on important points
- Political obstacles
  - Affect current interest groups
  - The system of incentives for representative to Congress

CONCLUSION

- Labour intensive country and focus on manufacturing
- Have moved to the technology intensive sector and plan on expanding
- High monopoly and oligopoly and will be hard for them to eliminate them because constrained economic growth
- Mexico needs to maintain a strong relationship with America
- Mexico faces many issues and the reforms are in place to improve Mexico's economy and growth

QUESTIONS?