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GOVERNMENT EXPENDITURE: A TREATMENT FOR UNEMPLOYMENT

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Abstract
All over the world, governments are held accountable for the unemployment rates prevalent in their country. It is as if, the government's main duty is not to govern but rather to provide employment to every willing person in the country. Therefore, whenever unemployment rears its ugly head, governments find themselves under increasing pressure to change the situation or else face the wrath of the public in losing the nest election. In the past century or so, governments have resorted to a technique called government spending to achieve these objectives. In this article, we will take a closer look at what government spending is and what are its pros and cons.

KEYWORD: *Expenditure, Employment, Employment, Joblessness,*

INTRODUCTION

We often come across unemployment statistics which are stated in the newspaper and make certain assumptions. However, in this article we will have a closer look at the definition of unemployment and see why the assumptions could be wrong.

Definition: The official definition of unemployment is as follows: *Unemployment occurs when a person who is a participant of the labor force and is actively searching for employment is unable to find a job.*
Firstly, the unemployment rate is calculated based on the labor force and not on the entire population. Therefore the average person's interpretation of the unemployment rate can be wrong in the following manner:

Wrong Interpretation: The average person is likely to believe that the unemployment rate is stated as a percentage of the entire population. The common interpretation of the unemployment rate is that if the rate is at 5%, then 5% of the population of the country is unemployed.

Right Interpretation: The correct interpretation actually depends on the labor force and not the entire population. Hence, if the labor force forms 80% of the entire population then 5% of those 80% people are unemployed.

What's wrong With Labor Force? Firstly, labor force is a subset of the entire population. Hence, if 80% of people are present in the labor force, the statistics simply ignore what is happening to the other 20%. It is possible that some or all of them are unemployed. However, that is not what is relevant as far as compiling the unemployment statistics is concerned.
Secondly, the labor force rate has been under scrutiny in the recent past. Critics argue that the labor force has been defined in such a way that willing workers can also get excluded from the labor force. This creates a biased small subset which is then used by the government to project favorable unemployment rates to the public.

Lastly, if the definition of the labor force changes in any period, it will render any comparison impossible. If the data of 2014 is based on a certain definition of labor force and that of 2015 is based on a certain different definition, then any comparison or analysis conducted based on these number is baseless! Moreover, giving governments power to change the labor force rate is like giving them power to simply change the unemployment rate!

Consensus Vs. Survey
Another common misinterpretation is that the unemployment rate is calculated based on data collected from the entire population. Anyone familiar with any kinds of statistics will tell you that this is simply not possible.

For instance, the population of the United States is 340 million. Collecting and collating data from all of these 340 million people is a time and resource consuming task. Hence, the US government collects data from 60,000 households. These households are randomly selected by a computer and then statistical methods are

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applied to adjust the data collected from these households to represent the true unemployment rate of the entire population.

Therefore, it must once again be noted that there is a possibility of statistical error here. The unemployment rate of 5% stated above is an estimate based on the data provided by these 60,000 households. The true unemployment rate of the population could be larger or smaller.

Reconciling Using Welfare Records

There are many countries around the world which pay welfare benefits to the unemployed in the form of an unemployment allowance. Whether or not this is the correct thing to do morally or does it benefit the economy is a completely different issue. However, for the purpose of calculation of the unemployment rate, the data generated by the welfare records can be extremely valuable. For instance, if 5% of the United States workforce is unemployed, then roughly 5% of the workforce should collect unemployment benefits. If the number of people collecting the benefits is significantly smaller or larger than the unemployment rate calculated by the government, then the flaw in the approach can be pointed out.

UNEMPLOYMENT RATE CALCULATION

The definition of unemployment provided us with some insight as to how the statistics are different than what an uninformed person would expect them to be. In this article, we will have a step by step look at how the unemployment rate for any country is calculated. Every country has its own mechanism of calculating the unemployment rate. However, these mechanisms are very similar to each other and have their roots in very same method described below.

