

Is China's Gross Domestic Product (GDP) Reliable?

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Abstract

This Extended Project in the field of Economics mainly discusses the reliability of using Gross Domestic Product (GDP) as a worldwide measurement. We briefly introduced the definitions of GDP and explained the basic ideas about it from two perspectives. After listing ways to measure GDP with the help of related tables, we stated the use of data and pointed out the limitations of each method as well. In the part of research, we collected opposite opinions of Economists from the Internet and analyzed some of their points. In order to get more information and professional opinions about GDP, we interviewed a former Hong Kong Bank president and a graduate student whose major was International Economics. Furthermore, we conducted a research using the questionnaire to examine the understandings about GDP of Chinese citizens. The results of survey were illustrated through pie charts. In the next part, we evaluated the contents from interviews and data of questionnaire. Finally, we accounted for the advantages of using GDP as an indicator of economic growth and also the reasons why the GDP is playing an important role in nowadays world. Moreover, we discussed the limitations and suggested several further developments that could be taken.

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Introduction

1.1 Basic ideas about GDP

The full name of GDP is Gross domestic product. This is the value of the total final output produced in an economy within one year by using the domestically based resources. That is, the output produced by the local resources as well as the foreign resources such as MNC are considered in the GDP of the country. In the Bretton Woods conference (1944), GDP became the main tool to measure a country's economy.

GDP at Market Price

This is the value of GDP measured at the current market prices charged by retailers or shops. It is sometimes referred to as the nominal GDP or money GDP. The GDP data at the market price will be influenced by inflated market distortions through indirect taxes and subsidy. Therefore, GDP at market price is not an accurate measure of the real value of the output in an economy.

GDP at Factor Cost

This is the value of GDP measures at the cost of factors of productive by removing the market distortion caused by indirect taxes and subsidy. The GDP data at factor cost can be obtained from GDP at market price by subtracting indirect taxes and adding subsidy.

From the above description, this can be concluded as an formula:

GDP at factor cost=GDP at market price- indirect taxes+subsidy

GDP at Factor Cost is more accurate since the market distortion caused by taxes and subsidy has been removed. However, it can still be influenced by inflation, especially the demand-pull inflation.

1.2 Other measures of national income and comparison.

Gross National Income (GNI) and Gross National Product (GNP)

In the theory from Todaro & Smith (2011), GDP plus net property income from abroad gives gross national income (GNI). This used to be referred to as gross national product (GNP). This is the value of the total final output produced in an economy within one year by using the domestically based resources and resources based abroad. GNP data is calculated by adding net property income (NPI) from abroad to GDP.

Net property income is the difference between the inflow of investment income since as interest, dividends, profit and remittances from local resources based abroad and the outflow of IDP and remittances from foreign resources based in the country. NPI equals to inflow of IDP and remittances - outflow of IDP and remittances. The calculation of GNP can be concluded as the following formula.:

$$\text{GNP} = \text{GDP} + \text{NPI from abroad}$$

(When NPI is negative, $\text{GNP} < \text{GDP}$ and when NPI is positive, then $\text{GNP} > \text{GDP}$)

When measuring GDP or GNP the new final goods and services produced within the year will be only considered. For general, GDP data is more commonly used than GNP since it is easier to measure compared to GNP.

Net Domestic Product (NDP)

Dornbusch, Fischer and Startz (2004) state that Net Domestic Product is obtained by subtracting depreciation or capital consumption from GDP. Therefore, it can be simplified the method of measure NDP as the formula below:

$$\text{NDP} = \text{GDP} - \text{Depreciation}$$

Depreciation is the decrease in the value of capital goods due to the wear and tear. It is sometimes referred to as the replacement investment on the worn out capital goods or machines. It is the capital consumption during the production process.

The NDP will consist of the newly produced capital goods after replacement investment or depreciation. The increase in the quantity of new capital goods is referred to as net investment. This will increase the value of GNP.

GDP will consist of both net investment and replacement investment or depreciation: that is, GDO is including the gross investment.

Net National Product (NNP)

Net National Product can be calculated by subtracting depreciation from GNP.

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$

1.3.1 The methods of measuring GDP

On the basis of The System Of National Accounts(2008),there are three ways to measure GDP:

Output Method

Income Method

Expenditure Method

Output Method

In this method, GDP is measured by adding up the values of the total output produced from all sectors or industries in the economy within one year. That is, the value of the final goods and services produced from the primary, secondary and tertiary sectors of the economy.

For example:

China's GDP in 2000 and contributions to GDP of each sector		
Sector	Amount (Trillion\$)	Percentage contribution to GDP
Primary	1.5296	17%
Secondary	4.8453	52%
Tertiary	2.8598	31%
GDP	9.2347	100%

(National Bureau of Statistics of China, 2000)

Limitations of Output Method:

It is difficult to get all the information about the final goods and services produced in the economy within one year.

There may be double counting problem.

The production in place market is not included in the GDP data. Therefore, GDP will be under-stated.

The subsistence production for personal use or consumption are not included in GDP data. This will under state the GSP data.

It is difficult to measure the values of unmarked goods and services. For example, the services produced by the government (public goods).

Statistical errors in collecting and compiling GDP data.

The major problem with the output is double counting, where the values of some goods, especially raw materials and components used in producing final goods and counted more than once. However, this problem can be reduced by considering the values of final goods and services in GDP calculation or by using the added value.

According to Kay (1993), added Value is the difference between the selling price or revenue and the cost of the raw materials. The added value will be considered at each stage of production.

Income Method

In the System Of National Accounts (1968), GDP can be measured by adding up all the incomes received by the factors of production. That is total payment or income to labour, land, capital and enterprise. This is the sum of wages, rent, interest and profits. Any transfer payments from the government such as unemployment benefits, state pension, health insurance benefits, subsidies, etc. should not be included in the GDP data since they are not directly related to production. This is the same as national income. Therefore, National Bureau of Statistics concluded this method as the formula:

$$\text{GDP} = \text{wages} + \text{rent} + \text{interest} + \text{profit}$$

For example:

China's GDP in 2000 and contributions to GDP of each source of income		
Source of Income	Amount (Trillion\$)	Percentage contribution to GDP
Wages	4.9920	64%
Rent	1.3412	17%
Interests	1.4606	19%
Profits	1.4409	
GDP	9.2347	100.0%

(National Bureau of Statistics of China, 2000)

Limitations of the Income Approach

Income received in the black market is not included in the GDP measurement

When transfer payments are included in GDP data, it will inflate the GDP

It is difficult to get information on all sources of income in the economy

Unpaid Labour is not included in GDP data, such as housewives

Statistical errors in collecting and compiling the data.

P.S.: The total value of income received by factors of production in one year is sometimes referred to as National Income or GDP.

The value of national output is equal to national income. That is, both the output and income methods should give the same GDP data. According to Say's Law (1803), the value of income got should be able to buy output of the same value supply will create its own demand.

Expenditure Method

In this method, GDP is measured by adding up the total expenditure on the final output in all sectors of the economy within one year. That is, the sum of consumption expenditure from household sector, investment expenditure on business sector, government spending in government sector and net export on international (foreign) trade sector. This can be concluded as this formula to measure GDP:

$$GDP=C+I+G+(X-M)$$

This is the same as national expenditure.

