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On Calculations and Problems of GDP

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Abstract : The problem of GDP's calculations lies in that it violates the labor value theory, and consequently it does not have scientific theory basis. The major significance of GDP is to use implicit standards to prevent people from caring for social welfare. We need to use Marx's labor value theory, especially its description of product value and value products so as to reestablish a measuring standard for economic welfare of the society.

Key words : GDP ; Economic welfare of the society ; Product value ; Value product.

Many scholars in and abroad have noticed that GDP could not reflect problems like the negative influences to the environment brought by the economic development. This paper is to do further analysis of GDP, which is called the greatest invention of the 20th century by Paul Anthony Sam nelson and William D.Nordhaus, and to further reveal the problems in the calculations and analysis.

1.The Calculation of GDP

GDP in the Western Economics is defined as all the products and the market value of labors of the country in a certain period of time. There are two ways to calculate GDP: 1. Expenditure approach. GDP includes the whole expenditure of a family. Here only the final products are included. Final products refer to those products that are purchased and used by consumers. In this case, GDP includes bread but not powder. 2. Income approach. GDP includes all the income paid by all the companies (salary, rent, profit). According to western economists, as all the expenditure would finally be someone's income, GDP is the same in whatever way of calculations.^[1]

When calculating GDP, western economists require that all the expenditure for purchasing various production factors should be included, and all the payment for other companies should be excluded. In this case, costs like salary, interest, and dividend are all calculated as added value, while the purchase expense of things like powder, raw steel materials, electricity would be excluded in the added value. These purchase expense would be calculated as added value in GDP by other companies.

When a medium product is not used, but is added to the stocks of a company, this medium product would be treated as a "final" product, and its value is added to GDP as a

stock investment. When the medium product is used or sold in the future, the stock investment of the company is negative and hence GDP of the next period would be less.

The second method of calculating GDP is to calculate the whole income of production factors (salary, interest, rent, profit). This income is the production cost of the final products in the society. In addition, if you live in your own house, it would be considered that you are paying renting to yourself. This is one of the derivative incomes of national people's accounts. ^[2]

The result of these two calculation methods is the same. For example, Karen pays 100 dollar for Tom because Tom helps her to trim on the lawn. In this case, Tom sold his labor while Karen is the buyer of his labor. Tom earns 100 dollar while Karen pays 100 dollar.

2.Problems in GDP's Calculation

First of all, the calculation of the rent of workers' own houses is repetitive. This is because the rent is not paid to the worker himself but is paid to the capitalist, while the profits of capitalists have included the rent of workers' houses.

Workers who have a house worth of 1000 taler is no longer a proletarian, but only people like **Jeffrey Sachs** would think his as a capitalist. However, such capitalist has its own features. Let's suppose that in a certain industry area, every worker has his own house. In this case, all the workers there have free accommodations, and the accommodation fees would not be calculated in the workers' labor value. The reduction of production fees of workers, which is the price reduction of workers' life necessities, would be equal to the reduction of labor value, according to the absolute law of national economics. It means that the salary would be reduced. Hence we could say that the average amount of the salary reduction will be equal to that of rent. That's to say that workers still pay the rent, not in the form of paying money to their landlords, but in the form of paying labor to their employers. So the savings that workers invest in the house are to some extent the capital which does not belong to them but belong to their employers. We can see that **Jeffrey Sachs** did not turn worker into a capitalist even on the paper." ^[3]

Secondly, the biggest problem of GDP's calculations lies in that it makes the same mistake of Adam Smith, which has already been pointed out by Marx.

"According to Adam Smith, the price or the exchange value of a single commodity – all the commodities form the annual products of the society (on the premise of capitalistic production) is consisted of three parts: salary, profit and rent. We can put it in another way: Product value= $v+m$. It means that product value is equal to the variable value added with surplus value.