The Denominator

We know that the unemployment rate is a ratio. This means that it is nothing but a numerator divided by the denominator. The numerator is the number of unemployed people. However, what is used as the denominator can have a huge impact on the unemployment rate. The government does not use the entire population in the denominator. Instead, it uses a sub set of the entire population in the denominator. It is for this reason that we need to have a good look at the subsets.

Complete Population

This is the entire population of any country. It includes every citizen i.e. right from a newborn baby to a very old person. For obvious reasons, this is not an appropriate number to base the calculation of unemployment rate upon. If this number was used as the denominator, then the government would be held accountable as to why babies, old people and sick people are not being employed! That would be a bizarre situation.

Not Eligible to Work

Hence, to get rid of the above mentioned issue, governments reduce the number of people who are not eligible to work from the calculation. This includes children under the age of 16 or 18 depending upon the country. It also includes senior citizens i.e. people above the age of 60 or 65 depending upon the country. It is ironical that most government around the world tax the incomes generated by senior citizens. However, none of them take the accountability of providing them with a job of needed. In reality, a lot of senior citizens do work because of financial constraints or personal free will. They are simply omitted from the calculation. Also, they are the group that is the worst hit, in case, the unemployment rate goes down!

Not Interested In Working

The next category of people, that are excluded from the calculation are the people that the government believes are not interested in working. This category could include people who wish to live off the estate that has been left to them by their ancestors. Also, the most common category of people included here are housewives and students. The types and number of people that are excluded from the calculation based on this pretext are under serious scrutiny. For instance, most economists around the world agree to the fact that the wrong kind of people are filtered out at this stage. The best example of this would be the famous “discouraged worker” flaw which will be discussed in the forthcoming articles.

Labor Force

Hence, once we exclude the people who cannot work and the people who do not wish to work from the total population, we reach a number called the labor force. This number is of paramount importance when it comes to unemployment statistics. This is because

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almost all of these statistics use this number as their denominator. This the number that the government must take accountability for meaning that the government must theoretically ensure that as many of these people find jobs as possible.

Labor Force Participation Rate

This brings us to an important statistic pertaining to the unemployment rates i.e. called the labor force participation rates. The labor force participation rate is an intermediary statistic that is calculated to reach the denominator that will be used in the calculation. For instance, if the labor force participation rate is 75%, then the government is only considering 75% of the population when it declares the official unemployment rate.

Unemployed

The last subset is that of unemployed people. These are people who the government, based on their subjective definition, considers to be able and willing to work. These people form the numerator in the ratio. Also, this number is an estimate based on a survey and hence is prone to errors. Thus, the final two sub-sets which are used in the equation are labor force and unemployed people. The criticisms of the unemployment rate are based on the issue of what is excluded from the calculation.

The Golden Rule: Look at Both the Numbers

In the next article, we will have a look at how to interpret the unemployment numbers like an expert. However, for the moment, it is important to realize that the unemployment rate is not the "be all end all" statistic. The correct picture only emerges only after both the labor force participation rate as well as the unemployment rate is seen in tandem.

CALCULATION OF UNEMPLOYMENT

Country A has a population of 100 million. There are 10 million children and 5 million retired personnel over the age of 60. Then, there are about 12 million housewives and other people who have opted not to work. Lastly, 5 million people are unemployed as per the statistics. What is the unemployment rate?

Common Sense Viewpoint

Common sense viewpoint would make us believe that most of the information in this example is unnecessary. The population is 100 million and out of those, 5 million people are unemployed. Hence, the unemployment rate is 5%.

The common sense viewpoint is incorrect. This would be a severe understatement of the unemployment rate.

The Prescribed Method

Contrary to the commonsense viewpoint is the prescribed method. This is the method followed by most countries across the globe when it comes to calculating the unemployment statistics. The method is a 4 step process aimed at reducing the denominator from the entire population to the relevant population which is actually interested in finding work.

