5. According to data from the World Bank, 2014 GDP (PPP adjusted) figures were US$17.6 trillion and US$17.4 trillion dollars for China and USA respectively. However if GDP statistics are not adjusted for cost of living, the U.S. economy still dwarfs China's, at US$17.4 trillion versus US$10.4 trillion.

(a) Explain the indicators that could be used to complement or replace GDP, when measuring the various aspects of standards of living [10]

Question interpretation

- What is meant by living standards and its various aspects?
- How does GDP measure living standards?
- How can some indicators be used to complement GDP?
- How can some indicators be used to replace GDP?

Introduction

- Living standards can be defined as the happiness and well-being of the average resident of a country and it consists of both material and non-material aspects
- GDP measures the value of final goods and services produced within the geographical boundaries of the country in a year.
- This essay aims to first explain how GDP can be used to measure living standards and before analysing why other indicators could be used to complement or replace GDP, when measuring the various aspects of living standards.

How can GDP be used to measure material living standards?

- Material living standards refer to the amount of goods and services that can be purchased and consumed by the average resident.
- Since the production of goods and services also generate income for the owners of the factors that are used for such production, GDP also measures the income that is generated by a country
- As income affects the quantity and quality of goods that can be consumed, GDP can be used as an indicator of both the economic performance and standard of living of a country.

What are the indicators than can be used to complement GDP as a measure of living standards?

- General price levels or consumer price index (CPI)
    - Prices could have risen faster than nominal GDP thus eroding the real purchasing power of the individual and living standards in the economy.
    - To account for inflation, we can divide nominal GDP over CPI so that real GDP (as compared to the base year of the CPI) can be measured

- Population
    - If population grows faster than GDP, then each person will see a fall in his living standards
    - Hence real GDP per capita which can be calculated by dividing real GDP over population, would be a better indicator of the living standard of the average resident of the country

- Gini coefficient
    - If rising income is accompanied by greater inequality in income distribution, then living standards may be overstated as income may only be rising for the minority of the richer households, rather than for majority of the poorer ones.
    - The Gini coefficient is an indicator of income inequality can be used measure how income is distributed for the whole country
    - A rise in real GDP per capital would only indicate an improvement in material living standards if the GINI were to remain unchanged or improved (a decrease in the coefficient)

- Indicators of non-material living standards

- Non-material living standards refer to other aspects affecting the quality of life like the quality of the living environments and the amount of stress faced in society.
- Including non-material welfare indicators can be used to complement real per capita GDP to provide a more holistic measurement of all aspects of standard of living.
- Specific social welfare / development indicators include
  - Health indicators: life expectancy, infant mortality, no. of doctors & nurses per unit population
  - Education indicators e.g. literacy rate (primary education), % of population with secondary & tertiary education
- A key area affecting the quality of life is the quality of the environment e.g. the air pollution in China's most populated cities is very high and such hazardous levels result in heart, lung and stroke
- Since pollution is unaccounted for in national income statistics, indicators such as the various types of pollution indexes can be used to complement real GDP per capita when assessing a country's living standards

What are the indicators than can be used to replace GDP as a measure of living standards?

- Gross National Product (GNP)
  - When measuring GDP the production process may either make use of the factors of production owned by the citizens of the country or involve the factors of production owned by foreigners.
  - Hence GNP could be a more accurate indicator as it includes net property income from abroad.
  - GNP and GDP figure can be vary significantly if the country has a large number of citizens working overseas and has large outflows of FDI.
  - In such an instance, remittances, transfers and income from overseas need to be included to get true gauge of the purchasing power and hence living standards of a country

- Composite indicators
  - Composite indicators such as HDI includes PPP adjusted GDP as well as school enrolment, adult literacy and life expectancy.
  - MEW includes national income that estimates for non-market output and deductions for 'regrettables' e.g. spending on commuting to work, national defence, law enforcement, negative externalities and initial spending on consumer goods.
  - These composite indicators can measure the various aspects of living standards more holistically since they incorporate non-material aspects as well.

L1: Recognize the meaning of living standards and the various indicators [1-2]
L2: Explain how indicators could be used to complement or replace GDP [3-8]
L3: Analyse how indicators could be used to complement or replace GDP when measuring various aspects of standards of living [9-10]

(b) Discuss the problems of using PPP adjusted GDP in making international comparisons of the various aspects of living standards between these two countries. [15]

Question interpretation

- Why do we use PPP-adjusted GDP to compare living standards between countries?
- What are the limitations of using PPP adjusted GDP?
- What are problems of using national income figures to compare living standards between countries?
- Which problems are more important in this context of US vs China?

Introduction

- Purchasing power parity (PPP) is an exchange rate that is derived by equating the price of an identical good or a common basket of goods between two different countries.
- While using PPP helps to overcome the problems with using market exchange rates when comparing national income between countries, there are also limitations to using this approach
- In addition, using national income statistics to compare living standards between different countries also involve other problems associated with calculation and interpretation.