The first mistake of Adam Smith is that it equalizes the value of annual products with products of annual value. The latter is just the products of last year, while the former,

besides that it includes the production goods which were consumed last year or part of which are the value factors of former years. These values just reappear. These values are neither produced by labor last year, nor reproduction. As Adam Smith mixed up these two things, he excluded the constant value of the annual products. This confusion is based on another error of his basic theory. He did not distinguish two fold character of the labor, which are value and use value. The total amount of the products in a year is the products of useful value of the passing year. The reason why these commodities exit is that labor is consumed in a complicated system of useful labor. In this way, the value consumed when producing them is maintained in the total value, and reappear in a new form. Hence, the annual products are the result of the useful labor, while only part of the value of annual products is created in that year. This part is the products of annual value, and it reveals the sum of the labor in a year.”^[4]

This is to say that although Karen paid 100 dollar, Tom did not earn as much as 100 dollar, because he has to deduct the wear and tear of the weed extractor, which costs 20 dollar. In this case, Tom only earned 80 dollar. If Tom thinks he has earned 100 dollar and use all of them, he could not continue to trim the lawn.

As GDP includes depreciation, if we calculate GDP by the income approach, that is we add salary, interest, rent and profit, the result of GDP would not be equal with that calculated by the expenditure approach. Actually, statistical department has added produce tax net and depreciation of instant value when calculating GDP, which is not known to western economists.

As GDP includes depreciation, GDP is not equal with value products, that is newly-increased value, but is not equal with products value either. This is because GDP does not include medium products but does include some activities that are not considered as value productions by Marx. For instance, the GDP of SNA includes activities like prostitutions and drug trades.^[6]

If it does not have depreciation, the increase of GDP could be based on the consumption of the current resources and capital without concerning about the cost. This creates conditions for controlling GDP and making up prosperity. The founder of macro-economist Keynes has proposed a suggestion of how to make economy prosperous: If the Finance Department fills the used bottles with cashes, and put the bottles in the exploited mines, and then cover the mines with city trashes. After that it allows the private companies to dig out all cashes (of course they have to get the right of exploitation through bidding). In this case, there would be no issue of unemployment, and under its influence, the amount of actual income and capital of the society may be much more than that of the current one.”^[7] China was attacked by a disastrous flood in 1998. The lost of this disaster was not calculated in GDP, while the expenditure in this flood was calculated. Some Chinese even said that flood contributed to GDP.

3. Decomposition of GDP

In Western Economics, GDP (Y) is consisted of four parts: Consumption (C), Investment (I), Government purchases (G) and net exportation (NX).

$$Y=C+I+G+NX$$

According to western economists, such equation is an identical equation. That is to say, not only GDP can be taken apart to four parts, but also the sum of these four parts can be equal with GDP. It is beyond doubt.

First, according to western economics, government purchases are defined as the sum of all the expenditure that the government spends on its employees and the products that the government purchases from private companies. However, salary expenditure is spent by the government, and in the calculation of GDP, only the commodities and the labor are included. Hence, the government purchases can only be the commodities and labor that are purchased with the salary of the government employees. But in this way, there is a problem. Does the consumption of government employees are counted in the family consumption? If the answer is yes, it is obviously a repetitive calculation. If the answer is no, the problem is how to separate the family members of government employees and non-government employees in the process of calculation?

For instance, suppose that the government charges 20 dollar of tax from Tom to pay for its employee Jack, disregard of the scissors or weed-extractor. The consumption expenditure of Karen is 100 dollar; the sale income of Tom is 100 dollar, and its tax is 30 dollar; the income of the government employee Jack is 20 dollar. According to the commodity flow, the lawn after the trim is worth 100 dollar that is its GDP is 100 dollar. According to decomposition method, we have 100 dollar for consumption and 20 dollar for the government purchases. So the GDP should be 120 dollar. The result is different. It is obvious that only when the labor provided by the government is considered as government purchases, and its value is forced to equalize with the tax, and when the tax expenditure is included by the expenditure approach, the GDP calculated by decomposition approach will be equal with GDP calculated by expenditure approach and income approach (the income of government employees is included). This means that the government purchases are the expenditure of the residents for purchasing the government service. For example, GDP is 120 dollar (the sum of Karen's 100 dollar and Jack's 20 dollar) if it is calculated by income approach. GDP is 120 dollar (the sum of Karen's 100 dollar and Tom's tax of 20 dollar), if it is calculated by expenditure approach. GDP is 120 dollar (the sum of consumption of 100 dollar and the government's 20 dollar), if it is calculated by decomposition approach. GDP is 120 dollar (the sum of Tom's 100 dollar and the government service of 20 dollar), if it is calculated by products flow approach.