Step 1: Calculate the Working Age Population

Children and old people do form a part of the entire population. However, they are not expected to find employment. In fact, most countries around the world have laws prohibiting the use of labor of children less than 16 years of age. Therefore the denominator has to be adjusted according. Instead of the denominator being 100 million, we will subtract 10 million children and 5 million retired personnel from it and the modified denominator is 85 million. This 85 million is what we call, the working age population.

Step 2: Calculate the Labor Force

Now, the job of the government is to find jobs for the people who are interested in working. At any given point of time, there may be a large portion of the labor force that may not be interested in providing services in the market. This category usually includes housewives as well as other people who have simply opted out of the labor market. Hence, we need to further adjust our denominator to reflect these. Hence, from the 85 million, we need to subtract the 12 million disinterested people. This gives us our labor force of 73 million people.

Step 3: Calculate the Labor Force Participation Rate

Governments have a tendency to include a lot of people in this category of disinterested workers. This makes their statistics look good and helps them avoid blame when the going gets rough. To monitor this tendency, economists have created a metric called labor force participation rate. This rate measures the total number of people who are part of the working age population with the number of people who actually work i.e. the labor force. In our case, the labor force can be calculated by dividing 73 million by 85 million and converting it into a percentage i.e. 86%. Minor

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movements in the labor force participation rate are ignored. However, if significant movements occur, the new figure becomes incomparable with the earlier numbers.

Step 4: Calculate the Unemployment Rate

The last step is to calculate the actual unemployment rate. The unemployment rate is calculated by dividing the number of unemployed people by the number of people in the labor force. The logic is that it is the government's job to try and find employment for all the able bodied laborers in the economy who are willing to work. Hence in this case, we will divide 5 million by 73 million to obtain the unemployment rate. This is an unemployment rate of 6.8% which is about 40% higher than the rate of 5% which we guessed using the common sense method. It is therefore essential for every student of economics to be well versed with this calculation of unemployment rate for both academic as well as practical purposes.

MINIMUM WAGE FALLACY

Most developed countries in the world have a minimum wage act. This means that there exist legislations in those countries which make it illegal to hire anybody to do any kind of work unless they are paid at least a certain stipulated amount per hour of their labor. These laws have created immense debates as to whether they are good for the economy as a whole or even the very people that they are intended to benefit? The prevalent view was that minimum wage laws act in the laborers favor. The short sighted logic aims to emphasize what can be immediately seen i.e. higher wages for people who are employed in jobs now. It fails to take notice of how the situation would turn out in case these laws were kept in place for an extended period of time. Of late, economists like Nobel Prize winner Milton Friedman have explained the long term effects of these laws. In this article, we will understand the common sense viewpoint and then we will debunk the myth using Milton Friedman's explanation.

Common Person's Viewpoint

The common person believes that if the laborer were paid a certain minimum wage they would become prosperous. This is rooted in the communist ideology which views capitalists as profit mongers. The idea is to create a statute which makes it necessary for capitalists to distribute the wealth fairly amongst their workers. The belief held by the common man is that these laws prevent the 1% from gaining at the expense of the 99% and that they are in support of the laborers.

Milton Friedman's Viewpoint

Nobel Prize winning economist Milton Friedman and many others have a very different opinion on the issue. Milton Friedman has once stated that the minimum wage laws are the most anti-labor piece of legislation in America. The basis for his argument is as follows:

- In the capitalist system, human laborers are used as sources of energy i.e. their purpose is to use physical force and perform certain mechanical or mental tasks. In the assembly line kind of set-up, these tasks are usually pre-defined.

- With the advances in technology, a lot of these tasks which were earlier performed exclusively by humans are now being performed by machines. Hence human laborers are not only facing competition from humans but they are also facing competition from machines.

- In such a hyper competitive environment, fixing a minimum wage i.e. a minimum rate at which labor will be sold to the capitalists' works against the laborers.