Government expenditure on transfer payments such as subsidy, unemployment benefits, pensions, etc. should not be included in GDP data, since they are not expenditure on goods or services.

For example:

China's GDP in 2000 and contributions to GDP of each type of expenditure		
Type of expenditure	Amount (Trillion\$)	Percentage Contribution to GDP
Consumption	5.6077	60.7%
Investment and Government Expenditure	3.2500	35.3%
Net exports	0.3517	3.8%
Net error and omission	0.0253	0.3%
GDP	9.2347	100%

(National Bureau of Statistics of China, 2000)

Depends on SNA (1968), the value of national expenditure should be equal to national income and national output. Therefore, the three methods should give the same GDP data.

Limitations of Expenditure Method:

It is difficult to get all information on expenditure from all sectors of the economy

The expenditure in black market are not included in the GDP data

When the expenditures on second-hand goods or the goods produced in the previous year are included in the current year GDP, then the GDP data will be inflated

There may be double counting when the expenditure on raw materials, components and intermediate goods are included in GDP data

Statistical data

To compare the three methods, as there is no one accurate method of measuring GDP. Therefore, the government should use more than one method in order to be more accurate.

1.3.2 Limitations in measuring GDP

It is complex and expenditure to get all the information about the final output produced in an economy within one year.

The production activities in the black market are not considered in the GDP measurement.

There may be statistical errors made when collecting and compiling GDP figures.

The GDP figures may be influenced by the double counting problem.

Subsistence production is not considered in the GDP measurement.

The second-hand goods may be included in the current GDP measurement.

GDP figures can be influenced by the political interferences in the measurement.

It is difficult to measure the value of services or goods provided by the government.

Unmarked goods and services are not included in the GDP figures.

GDP figures can be influenced by changes in inflation. However, this problem can be reduced by converting nominal GDP to real GDP.

1.4 Nominal GDP and Real GDP

Nominal GDP

In the third edition of Cambridge Economics Coursebook (2015), This is defined as the value of GDP measured at the current market prices before adjustment for inflation. It is sometimes referred to as money GDP, or GDP at market prices. That is, GDP measured at the prices charged by retailers or shops.

Nominal GDP is influenced by inflation, such that the national output may remain constant but the increase in inflation will lead to the increase in nominal GDP. Therefore, nominal GDP is misleading due to the effect of inflation.

Real GDP

This is the value of GDP after adjustments for inflation. That is, it is GDP measured at the constant base-year prices. Therefore, it is sometimes referred to as GDP at constant prices. Real GDP is more accurate and realistic than nominal GDP and it can be obtained by adjusting nominal GDP through a deflation process using the following formula:

$$\text{Real GDP} = \text{Nominal GDP} \times \text{Base year price Index} / \text{Current year price Index}$$

For example:

According to GDP rankings from The World Bank (2016), the nominal GDP of The United States in 2005 was \$16.1979 trillion and the CPI in the same year was 109. Calculate the real GDP in 2005 by using the formula is \$14.8602 trillion.

However, CPI is not the best price index to be used in converting nominal GDP to real GDP since CPI does not take into account the prices of capital goods and the prices of exports. CPI will include the prices of imports but imports are not part of the country's GDP.

The price index to be used to convert nominal GDP to real GDP is referred to as the GDP deflator.

GDP deflator:

Based on the information of Bureau of Economic Analysis (2008), this is a measure of the average prices of goods and services produced in the country within one year. The GDP deflator will take into account the changes in the prices of both capital goods and consumer goods. Therefore, the deflation process can be expressed as:

$$\text{Real GDP} = \text{Nominal GDP} \times 100 / \text{GDP deflator}$$

Differences between CPI and GDP deflation

GDP deflator will consider the prices of capital goods and consumer goods while CPI will consider the prices of consumer goods only.

The import prices are included in CPI, while GDP deflator will only consider the export prices which are not included in CPI.

Uses of GDP data or figures

GDP is used to measure economic growth of the country

GDP data can be used to compare economic growth between countries

GDP can be used to measure the living standard in the country by calculating GDP per capita

The government will use GDP figures in formulating effective macroeconomic policies

Investors are using GDP data to assess the investment and economic environment of the country

GDP figures can be used by trade unions when bargaining for the increase in wages

GDP figures can also be used by students in their research work.

Research

Economists' opinions and propositions are very important factors to draw a conclusion about reliability of GDP. Therefore, some economists' views are collected from Internet to help with the investigation of whether the Gross Domestic Product can represent all economic activity of a country.

2.1 Why GDP data is unreliable

GDP is misleading

Marber (2012) who is Head of Emerging Markets Investments for Loomis, Sayles & Company. He pointed out in his article that the GDP is unreliable because many things can influence GDP value but actually do not show an Economic growth of the country. For example, In America, people spend more than \$80 billion a year to buy cigarettes and to treat the diseases caused by smoking, they often have to pay over \$160 billion every year. However, that counts for about 1.5% in America's GDP. In addition, Marber holds the idea that debt can also increase GDP by stimulating the short-term consumption. As a conclusion, he states that when GDP became a standard to compare different countries' economic situation, government will Increase the growth of this indicator at the expense of other aspects of the country. To make the country development, the government and the country should pay more attention to the promotions of four factors of GDP: consumption, government spending, investment and net exports.

GDP growth is a poor measure of improving living standards

There is a short speech below talking about GDP growth relating to the living standards. The economist states that GDP growth is a poor measure of improving living standards.

Landefeld (2010)

“Gross domestic product (GDP) is a key measure of a country's economic activity—the purpose for which it was designed. It was not designed to be, nor should be regarded as, a comprehensive measure of society's well-being. Nonetheless, it has also proven useful as a gauge of an economy's capacity to improve living standards. It was a catastrophic decline in living standards that prompted the development of national, or GDP, accounts. ”—Landefeld (Apr 20th 2010)

Landefeld, director of the United States Bureau of Economic Analysis (BEA), states that GDP will still play a crucial role in measuring social progress but singular focus on GDP alone as a measure of society's welfare are not valid and useful and GDP cannot be a compels measure of improving living standard. He compared National accounts and GDP. Although National accounts can solve some measurement issues and these have been constantly updated and extended to address changes in the economy, this still cannot replace GDP. Landefeld believes GDP can be improved by “better measuring of the distribution of the gains from economic growth and the sustainability of that growth, and selected measures of non- market activities that affect the economy—and these concepts have merit. ”

2.2 Debates on the reliability of Gross Domestic Product

Lane (2010)

"GDP is really a measure of an economy's output, valued at market prices (to the extent that you have them). As societies produce more, and therefore earn more, their material well-being rises. So it is no surprise that so many economists and official statisticians broadly accept GDP as a measure of living standards."

"It isn't the only measure. Even before the recent recession, a lot of debate over American living standards was based not on GDP, which was growing healthily, but on median incomes, which were not: the point was that national output was growing, but that its fruits were not being evenly shared. It doesn't cover everything: not all the things that we value are bought and sold in the marketplace. But when economists want to measure the living standards of whole societies, GDP is where they usually start." — Lane (Apr 20th 2010)

Lane pointed out a lot of problems exist in GDP measurement. For instance, GDP can capture material wealth, but is that enough? or is this should be replaced? etc. Mr. Oswald states two evidence in economist's latest online debate: " the Easterlin Paradox, the finding that increasing wealth does not make countries happier; and global warming, which is a sign that people should produce less and enjoy the planet more."

