

Hypothesis On the Positive U Curve Relationship Between Unemployment Rate and Productivity

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ABSTRACT

This paper mainly describes the U curve relationship between unemployment rate and productivity: when productivity continues to rise, the unemployment rate will fall at first and then rise. When the contribution rate of technology input to productivity is less than the contribution rate of labor input to productivity, the unemployment rate will decrease with the increase of productivity, whereas when the contribution rates are in the opposite relationship, the unemployment rate will rise. When the contribution rate of technical input to productivity is equal to the contribution rate of labor input to productivity, there is an inflection point. This paper attempts to analyze and discuss the logical relationship between them with theoretical research methods. According to this hypothesis, policy makers should take corresponding measures to deal with the social problems caused by the rising unemployment rate.

Keywords: Unemployment Rate, Productivity, U Curve Relationship

I. INTRODUCTION

Analysts usually think that the unemployment rate and productivity have an inverse corresponding change relationship, which can also be called a reverse corresponding change relationship. In fact, however, this is only one stage of the phenomenon of social and economic development. Because this stage does not fully describe the relationship between them, it does not reflect the essential characteristics and internal laws of economic development. This article will mainly describe the essential relationship between the two, and try to put forward some useful suggestions about the reform of the relevant system based on the positive U curve relationship. For example, in order to respect this rule, we need to reform the educational system, reform the welfare system, reform the housing system, and reform the economic structure, etc. At present, the supply side structural reform put forward by the central government of China, is outwardly, designed to meet the needs of the market, but in fact, it also respects and complies with the relevant laws of economic development. Price stability and full employment are important objectives of macroeconomic policies. However, the problems of unemployment and inflation plague macroeconomic policy makers all over the world. The traditional Phillips curve shows that full employment and price stability are mutually exclusive. The government must choose between high unemployment rate and low inflation and high inflation and low unemployment rate. However, while productivity directly innovates labor means and promotes labor productivity, it will directly lead to the increase of total social unemployment and unemployment rate, and there will be a conflict between the progress of productivity and the number of social employments. In this case, it is meaningful to study the relationship between productivity progress and employment. Studies have shown that there was a positive correlation between innovation and unemployment rate in Japan in 1990s, that is, innovation did not effectively reduce the unemployment rate.

II. RESEARCH METHODS

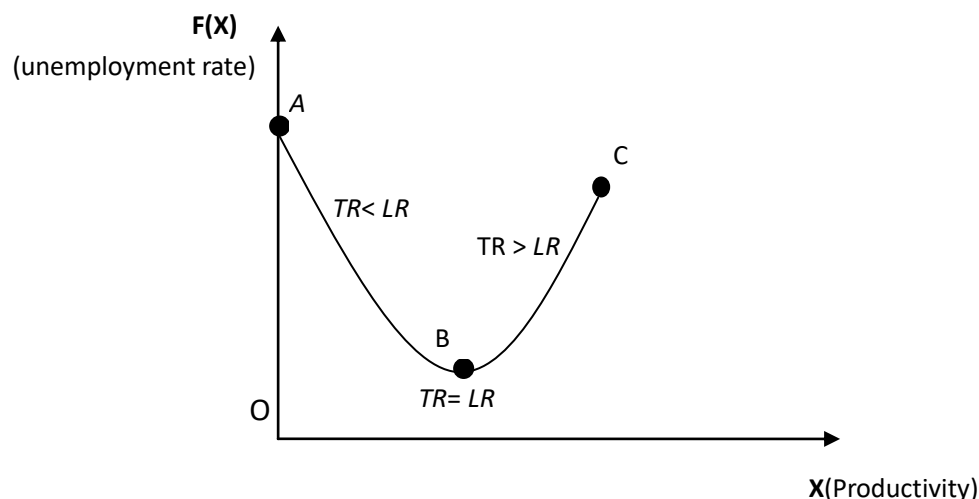
In this paper, the deductive method is mainly used for theoretical research, that is, from the existing theories, logical reasoning is used to get the results that support the hypothesis. The productivity referred to in this paper refers to the narrow sense of productivity, mainly refers to the primary productivity of science and technology. On the one hand, the government promotes the improvement of productivity; on the other hand, according to the Phillips curve, it keeps employment through inflation. However, this is not the right way of thinking. This paper demonstrates it by deductive method.