- The capitalist simply compares the rate at which humans can perform the task and the rate at which machines can perform it. If the machines have a favorable proposition, capitalists simply mechanize the entire operation. Hence, if the government makes it illegal to hire a janitor for less than $20 per hour, but a machine can perform the same task for $12 an hour, many capitalists will simply switch over to the mechanized option. Thus the creation of an artificially high wage rate works against the workers as opposed to being in their favor.

Since humans no longer hold the monopoly over performing these energy extensive labor tasks, an attempt to create a cartel by introducing minimum wage laws works against the laborers and all the laborers which have skills that are worth below the minimum wage rate become unemployed. Thus,

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minimum wages can cause and do cause systematic and institutional unemployment.

Outsourcing: By Product of Minimum Wages

The Milton Friedman logic holds true in the modern era of outsourcing as well. Most of the outsourcing from the developed world to the developing economies today is happening because of what is called the labor cost arbitrage. Labor cost arbitrage is nothing but the fact that workers in developing countries are much cheaper to hire as compared to workers in developed countries. Developed countries usually have minimum wage laws which make it unlawful for employers to pay below a certain wage rate. Developing countries, on the other hand, do not have such laws. Hence, businesses find it cheaper and more convenient to set up shop overseas. Couple this with the fact that multinational corporations are now the norm and that expanding overseas is as easy if not easier than expanding in your own country and we have a recipe for mass unemployment in countries enacting minimum wage laws. In a free market economy this would cause the wages of laborers in the developing world to rise while simultaneously causing a fall in the wages of laborers in developed nations until the arbitrage no longer exists. However, the fall of wages in developed nations is not permitted by law. Hence, the outsourcing trend continues. Corporations from countries like America are laying off workers by the thousands in America while simultaneously adding more thousands in China and India.

While it may be too outrageous a comment to make, "Minimum wage laws do seem to be working against the laborers of the country which imposes them". Workers of such countries find themselves facing competition from the global workforce as well as from advances in technology. None of these factors can be contained by the authorities that enact the wage laws.

The record of history is clear in this regard. Countries that have enacted minimum wage laws have invariably seen a fall in the employment rates.

EMPLOYMENT FALLACIES

The government's interpretation of the word employment has been found to be misleading by many critics and as such there have been several criticisms leveled against it. This is the reason that we consider it an important flaw meaning that this definition manipulates the unemployment rate number.

Number of Hours Ignored

The government does not see employment as something that happens on a continuum. Rather it sees employment as being binary i.e. you are either employed or unemployed. You cannot be partially employed. This leads to a gross misinterpretation of the unemployment rate. Let's look at the common sense point of view and then contrast it with how the government views the situation.

Common Sense View: Common sense dictates that a person needs to work a certain number of minimum hours to qualify as being fully employed. Usually people who work 40 hours or more per week are said to have a full time job. This full time job is necessary to sustain the household expenditures of a family. Hence, if a person works let's say 20 hours a week, they are only 50% employed. It is true that they have a job. However, 50% of the potential labor force that they have is being wasted and hence they should be considered only 50% employed.

Government Point of View: The government views employment as a binary situation. You can either be employed or unemployed. They are not concerned with percentages of employment. Therefore, as per the government's set of rules, if a person obtains even one hour of work in a given week, he/she is considered to be 100% employed! Now, one can easily see as to how this point of view can lead to gross understatement of the unemployment rate.

Example: Hence, if the government finds out that about 80% of the labor force have jobs and that 25% of this 80% works a part time job and work only 50% the number of hours, the unemployment rate is still considered to be 20% since 80% people have jobs.
Common sense would dictate that this rate be modified to 60% people with full time jobs plus 10% i.e. 20% people working half the number of hours i.e. 70%.
Also, consider the fact that companies like Wal-Mart and other retail giants which provide maximum employment in the US hire part time workers. Hence, all these semi-employed people who actually depend upon food stamps for their survival are actually labeled as employed. The hardships that they are facing do not reach the government via the unemployment rate.

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Skill Set Not Considered

Just like the number of hours is irrelevant to the government, so is the skill set of the worker. This too leads to manipulation of the unemployment rate. Let's have a closer look at this logical error.