Oswald (2010)

"The first reason to doubt that GDP is a useful measure is the evidence known as the Easterlin paradox (the empirical finding that countries do not become happier as they grow wealthier). Large numbers of researchers have doubted

this, then looked at the data, then beaten the data, and then, often through gritted teeth, ended up accepting that Richard Easterlin's paradox really does show up in the numbers. "

"By subjective I assume Mr Landefeld means human. Well, human weights are just what we do need. Moreover, Mr Landefeld does not appear to notice that GDP itself does not take the place of public debate and the legislative process; nor should it. So this is a red herring. "

Oswald's rebuttal to the ideas of Landefeld in five points. He refers to perspectives from authorities like Wolfers (2003), mentioning the unemployment rate and inflation will lead to the happiness of people, however, both of them are not elements to measure GDP. When Landefeld separates the group of people, Oswald holds the opposite opinion that there are obvious differences in the record of happiness and life satisfaction across countries. The issue comes out after the nation aims to raising the GDP. What's more, Oswald points out that Landefeld's statement of about individual's adapt to environment for happiness. He says that the new research literature on longitudinal data does not show that happiness is barely affected by differences of social class.

Landefeld (2010)

"While that election took place during the 1990-91 recession, the economy—as measured by real GDP per capita and GDP inflation—has consistently been the most important of the determinants of US presidential elections over the last century (Ray Fair, 2009). "

"But to replace objectivity with subjectivity— well, to me that is the dated pursuit. Various groups have suggested replacing GDP with alternative measures since its inception in the 1930s, yet—beyond occasional gee-whiz publicity—none of those alternatives have gained acceptance or are used in public policy."

Landefeld believes that over years and years, GDP plays an essential determinant in US history through presidential elections and political imposition. The guest commenter, Giovanini, observed that higher GDP per capita is normally associated with better living conditions. These include better health, longer life expectancy, less pollution, more leisure, and a greater variety of cultural and public goods and services. He states that higher GDP per capita indicated better living conditions but it can not measure standards of living clearly. Because of the broad definition of living standard, it consists of not only the provision of goods and services but also further elements. Landefeld suggests to extend the existing measures of GDP to maximize its functions. Policymakers can use the GDP to evaluate the economic effects of different policy decisions. Moreover, GDP is an objective measure of domestic market forces, and remains as a central tool for providing the citizens a sense of current living standards, and an objective method to gauge and estimate change.

Hennessey (2010)

"GDP is but one indicator that policymakers can and should use to analyse the economic health of a nation, and it is foolish either to use it for a purpose for which it was not intended, or to attempt to change it to suit one's policy goals."

"GDP is quantifiable—it is simply an accounting measure. GDP is objective—we can rely on the data even when personnel in the statistics office change or the party in power flips. GDP is, within limits, roughly comparable across nations and over time, allowing us to make imperfect but still useful policy comparisons and judgments."

In the part of comments on the floor, the speech from featured guest, Hennessey gives evidence and further support to the opinion of Landefeld (2010). He firstly admits that GDP is incomplete and is unable to measure happiness or utility. As a gross and flow measure, GDP consists of aggregated data for a geographical area. He opposes Oswald's opinion by emphasizing the function of GDP: "an indicator that policymakers can and should use to analyze the economic health of a nation." Through using an analogy of doctor and

patient, he vividly indicates that the trait of GDP is quantifiable. And the benefits of using GDP as an objective tool to rely on are to make adjustments using policy. GDP is only partially incomplete as a measure of the non-tradable aspects such as improved living standards. Hennessey uses an example of choosing a country to live based on the level of GDP to reinforce that citizens believe in higher GDP as an indicator of higher living standards. Higher GDP means more tradable resources for individuals and governments with which to improve standards of living. Economic growth is good, and more economic growth is better. Just as money cannot buy happiness, GDP cannot measure that.

Interviews and Questionnaire

3.1 Interview 1

There is an interview taken to get more information and professional opinions about GDP. All the answers were given by the former Hong Kong Bank president (Dr. Tang). As he did a lot of investigation about China's GDP in his career life, many questions of this interview are related to China's GDP and economic situation of China.

Q: The full name of GDP is Gross Domestic Product. Will you redefine GDP and what does this word mean to you?

A: To me, I think GDP, up to this moment, is a quite reliable figure to reflect the wealth of the nations, because it's a figure that we can measure, and for example, compared with many factors, like happiness, it's very hard to measure, so we need a global standard to compare different countries, so I think GDP is a effective method.

Q: Do you think GDP is the only method to measure economic growth of an area or a country? If not, what else need to be considered and what can we use as the most authorized way?

What area does the measure of GDP ignore?

A: In terms of numbers, figures. I think if you cannot develop another set of ingredients to measure, for the aspects of economics, only economics, I think it is a way, but there are still lots of limitations because sometimes we have those intangible things that are also related to Economy. For example, air pollution which will reflect to economic term, so for GDP, I think it is a quite short term, there are a lot of factors that will affect the country's long term growth.

So if you look at the formula, consumer, government spending and whatever, but now, we are going to develop additional indicators like the costs of carbon dioxide which we will develop an index which may be put in the formula later, we are moving in that way.

Q: Can GDP per capita reflect the quality of living standard in real?

A: As I have mentioned, there are many intangible things, like in China, you can compare people's lives ten years before and after, if it is improved, the living standards, etc. I think we can use this to determine.

Q: Nowadays the GDP of China has been ranked the second in the world, does it mean that China has become an economic giant?

A: From the economic aspect, we can say that, but it is only for a short term, for ten years later, it may not be the case because the development of, like technology will change very rapidly.

Q: you think China's GDP is overvalued or undervalued?

How reliable is China's GDP?

A: There are many studies by some economic groups that it is overestimated, because the total GDP is the sum of different parts and when you add up, that is not equal to total, there are still a lot of things that have been ignored

Q: In your opinion , is there bubble economy in China?

Can the government or economists avoid or minimum bubble economy?

A: Sure, but bubble economy is not bad, the point is you have to control it, you have to identify those risks and develop some measures ,when the situation is worse, you have to know how to improve this.

Q: What do you think about India's GDP growth of 7.9%, which is the fastest growth within the world this year?

A: As I know that, some of the multinational companies is moving out from Suzhou, China to India because of the labor costs and unit cost, so this a common phenomenon that the investor always want to lower the costs and then get higher profits, it is very natural, so this is why the Chinese government want to upgrade the GDP because they know that the investor will try to move out, so that is why the China's GDP became lower from 7 to 6.9, and in the other way, India's GDP has increased. From this phenomenon you can know the movement of economic activities and economic flow in a global perspective.

That's all of our questions. Thank you very much for your help.

3.2 Interview 2

There is an interview taken to get more information and professional opinions about GDP. All the answers were given by the graduate of Middlebury college which is a top5 liberal and arts college in US (Mr.Li). As he studied the major of international economics, he explained briefly in the interview about his views of point of China's GDP and economic situation of China.