- This essay thus aims to first explain need for PPP adjusted GDP and the limitations of using this measure before analyzing the other problems of comparing national income between US and China
- It concludes by evaluating the extent of these problems when comparing between US and China

Why do we use of PPP adjusted GDP to compare material living standards between countries?

- When comparing material living between countries, conversion of national income values to a common currency is required
- Typically, such conversions use market exchange rates which can be inaccurate because it fails to account for the difference in price levels between countries

- For example if the market exchange is £1 = $1.50 and the GDP per capita of the UK and the US are £2000 and $3000 respectively, then the national income and hence material livings standards in both countries will be the same at $3000 when converted to US dollars
- However, if an item that costs £1 in UK only $1.20 in US, then the cost of living in the US is relatively lower than what the market exchange rate suggests
- To account for this difference in the cost of living, the PPP exchange rate can be derived be equating the prices of the two items, thus resulting in a PPP derived exchange rate of £1 = $1.20.
- By using this PPP exchange rate to convert the GDP per capita of the UK into US dollars, UK's GDP per capita will then be $2400 which is lower than the US figure of $3000
- Adjusting for PPP thus enables the relatively lower cost of living in the US (or conversely the higher cost of living in the UK) to accounted for, thus providing a more accurate comparison of living standards

Limitations of using PPP adjusted GDP to compare material living standards between countries

- While the above examples use only one good to derive the PPP exchange rates, economist in reality try to calculate PPP using a common basket of goods.
- However consumption patterns may differ between countries, as the items that are consumed in one country may not be consumed to the same extent or even consumed at all in another.
- For example European countries consume winter wear, which is often not consumed at all by most Singapore households due to their tropical climate.
- Hence finding goods which are common and allocating the weights to each good that accurately represents both countries' spending pattern is subjective
- Also, for the PPP basket to provide a fair and comprehensive representation of a country's cost of living, a fairly large amount of goods and services need to be included in the basket
- Calculating PPP accurately can therefore be very resource intensive as it takes time and effort to compile and monitor the prices of a wide variety of goods

Calculation problems when using NIS to compare living standards between countries

- Calculation issues include data collection problems, non-marketed activities and underground activities
- For example, while both China and US and have a very large population and land area, China is less developed than US, so data on economic activity is often not fully recorded in the more rural areas.
- Also the extent of specialisation in developing countries such as China tend to be lower so they are likely to have more subsistence activities and hence a larger non-marketed sector
- China could have weaker law enforcement and may therefore have more underground activities as the incentive to un-declare their income to avoid paying income taxes is higher
- With a greater prevalence of unrecorded economic activity, China true GDP per capita and hence material livings standards is likely to understated as compared to the US.

Interpretation problems of using NIS to compare material living standards between countries

- Differences in composition of output causes inaccuracy when comparing living standards between countries as it is consumption rather than other GDP components, which contribute to material welfare
- As China is still developing, its need for capital accumulation is much greater than the US, hence China's investment as a percentage of GDP is much higher

- Furthermore, being much more export oriented, China's exports as a percentage of GDP is also much higher than the US
- Hence using GDP per capita to compare living standards between China and the US is likely to be overstate China's material welfare

- On another note, compared to the US, China lacks unemployment and retirement benefits
- Also China's regulations on household registrations causes its migrant workers to be ineligible for social welfare benefits outside their home villages
- Hence, relatively lower welfare spending in China causes its government consumption as a proportion to GDP to be lower than that of the US, which also leads to China's livings standards to be overstated

Interpretation problems of using NIS to compare non-material living standards between countries

- Due to weak environmental and labour laws, widespread pollution, illegal child workers, long working hours and harsh working environments tend to be more prevalent in China than in the US, hence China's non-material welfare tends to be relatively lower
- Since GDP per capita does not account for such non-material aspects, using such figures to compare the overall livings standards between the US and China will overstate China's overall living standards.
- This inaccuracy is further compounded since higher work-related stress leads to more expenditure on healthcare while greater environmental damage results in more expenditure on environmental remedies, which causes GDP to be higher although living standards has not really improved.

Conclusion

- Although estimating PPP in a holistic manner is subjective and resource intensive, there are other reasonably accurate but easier ways to estimate PPP (e.g. the Economist Magazine's Big Mac Index)
- Also as China is already an advanced developing economy, calculation problems arising from unrecorded economic activity though present, are not overwhelming
- In contrast, the interpretation problems that come from using GDP per capita to compare living standards between China and US remain intractable
- Hence I would <u>argue</u> that interpretation problems are the most serious set of problems among the 3 set of problems discussed in this essay.

L1: Recognize the meaning of PPP adjusted GDP [1]
L2: Explain the reasons for using PPP adjusted GDP and various problems of comparing living standards between countries [2-7]
L3: Analyze the problems of using PPP adjusted GDP when comparing living standards between US & China [8-11]
E: Evaluate the extent of problems in the given context [+4]