Now the GDP calculated by the four approaches are finally equal. However, the

government service is not productive activities and should not be counted in. Did the injury of American soldiers contribute to American GDP?

Secondly, according to western economists, investment means to increase future consumption by sacrificing the current consumption. People do not eat more pizzas but instead build a stove for making pizzas in the aim to produce more pizzas for future consumption. But in reality, the maintenance of current productivity needs to compensate the consumed investment. When we build a new stove only to compensate for the old stove, it will not help to produce more pizzas, unless the new stove promotes its efficiency. This investment has nothing to do with the current consumption.

Thirdly, western economists consider stock as a kind of investment. However, the IBM computers which are stocked because they cannot be sold out are not used to improve the future productivity of IBM. Why should we put them into the area of investment? Meanwhile, this increase of investment only shows that the capitalists' production and flow process is obstructed, and it is the signal of potential danger but not the signal of the increase of future productivity.

Meanwhile, in IBM stocks, apart from computers, there are semi-finished products and raw materials. These medium products would not be counted in GDP. But if they were counted in the stock investment, and were added to consumption, it means that the GDP (includes medium products) calculated by decomposition approach is contradictory with the GDP (excludes medium products).

Suppose Tom pays 20 dollars for the scissors from Jack to trim the lawn for Karen, and the scissors is produced solely by Jack. In this case, the total expenditure is 120 dollar (the sum of Karen's 100 dollar and Tom's 20 dollar); the total income is 120 dollar (the sum of Tom's 100 dollar and Jack's 20 dollar). The result of GDP by the two methods is the same.

But the problem is that if the GDP is divided into consumption and investment (it does not include government purchases and net exportation), then how to decompose this 120 dollar? Karen's 100 dollar is definitely consumption expenditure, but what does Jack's 20 dollar belong to, the consumption expenditure or investment? As the 20 dollar is spent on the production equipments, it is not appropriate to consider it consumption expenditure. But if it is considered as investment, such investment is quite different from IBM's stock investment. This is because the stock computers still exist both in substance and in value, while the scissors produced by Jack is discarded as worthless, and it exists not as a scissors but as trash and it has no value, and the value is transferred to the lawn. It is to say that if the 20 dollar is counted as investment, it would not exist at the end. The point is that GDP does not take productive consumption into consideration.

Well there would be no contradiction if we use the calculation method of Marx's. Here the value product and the product value is both 100 dollar, and the life consumption is 100

dollar (the lawn). The worthless scissors is counted as productive consumption; the productive consumption is 20 dollar, which offsets the investment of 20 dollar. Jack's income is 20 dollar; Tom's income is 80 dollar and Tom has the compensation of 20 dollar for the scissors investment. At the beginning, Karen has 100 dollar; Tom has 20 dollar, and the total amount is 120 dollar. At the end, Tom has 100 dollar while Jack has 20 dollar, and the total amount is 120 dollar.

Thirdly, the reason why net exportation is part of it is that countries with negative net exportation do not pay equivalent for the net imported commodities. If the country pays these in gold or foreign exchange, the net exportation would be zero, and there would be no such decomposition.

The above decomposition method is mainly suitable for countries like America who pay the countries of net importation with self-printed paper currency (dollar). This paper currency does not represent any value but the debt of America's central bank. Hence, the adding of the negative net exportation in the GDP's equation neglects the actual fortune hold by America.

Someone may say that the debt would one day be repaid, and the dollar paid by America to others would reflow into America to exchange for commodities produced in America. However, on one hand, dollar would undergo devaluation. Now we export commodities to America for dollar, but someday this dollar could only buy a part of those commodities; on the other hand, the purchase range of dollar would be limited. "Foreign-invested institutions can use dollar to buy anything in China. Dollar has more purchase rights than RMB does. With dollar, you can do things even RMB holders like, state-owned firms, especially private firms cannot do. On the contrary, if a Chinese in America has dollar, he or she can only buy creditor's right, but cannot buy stocks, techniques and commodities that China are in need of. Chinese with dollar in America find that the right of dollar for them is limited to a narrow space by American government and American congress, and dollar is no longer a universal equivalent."^[8] In 1980s, Americans brought dollar to China. They could exchange dollar into RMB, while Chinese in America could not exchange RMB into dollar. The finance hegemony of western power made the equation of GDP insignificant.