1.The full name of GDP is Gross Domestic Product. Will you redefine GDP and what does this word mean to you?

No, for I studied Econ in college and the definition of this term is so imprinted in my mind.

2.Do you think GDP is the only method to measure economic growth of an area or a country? If not, what else need to be considered and what can we use as the most authorized way?

Maybe not. I think people's perception matters more, such as how happy they are with the their economic gain.

3. What area does the measure of GDP ignore?

Such as income gap among different groups of people.

4. Can GDP per capita reflect the quality of living standard in real?

Not so much so, particularly in the case of China as so much data is manipulated. GDP is just a figure that cannot show the evidence of improved living standard.

5. What do you think about India's GDP growth of 7.9%, which is the fastest growth within the world this year?

Good for India, and I feel sad for the rest of the world.

6. Nowadays the GDP of China has been ranked the second in the world, does it mean that China has become an economic giant?

Yes, China is indeed an economic giant.

7. So...you think China's GDP is overvalued or undervalued?

Overvalued, clearly. A lot of China's growth is unhealthy, which means such growth has very minimal impact on improving people's life quality.

8. How reliable is China's GDP?

I say not so much. China is focus on increasing GDP in the recent decades but not really aiming to

9. In your opinion, is there bubble economy existing in China?

Yes. The real estate bubble.

10. What do you think about China's GDP growth of 6.9% in 2015, which less than 7% for the first time in 25 years?

Growth ultimately is just a number. Healthy growth means so much for than fast, but unhealthy growth.

3.3.1 Survey

The questionnaire below aims to collect more information of how people think about Chinese economic situation and how their lives changed during recent years and their understandings of GDP measurements. To make sure that the final data is comprehensive and can represent the whole group of normal citizens, we asked over 50 people which are in different age groups to answer the questions on the questionnaire and draw a conclusion about this survey by using the percentage data.

Questionnaire:

1. Your age group: 年龄:

- a) below 18 (18 岁以下)
- b) 18-25
- c) 25-35
- d) 36-44
- e) 45-59
- f) above 59 (59 岁以上)

2. Gender: 性别:

- a) Female (女)
- b) Male (男)

3. Monthly income (¥): 月收入(¥):

- a) Below 1000 (低于 1000)
- b) 1000-5000
- c) 5000-10000
- d) 10000-20000
- e) above 20000 (高于 20000)

4. Monthly spending: (Order the following options from the most to the least money spend on) 月支出: (请将下列选项按照消费比例从大到小排列)

- a) Food (食物) ___
 - b) Clothes (衣物) ___
 - c) Entertainment (e.g. traveling) (娱乐; 例如: 旅游) ___
 - d) Health care (e.g. insurance) (医药费; 包含保险费用) ___
 - e) Investment and saving (投资与存款) ___
 - f) Housing (房屋) ___
 - g) Luxury (奢侈品) ___
 - h) Others:(example) (其他; 请给出部分实例)
-

5. How do you feel about your living standard during recent few years? 您认为您近几年的生活水平是以怎样的趋势在变化呢?

- a) Improving (有所改善)
- b) Worsening (每况愈下)
- c) No change (没有变化)

6. What do you think of Chinese price of commodities? 您认为中国的物价处在什么水平?

- a) High price level (较高物价)
- b) Low price level (较低物价)
- c) Remain unchanged (近几年没有变化)

7. Do you have a clear idea about what GDP is (Gross Domestic Product)? 对于国民生产总值, 您是否有一个清晰的认识?

- a) Yes, I know that very well (是的, 我非常了解 GDP)
- b) Have a basic idea (对于 GDP, 我只有一个基本的概念)
- c) Do not know about it at all (对于 GDP, 我一无所知)

8. Do you think GDP is a reliable to measure economic growth, wealth and living standard of a country? 您认为国民生产总值是否可以反映一个国家的经济发展, 财富与国民生活水平吗?

- a) Yes (可以)
- b) No (不能)
- c) Not sure (无法肯定)

9. Do you think GDP can measure your life happiness? 您认为国民生产总值是否可以反映您的生活幸福度吗?

- a) Yes (可以)
- b) No (不行)
- c) Not Sure (无法肯定)

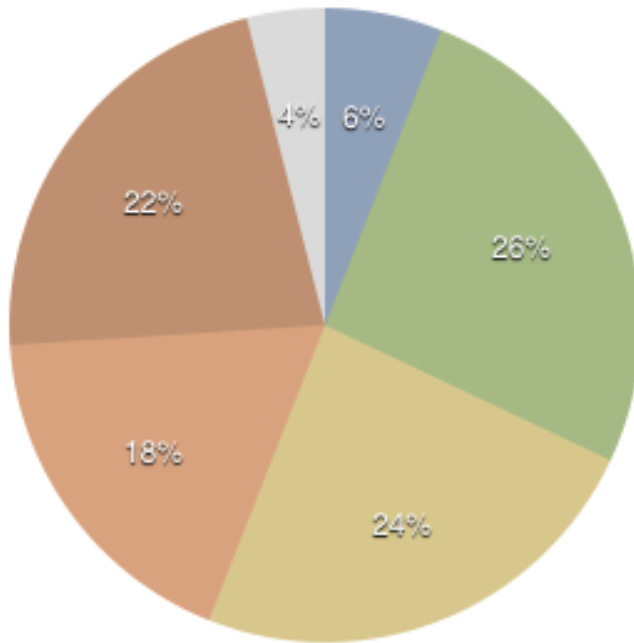
10. From your perspective, what does GDP represent? 从您的角度来看，国民生产总值代表着什么？

3.3.2 Results

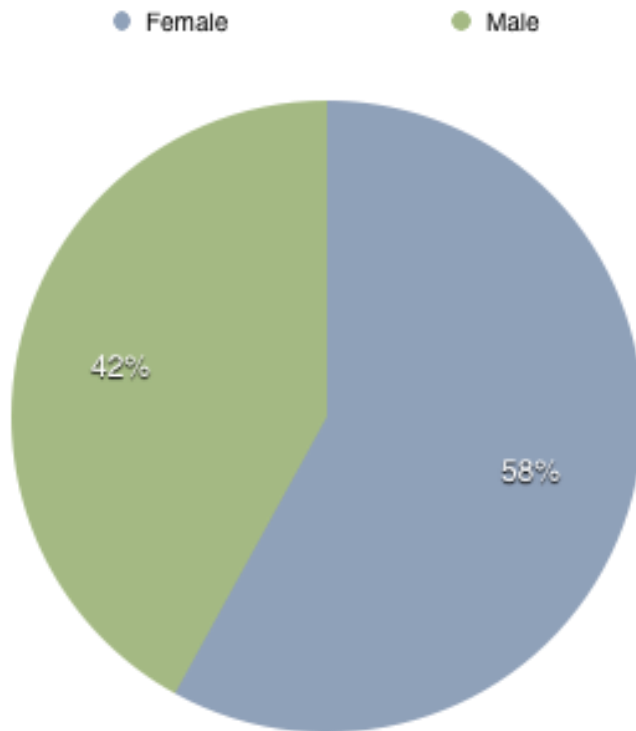
After we finished the all 50 people's research, we calculated the percentages of each options and got the following results:

1. Age Group

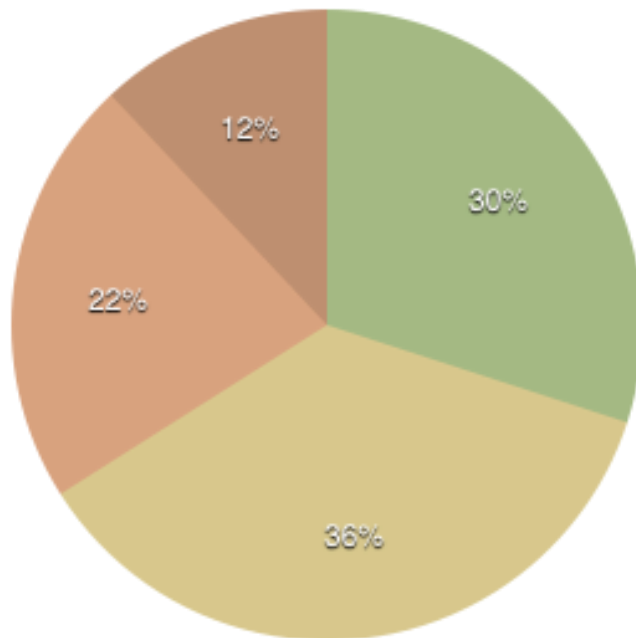
● below 18 ● 18-25 ● 25-35 ● 36-44 ● 45-59 ● above 59



2. Gender

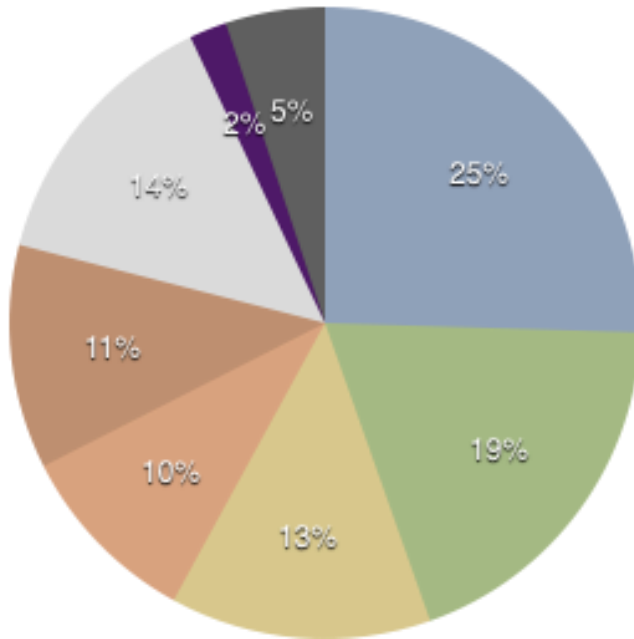


3. Monthly Income



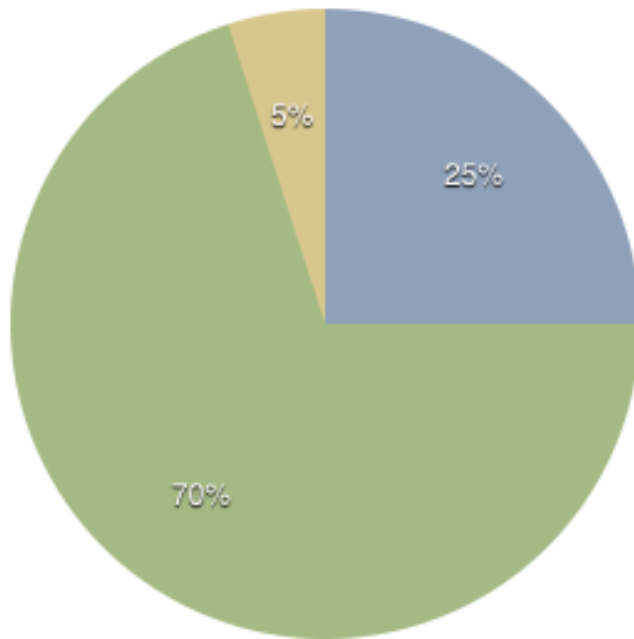
4. Monthly spending: (Order the following options from the most to the least money spend on)

- Food
- Investmen and saving
- Clothes
- Housing
- Entertainment
- Lucury
- Health care
- Others



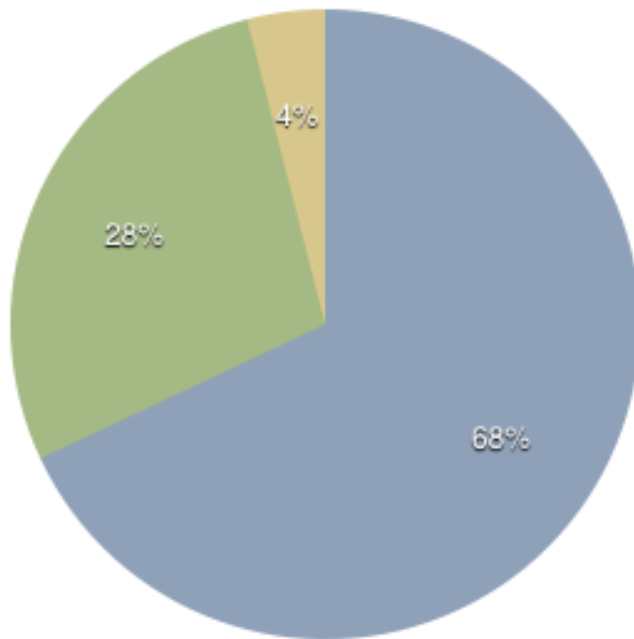
5. How do you feel about your living standard during recent few years?