III. RESULT AND DISCUSSION

4.1 A few premises:

- 1) The productivity referred to in this paper refers to the narrow sense of productivity, mainly refers to the primary productivity of science and technology.
- 2) The calculation of unemployment rate omits the factors of inflow and outflow of total labor force. For example, in a certain period of time, some amount of the labor force will leave the economic area under study and some new laborers will flow in. These phenomena are usually omitted in economic analysis so that the basis for the calculation of unemployment rate is consistent.
- 3) A U- type curve is the hypothesis resulting after fitting some data, but it is better if there is an abundance of data to test this hypothesis.
- 4) The unemployment rate and productivity refer to the indicators that are from the economic zone in the same stage of development.
- 5) TR in this article refers to technical efficiency (the contribution rate of technology to productivity), LR refers to labor efficiency (labor contribution rate to productivity).
- 6) We will only consider the contribution of technology and labor to the improvement of productivity, and assume that other inputs such as capital and land do not play a decisive role in productivity improvement.

4.2 The Positive U- type curve relationship between unemployment rate and productivity:



In the graph above, the unemployment rate $F(X)$ is a function of productivity X (hypothesis). The point $F(A)$ intersects the $F(X)$ axis at point $F(A)$, $F(A) > F(c)$. From point A to point B there is an inverse correlation between unemployment rate and productivity, which fits intuition. In this region of the graph, technical efficiency TR is less than labor efficiency LR . From point B to point C there is a positive correlation between unemployment rate and productivity that counter-intuitive. In this region, TR is greater than LR . Point B is the inflection point, where TR equals LR .

4.3 Macro policy thinking based on the positive U- shaped relationship between unemployment rate and productivity:

- 1) The decisive factor of sustained economic growth is the continuous improvement of productivity, and the decisive factor of the continuous improvement of productivity is the improvement of technical efficiency and management efficiency. Among these two factors, technical efficiency is the core goal, and management efficiency serves technical efficiency.
- 2) Policy-makers should not try to use monetary easing to stimulate economic growth. Doing so is like toxic hormone therapy, a palliative that does, more harm than good; it can only create short-term false prosperity. Monetary easing policy is equivalent to drinking poison to quench thirst.

In order to maintain or raise the employment rate, governments usually think of using the principles outlined in the Phillips Curve to maintain or moderately raise inflation rate. That is, loose monetary policy is used to stimulate economic growth. Actually, this is a wrong idea, for the following reasons: When a government initiates inflation, because of the nominal income increasing, consumer demand for sensitive goods in the market will increase, so the prices of such commodities will rise. The manufacturers' costs, however, have not changed, so at this time the profits of the relevant manufacturers are maximized, and therefore they will quickly expand the production scale in order to pursue excess profits. Expanding the scale of production will inevitably increase the demand for labor, thereby enhancing the employment rate of the whole society. But after a period of time, inflation eventually increases the price of all goods, so at this time when the consumer's income is certain, rising prices of non- sensitive goods (mainly necessities) will lead to a decline in consumer demand for sensitive goods. Coupled with the rise in prices of various basic goods and services, the cost of sensitive goods will also rise sharply, so related manufacturers' profits will fall

sharply, perhaps even to below the breakeven point, which will force them to quickly reduce production scale to reduce costs and losses. The reduction of production scale will inevitably reduce the demand for labor, which leads to the rise of unemployment in the whole society. In these circumstances, the government will find that the economy seems to be down, so in order to maintain sustained economic growth, the government will continue to use the idea of the Phillips Curve to expand monetary input again to stimulate demand and investment. This is an attempt to continue to raise employment through inflation to drive the economy upward, and the cycle repeats. However, this policy is futile, just self-deception, because economic growth alone from monetary easing does not produce productivity gains. The technical level is still in the same place, so the false growth of economic aggregate is actually the speculative behavior of producers. Inflation increases the nominal price of the economy, but its physical quantity does not increase, that is, the actual value of goods and services created by the whole society has not increased.