In GDP's equation, we notice that consumption, investment and government purchases are all the expenditure of a country's residents. If the positive net exportation is to add with the three, it is obvious that this net exportation is a kind of expenditure. But the problem is why should a resident spend money on net exportation just like he or she spends money on consumption, investment and government purchases? Does the country of net importation can impose tax on people of the country of net exportation?

Last but not the least, just as western economists consider those commodities that cannot be sold out as investment, they do not take the very important war material reserve like grain stock into consideration in the GDP's equation, or they consider those

commodities that cannot be sold out as stock investment. In recent years, the lack of food in the world has triggered social unrest in many countries, which reveals the narrow opinion of western economists.

4.The Inaccuracy and something missing of GDP

In terms of this issue, the following points are covered.

Firstly, according to western economists, GDP neglects opportunity cost. Let's take the investment in human resources of middle school students as an example. The national bank account has the record of tuition fees, but neglects the opportunity cost. However, if you have a paper in hand, you can make it into a card or an envelope. If you make it into a card, your opportunity cost is the envelope. If we calculate the opportunity cost into GDP, that is you calculate the value of the card and the envelope, it is obvious that you calculate the paper as two pieces of papers. In this way, we have serious repetitive calculations.

Secondly, according to western economists, GDP is not counted in the utility value of leisure time, and averagely speaking, Americans spend the same time in leisure entertainment and in work. However, leisure is not direct production, and it is at most can be considered as the reproduction of labor, and its value has already been counted in the salary of the worker. The leisure time certainly cannot be repetitively calculated. In addition, for the majority of people, leisure has definitely different meaning from work. Under capitalist system, work is just a way of making a livelihood, and is the activity which is forced by hungry, which is not free or democratic, and in which you have to listen to your boss. Life is outside of work.

Thirdly, the underground economic activities do not report their income to the government. For example, tips are labor income of value, but they are not reported to the government as they are. In this case, the government can only make estimation. However, if the servers do not report the tips to the government, the customers must not report the tips to the government, otherwise, the government can accurately calculate the tips income of servers according to the tips report of the customers. Hence these reports would not cause inaccuracy between expenditure and income. The one-side estimation by the government would be the source of inaccuracy of the data.

Fourthly, GDP neglects destroy to the environment. According to western economists, it is because firms that bring pollution do not pay money for the bad effect. However, even if they have paid, what would be the difference? Don't the developed countries would give money to developing countries so that they can turn the latter into trash dumps and nuclear waste yards? Does the environment not be polluted because the firms pay for the pollution?

As many people including rich and poor people are involved in the environment, the environmental destruction is like the infected disease, and it has attracted the concern of the

capitalist government of developed countries and economists, and they have proposed the concept of green GDP. However, GDP neglects a very important thing, which is the harm to the labors.

“Cotton manufacturing has a history of 90 years... It has been passed down by three generations, but it has swallowed nine generations of textile workers.”^[9] “Although capitalist production is very mean, it is a big waste of human body.”^[10] The reduction of workers’ life span, the injury and handicap of workers and the pre-worthlessness of the labor are not excluded from the GDP. Obviously, the “human GDP” which includes the environment harm, resources consumption and labor injury is much more important than green GDP and GDP.

5. The Significance of GDP

The major significance of GDP is using implicit standards to prevent people from concerning about the social economical welfare.

Even American killer have realized that, “the increase of GNP would make it only favorable to one person, who for instance has a company and most of his employers are in debt. The rich would become richer, while the poor would become poorer. In the aspect of statistics, it is recorded as economic increase.”^[11]

Compared with GNP, GDP is more deceptive, especially for developing countries that attract a large amount of foreign investment. This is because the output of foreign-invested firms would be counted into the local GDP, but not the local GNP. The blind love for GDP covers the fact the robbery of developed countries to developing ones through cross-country firms. “These days, the ‘seven sisters’ of oil companies only pay mining cost to those poor countries which can increase but not reduce their dependence on the oil income. Once the oil is all exploited, these countries would go back to backwardness.”^[12]

6. Summary

The problem of GDP’s calculations lies in that it violates the labor value theory, and consequently it does not have scientific theory basis. We need to use Marx’s labor value theory, especially its description of product value and value products so as to reestablish a measuring standard for economic welfare of the society.

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