● Improving ● Worsening ● No Change

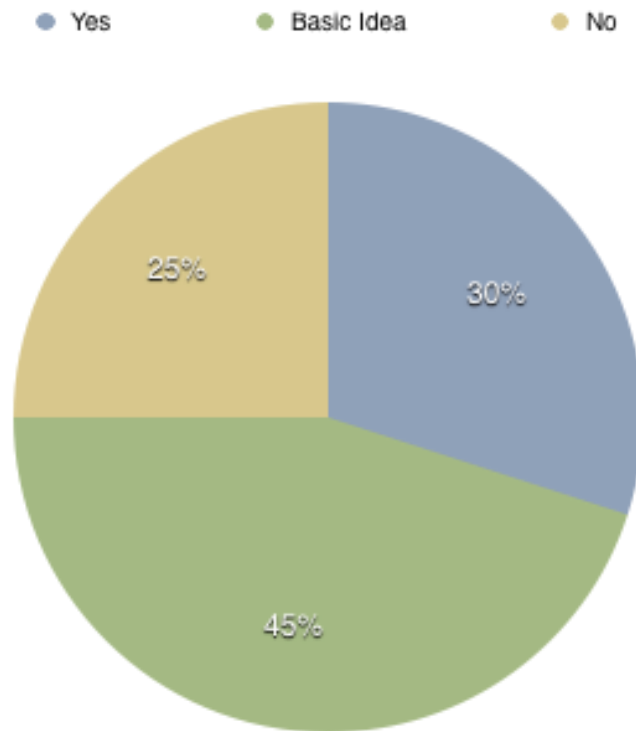


6. What do you think of Chinese price of commodities?

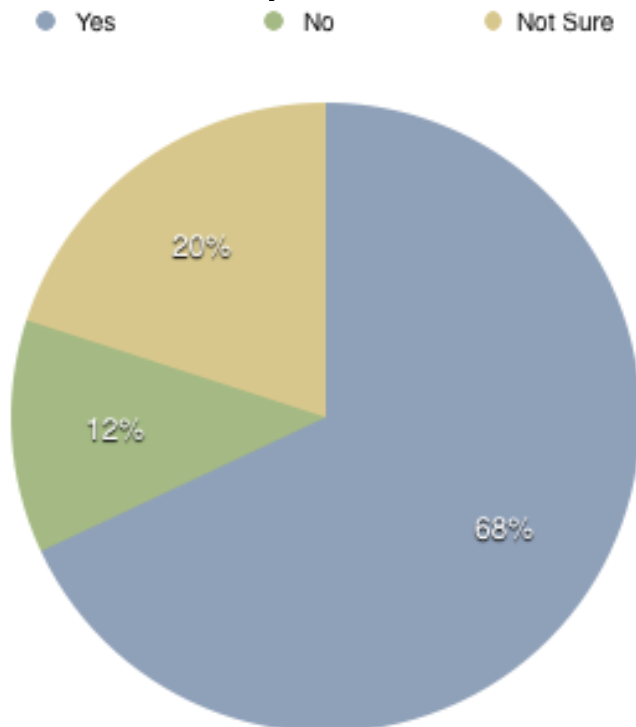
● High price level ● Low price level ● Remain unchanged



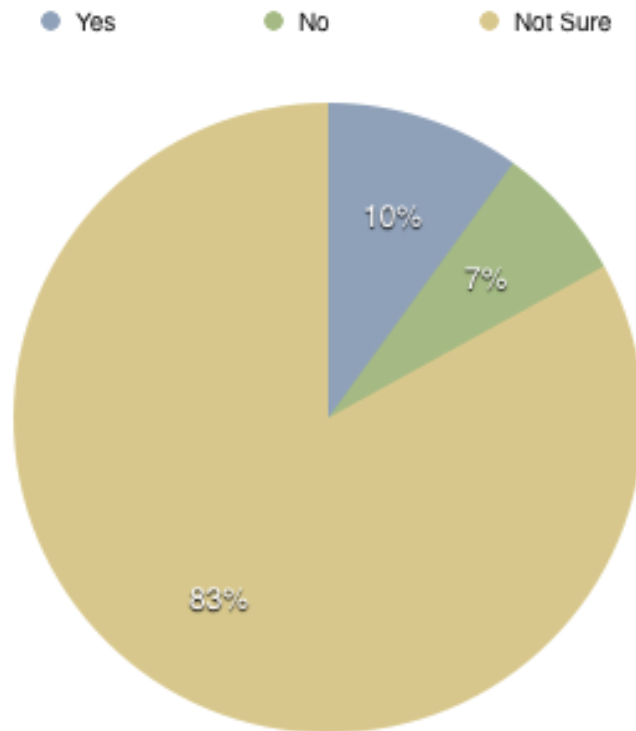
7. Do you have a clear idea about what GDP is (Gross Domestic Production)?



8. Do you think GDP is a reliable to measure economic growth, wealth and living standard of a country?



9. Do you think GDP can measure your life happiness?



10. From your perspective, what does GDP represent?

a formal Index

A global standard

A country's productivity

A country's development of technology

The level of developing of a country

Nothing special

Evaluation

4.1 Interview 1- Evaluation and Conclusion

Dr.Wen believes that the GDP data is a very effective method to compared the economic development between different countries so far although there are still a lot of things that have been ignored by the GDP measurement. According to this interview, he holds that view because there is not a other figure which measures the wealth of a country and living standards of residents can act as a global standard as GDP until now. Therefore, gross domestic product is still the most reliable index for both government and citizens in nowadays situation. However, in his speech, he also mentioned that GDP is 'a short term thing' because many things which are not included in GDP change fast to influence the whole economy. In the future, he believes that the GDP measurement will be consist of more factors like technology and environmental problems, etc to fully display the economic situation of a country. Overall, he is quite optimistic about Chinese economy and states that China is moving in a good way which he expects.

4.2. Interview 2 - Evaluation and Conclusion

Mr.Li holds the opinion that GDP is a method for country to measure and compare but it is not the only one. It will be helpful that the consideration include the perceptions of people. And he believes that the calculation of GDP ignored some essential areas that determine the living standards such as the income gap among the rich and the poor. Admittedly, China is a giant in economy as it is now ranked in the second place in the world. However, he points out that there is the real estate bubble existing in China. It causes the unbelievability of China's so-called "upcoming peak of GDP" as it is clearly overvalued.

4.3 Questionnaire - Data evaluation and Conclusion

4.3.1 Data evaluation

Apart from the data we got from the contexts on the questionnaire, we also collected some additional information by talking with these people who did the survey and found many interesting phenomena.

Most people below age 18 do not have a clear idea about GDP, some of them can simply define this term and some can just tell the full name of GDP, others even know nothing about it. From the perspective of genders, about 65% of males can have a short speech to explain Gross Domestic Product but only 20% of females can do that and some of them know what GDP is related to and what effects will a change of GDP has.

From Question 4, most people with monthly income of about 1000-10000 spend a large part of income on food, clothes and housing and people who can gain above 20000 also spend much money on entertainment every month such as travelling and many of them also have fixed amount of money to spend on investment. They gave some information about 'others' part: social intercourse and tuition fee. Citizens now already have jobs have to pay for the social contact such as the presents for colleagues and bills for dinners. In addition, most people with age 28 or above now have children. Their tuition fees occupy a large percentages of people's monthly spending.

In 2015, China's GDP grew from 63.59 trillion yuan in 2014 to 67.67 trillion yuan which is a 6.9% increase compared with 2014.



(No author given, 2016)

However, in our research question 5, many people pointed out that their living standards are becoming worse during the recent few years. They have this feeling because their real income reduced caused by the inflation. And many firms had been forced to shut down on account of large losses.

For the part of prices of commodities, about 68% of citizens in Suzhou think that the price level has increased rapidly and is keeping rising recently. This is especially shown in China's house prices. Take Suzhou as an example, after land sale in September 2016, the prices of Suzhou housed increased averagely over ¥2000 per square meter just in one day. The great rise in prices of houses has put a huge pressure on people's lives.

From the results data, we can draw a conclusion that about 68% people think GDP can measure a country's wealth and can partly reflect the living standard. Meanwhile, they states that a development in GDP is able to show an economic growth of the country and can also be used to compare economic situations of different countries. However, over 83% of people are not sure that GDP can measure life happinesses as they cannot find any relationships between these

two elements. On the other hand, some also gave few examples to prove that GDP is not an efficient data to represent the improvement of economy.