For example: suppose the physical object total amount of the society originally produced is 1000 packages with a total value of \$10000, and the currency circulating in society is also \$10000. Now assume that due to inflation, the currency in circulation becomes \$15000, which leads to aggregate nominal price of material wealth created by society being \$15000. Despite this, the corresponding physical total material is actually still just 1000 packages. Now suppose that as a result of rising nominal income, people's demand for sensitive goods rose by 5%, so at this time the relevant manufacturers will expand production in order to pursue excess profits, thus the total amount of material created in society will be temporarily increased to about 1050 packages. However, as mentioned earlier, when inflation spreads to all commodities, demand for sensitive goods will fall to previous levels and production of the whole society will also return to the previous level of 1000, or even lower. That is, the material wealth created by the whole society has not been fundamentally increased and the productivity has not been improved. Moreover, the price instability caused by inflation will affect the decisions of the supply and demand sides, which means that the whole society cannot optimize the allocation of resources, which in turn easily leads to adverse consequences of overcapacity or waste of resources. In addition, inflation will interfere with the stability measurement of accounting, seriously affecting the reliability of accounting data.

- 3) Policy-makers should not try to use the demographic dividend to promote sustained economic growth. The contribution of population growth to economic growth is temporary, not decisive; the continuous improvement of productivity is the fundamental driving force of economic growth. Efforts to improve productivity will create more material wealth for the community to solve the pension problem of the elderly. Of course, policy-makers must take into account that the right to procreate is the right given by the constitution.
- 4) Policy-makers should not try to lower the unemployment rate, because with the continuous increase in productivity, the unemployment rate will naturally fall first and then rise. Note that along with the right policy of pushing productivity up, the government needs to pay attention to the problem of how to allocate the material wealth created by the society in the second stage, in order to guarantee the basic living standards of the unemployed and create a stable development environment.
- 5) When a country's productive forces have reached a high level, most of the society and even the vast majority of citizens, does not need to obtain the necessities of life through labor. At this time, how should the government should manage the country? This is a consideration worthy of further study.
- 6) The improvement of productivity depends on the improvement of population quality, that is, the abilities of the people who produce. The improvement of population quality ultimately depends on the improvement of national education quality and the quality of school education is the most critical. This idea implies that the fundamental reform of our school education is imperative.

IV. CONCLUSION

Do not destroy the natural environment; cherish the earth. Through hard and thorough research, the fundamental problem can be solved. Why do so many economists, operating with their own understanding of the economy, put forward economic development measures that are so different from each other? When each one maintains his or her own viewpoint, can everyone feel their actions are justified? The difference of opinions comes because most economists just describe the phenomenon of economic development, but not the essence of economic development. For example, we observe a tree, most people see the form of leaves, and some people can see the shape of branches, but few people can understand all about the roots and trunks of trees, not to mention the relationship between the roots, the trunk and the entire tree. Every tree-observer (economist) may feel justified, because every leaf and each branch (the economic characteristics) they see are real, but after all, the leaves and branches of trees are small-scale items that are the result of root and trunk growth. Some of the economic measures often used by policy-makers are equivalent to the pruning of some leaves and branches, whereas if the entire tree (system of economic development) is to have health and longevity, those making the policies must also work from the perspective of roots and trunks. Therefore, when dealing with the unemployment rate, decision makers should think comprehensively and take a long-term view, considering that science and technology is a double-edged sword: science and technology will increase the unemployment rate of the whole society while improving productivity.

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