The gross domestic product (GDP) measures of national income and output for a given country's economy. The gross domestic product (GDP) is equal to the total expenditures for all final goods and services produced within the country in a stipulated period of time. This page provides - China GDP - actual values, historical data, forecast, chart, statistics, economic calendar and news. China GDP - actual data, historical chart and calendar of releases - was last updated on October of 2016.

China GDP	Last	Previous	Highest	Lowest	Unit	
GDP Growth Rate	1.80	1.20	2.50	1.20	percent	[+]
GDP Annual Growth Rate	6.70	6.70	15.40	3.80	percent	[+]
GDP	10866.44	10351.11	10866.44	46.69	USD Billion	[+]
Gross National Product	673837.10	634367.30	673837.10	679.00	CNY HML	[+]
Gross Fixed Capital Formation	292396.50	283017.60	292396.50	80.70	CNY HML	[+]
GDP per capita	6416.18	6032.62	6416.18	130.14	USD	[+]
GDP per capita PPP	13400.27	12599.19	13400.27	1516.21	USD	[+]
GDP Constant Prices	340637.00	158526.00	676708.00	5234.80	CNY HML	[+]
GDP From Agriculture	22097.00	8803.00	60863.00	651.80	CNY HML	[+]
GDP From Construction	19878.00	7438.00	46456.00	181.90	CNY HML	[+]
GDP From Manufacturing	114943.00	52335.00	228974.00	2207.80	CNY HML	[+]
GDP From Services	184290.00	90214.00	341567.00	2200.20	CNY HML	[+]
GDP From Transport	15537.00	7249.00	30364.00	393.20	CNY HML	[+]

(No author given, 2016)

The gross domestic product measurement includes many factors developing in a country. For instance, the column of 'GDP from Construction' in the above table shows that construction as a part of GDP value also takes up a large percentage. However, not all construction projects are effective and efficient. During our research, one person took the tall building in Suzhou SIP as examples. He states that the building of these construction definitely counts as a part of GDP. But many of them are not being used by anyone. A large number of buildings is empty because nobody buy them, at least, not the whole building. These building projects help with the development of Gross Domestic Product but they have no help for the efficient economic growth.

The last question is an open question. By doing this research, we have collected many different opinions from citizens. A large part of them think that GDP is a very formal index and is a global standard used to reflect economic development of a country. For another part of citizens, GDP represents the productivity of a country in that year. In some ways, it also shows the national growth of technology as a new production method found by the technology development can promote the productivity of the industry. Some people holds that GDP can be treated as a determination of whether the country is a developed or developing country. However, about 12% of people who did this questionnaire haven't found anything in GDP data related to their daily lives. Therefore, they do not think GDP means something special.

4.3.2 Conclusion of questionnaire

According to our research on how GDP is understood by the general public, although the term 'Gross Domestic Product' is a familiar phrase for people and the GDP measurement has been used around the world over hundreds of years. The masses still haven't had a very detailed and clear understanding about GDP yet. Over 60% of them even cannot define this term. That provides an evidence of lack of knowledge of public perception of GDP. In addition, from the results, we can conclude that many people just think GDP as a general concept and with no relations to their lives and consumptions. Therefore, the first step to improve GDP measurement is to make this factor be well understood by the public and basically to gain a fundamental part of this measure such as how many things are included by GDP calculation.

Conclusion

5.1 Gross Domestic Product is a relatively effective measurement

Gross Domestic Product contains a lot of factors and considerations. There is no other data or indicator that includes so many elements like GDP does in our contemporary society. So far, it is considered to be the only method can be used to represent the economic development of a country and the more developed level of data. To a certain extent, GDP reflects the people's living standards correctly. According to our survey, people generally own the feelings of the decline in living standards in recent years while the real GDP dropped.

China NBS data [\[edit\]](#)

Annual GDP [\[edit\]](#)

China's Historical GDP for 1952 –present ^[4] (SNA2008) ^[3] (purchasing power parity of Chinese Yuan, as Int'l.dollar based on IMF WEO April 2016 ^[5])											
year	GDP			real growth (%)	GDP per capita (GDPPC) based on mid-year population			real growth (%)	Mid-year population in thousands	Reference index	
	GDP in billions				GDPPC					exchange rate 1 foreign currency to CNY	
	CNY	USD	PPP (Int'l\$.)		CNY	USD	PPP (Int'l\$.)			USD 1	Int'l\$. 1 (PPP)
P2015	68,550.60	11,006.13	19,437.05	6.9	9,992	8,027	14,175	6.4	1,371,220	6.2284	3.5268
'2014	64,397.40	10,483.40	18,052.65	7.3	7,203	7,684	13,232	6.8	1,364,270	6.1428	3.5672
2013	59,524.44	9,611.26	16,621.83	7.8	6,852	7,081	12,246	7.3	1,357,380	6.1932	3.5811
2012	54,036.74	8,560.28	15,203.63	7.9	6,007	6,338	11,256	7.4	1,350,695	6.3125	3.5542
2011	48,930.06	7,575.72	13,958.06	9.5	5,403	5,636	10,384	9.0	1,344,130	6.4588	3.5055
2010	41,303.03	6,101.34	12,473.36	10.6	4,876	4,561	9,324	10.1	1,337,705	6.7695	3.3113
2009	34,908.14	5,110.25	11,051.06	9.4	4,222	3,839	8,301	8.9	1,331,260	6.8310	3.1588
2008	31,951.55	4,600.59	10,041.03	9.7	4,121	3,473	7,580	9.1	1,324,655	6.9451	3.1821
2007	27,023.23	3,553.82	8,944.24	14.2	3,505	2,697	6,787	13.6	1,317,885	7.6040	3.0213
2006	21,943.85	2,752.68	7,608.30	12.7	2,738	2,100	5,803	12.1	1,311,020	7.9718	2.8842
2005	18,731.89	2,286.69	6,533.62	11.4	2,438	1,754	5,012	10.7	1,303,720	8.1917	2.8670

(Historical GDP of China, 2016)

In 2015, China's GDP growth rate compared to last year's was 6.9 percent, which was the lowest rate in the period of 25 years. The diagram shows the GDP growth in China within 10 years. This evidence shows that GDP is not completely untrustworthy, while it is closely related to people's daily life.

5.2 Limitations of GDP

GDP measurement ignores many factors. As mentioned by Dr. Wen, GDP is only a short-term data. There is no way to represent a country's long-term development using GDP. Because many factors in the current national development process will affect the collections of final GDP data, and these factors are varying with ever-changing speed update. However, such factors are not systematically planned into GDP calculations. This is part of the reasons for the lack of credibility of GDP data. Take the information we collected in the interview as an example, the development of science and technology and environmental pollution, on the other hand, have greatly affected the country's economic development and even the overall development and progress of the country. Also, these factors do not have a globally professional indicator that will convert them into a considerable data. The world of 2016 is so fundamentally different from 30 to 40 years ago that traditional, commonly held economic views and perspectives seem downright quaint today. Economically, the world of the early 1970s was a patchwork of inward-focused economies, with most goods made and sold domestically, together with small quantities of international trade in finished products between 20 or 30 countries. Back then, much of the world operated under some communist or socialist model. Even in the United States, trade comprised less than 10% of the economy. The new information technologies has ushered in the first truly global era where factors of productions move across national borders faster than ever before. Over the last generation or maybe two, the world has been transformed into a complex system of interdependent and changing relationships constantly.

In the meantime, the existence of the bubble economy in economic development is also an important element that causes GDP unreliable. We believe that the bubble economy makes the country has a huge amount of data that has the lack of reliability. It is impossible to truly reflect the people's lives

and the country's economic development using the figures of GDP. Take China's GDP as an example, China's GNP has reached or exceeded its target each year in the past decades. But our research also shows that the people's living standards have not increased, and there is a depression of economic development in some areas. If GDP can fully represent a country's overall economic strength, it will lose the essential significance which is the development of economy and improvement living standards of people during the blind pursuit of this data.

5.3 Future improvement

For China's newly lowest rate of 6.9% in GDP growth rate during 25 years, we hold the opinion that to some extent, the figure does not mean the Chinese economy backward and regression. This may be the measures of the Chinese government with purpose. With a decline in GDP such as the development of technology and innovation to reintegrate the economy. The government spending may further reduce GDP before the development is completed in the long run. But it can also reduce the proportion of the bubble economy. We fully believe that such a reduction in the long-term development acts as a favorable trend.

In the passage <Brave New Math> written by Marber, he pointed out that private sector initiatives are also working to improve existing economic indicators. He also gave several examples. For years, the payroll processing company ADP has generated monthly payroll data on 23 million working Americans that helps illuminate labor trends. Monster.com produces the Monster Employment Index, a multi-country monthly compilation of recruitment data. Because recruitment typically precedes actual hiring by a month or two, the index is considered an interesting forward-looking barometer of the labor market and overall economy. Take Google as another example, Google has created the Google Price Index, an alternative to official inflation statistics. It uses a database of real-time Internet shopping figures, measured on a daily basis as opposed to official figures. It is published at least a month after the period they cover. Economists are also using digital data from sites such as Twitter and Google to gauge economic performance by measuring

unemployment and home sales. These sources, unlike the official sample surveys taken once a month, may be proved to be more accurate. As the world completely digitizes, one would hope valuable real-time data could be mined in ways statisticians couldn't have imagined even 30 years ago.

From the global perspective, this means that the government is equally committed to increasing the realism and credibility of GDP. Consolidating all the research we have done, we maintain the opinion that the first step in the process of improving the GDP calculation method is to increase the necessary factors that are ignored by the existing formula. For example, technology development and environmental pollution that are mentioned above and so on. Therefore, GDP will be able to represent the country's longer-term development process. In addition, to raise the national awareness of GDP is also essential. Only when such large data is spread widely to the country, citizens can truly understand its meaning and implications. In this way, people can actively participate in the process of economic development. Through people put forward more constructive comments, the government and the state at the same time can keep to take measures to establish effective and healthy economic development.

There are other comments involved from our readings, this data, GDP, has been used for almost a century since it was created in the 1930s when congress asked a young University of Pennsylvania economist Kuznets to develop a uniform set of national accounts. It will be taken a long process to whether change it or re-integrate the measurement. This data is still present and nowadays is frequently used to represent the strength of country's economy. It means that GDP still has a very high degree of effectiveness and representativeness. It is the topic in a long term for the whole world to work on the need to make this important data consummate again. So far, we believe that the process is moving in a beneficial direction.

References

Ashanti.K. (2016). What Is Gross Domestic Product (GDP) Definition & Calculations. *Economic Policy*. Retrieved from: <http://www.moneycrashers.com/gross-domestic-product-gdp-definition/> [Accessed in Dec 2015]

Bamford.C. and Grant.S. (2015). Cambridge International AS and A Level Economics Coursebook: Third edition. Cambridge. Cambridge University Press.[Accessed in Oct 2015]

Callen.T. (2016). Gross Domestic Product: An Economy's All. Retrieved from: <http://www.imf.org/external/pubs/ft/fandd/basics/gdp.htm> [Accessed in Jul 2016]

Frodoa. (2014). GDP's production approach, income approach and expenditure approach. *360 doc*.Retrieved from: http://www.360doc.cn/article/3739810_379704604.html [Accessed in Nov 2015]

GDP Ranking.(2015). Gross domestic product ranking table. *The World Bank*. Retrieved from: <http://data.worldbank.org/data-catalog/GDP-ranking-table/> [Accessed in Feb 2016]

Gross Domestic Product.(2016). Wikipedia. Retrieved from: https://en.wikipedia.org/wiki/Gross_domestic_product [Accessed in Jan 2016]

Gross national income.(2016). Wikipedia. Retrieved from: https://en.wikipedia.org/wiki/Gross_national_income [Accessed in Apr 2016]

Hennessey.K.(2010). Economist Debates: GDP. *The Economist*. Retrieved from:
<http://debates.economist.com> [Accessed in Jan 2016]

Historical GDP of China. (2016) Wikipedia.Retrieved from:
https://en.wikipedia.org/wiki/Historical_GDP_of_China[Accessed in Dec 2015]

Investopedia Staff (2016) What is GDP and why is it so important to economists and investors? *Investopedia*. Retrieved from:
<http://www.investopedia.com/ask/answers/199.asp> [Accessed in Aug 2016]

Landefeld, S. (2010). Economist Debates: GDP. *The Economist*. Retrieved from:
<http://debates.economist.com> [Accessed in Jan 2016]

Lane.P. (2010). Economist Debates: GDP. *The Economist*. Retrieved from:
<http://debates.economist.com> [Accessed in Jan 2016]

Marber.P. (2012). Brave New Math. *World Policy Journal*: Spring 2012.
Retrieved from:<http://www.worldpolicy.org/journal/spring2012/brave-new-math>
[Accessed in Oct2015]

No author given. (2013). GDP vs. GNP-What's the Difference? Retrieved from:
<http://www.investorwords.com/article/gdp-vs-gnp.html> [Accessed in Nov 2015]

No author given. (2016). China GDP. *Trading Economics*. Retrieved from:
<http://www.tradingeconomics.com/china/gdp>[Accessed in Jul 2016]

No author given. (2016). Domestic GDP of China. Retrieved from:
http://app.finance.ifeng.com/data/mac/year_idx.php?type=001&symbol=00102
[Accessed in Feb 2016]

No author given. (2016). Expenditure Method. Retrieved from:
<http://www.investopedia.com/terms/e/expenditure-method.asp> [Accessed in Jan 2016]

Ofse.(2014). The Full Version of SNA. Retrieved from:
<http://bbs.pinggu.org/thread-3393036-1-1.html> [Accessed in Sep 2016]

Oswald.A. (2010). Economist Debates: GDP. *The Economist*. Retrieved from:
<http://debates.economist.com> [Accessed in Jan 2016]

Peng.Q. (2012). Why GDP is unreliable? *Brave New Math*. Retrieved from:
http://www.guokr.com/article/310754/?block=article_interested&pos=2&key=d22b (my own translation). [Accessed in Oct 2015]

Qin.C. (2014). Whether GDP of China is overvalued or undervalued? Retrieved from:
<https://www.zhihu.com/question/23397567> [Accessed in Jan 2016]

Say's Law. (2016). Wikipedia. Retrieved from:
https://en.wikipedia.org/wiki/Say%27s_law [Accessed in Feb 2016]