Common Sense View: An economy grows as and when the skills of its laborers become more and more advanced. These advanced skills meet better job possibilities and more production takes place. Hence, if the skill sets of the people in an economy are growing so should the job possibilities. If a large number of people are deciding to do a finance related course, the economy must provide them with finance related jobs to exercise their skills and benefit the economy. If a person who has done a finance related course obtains the job of a peon, there it is not really employment. At best, we can call it underemployment. However, under no circumstances can we call it full employment.

Government Point of View: The government looks at the employed status as employed and unemployed and there is no in between. If a person with MBA finance is employed as a peon, then their status shows up as employed and they do not appear in the unemployment rate statistics. The probable logic is that it is the government's job to provide a job that can enable sustenance and not a job that fits your skill sets.

Example: Mr. C just graduated as a CPA in the state of Texas. However, he is unable to find a job as a practicing accountant. In the meanwhile he works at Taco Bell waiting tables to make ends meet. As far as the government is concerned Mr C is 100% employed.

Combination of Discouraged Worker and Employment Definition

If we consider both the discouraged worker and the definition of employment flaws of the unemployment rate in tandem, we can see why the rate stated by the government will be widely distorted as compared to what is experienced on the streets. Firstly, people who cannot find a job within a stipulated time period will simply be eliminated from the calculation. Secondly, in an adverse scenario even if qualified professionals like doctors and lawyers will be doing menial jobs, they will be considered to be 100% employed.

Hence, the unemployment rate quoted by the government is often rightly taken with a pinch of salt.

A CURE FOR JOBLESSNESS

The Main Cause: Market Sentiments

To solve the problem of unemployment, we need to reiterate its root cause. Unemployment does not happen because of a change to the factors of production. The factors of production are all there, unchanged. It is the market sentiment that really causes unemployment. More and more people fear job loss and this fear turns into a self-fulfilling prophecy. Fear of job loss results in spending cuts. Spending cuts are followed by production cuts and then by the dreaded job loss. The idea is to reverse the process at the stage of spending cuts. The idea is to raise the market sentiment and prevent the self-fulfilling prophecy from becoming true.

Government and Spending Expansion

In most countries, governments are the single largest consumer in the country. Government spending accounts for 30% - 40% of the GDP of many countries in the world today. Hence, governments have a large influence on the spending patterns and can alter them. Even in countries where governments do not interfere much with the economy, they certainly have powers to legislate laws and do so if they see fit. Therefore when the negative sentiment in the market begins to rise and people cut their spending, governments have the power and the ability to counter these negative sentiments with their own spending. The size of the government ensures that it can more than compensate for the spending cuts undertaken by the individuals.

Hence the spending cuts by the individuals are counterattacked by spending rise by the government, keeping production and consumption constant and ensuring no job loss.

Pros of Government Spending

This approach to increasing government spending has become wildly popular in the past couple of centuries because it has certain merits. Let's first discuss the merits of this approach:

- ***Prevention of Recession:*** The "r" word is probably the most feared word in economics. People like a smooth life and would like to avoid recession at any cost. Government spending provides a way to accomplish this.

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As mentioned above, government spending prevents negative sentiments from rising and creating a downward spiral. Hence, this approach prevents job loss in the short and medium run making it a popular "fix it now" measure.

- ***Immediate Revival of the Economy:*** Not only does government spending prevent recession, it can also reverse the effects of recession. An economy in turmoil can get an immediate lease of life with these government measures.

- ***Sustained Revival:*** The measures used by government act instantly. However, their effect does not wear out instantly. Once the positive sentiment has been restored, the government can cut the excess spending gradually. Private spending replaces public spending as market sentiment rises and confident consumers rush in to buy more goods and services. In the medium to short run, the economy sustains itself.

CONS OF GOVERNMENT SPENDING

Even though many economists believe that unemployment can be controlled by government spending, we still have unparalleled levels of unemployment in the world. Developing countries like the United States and Europe are facing unprecedented levels of unemployment. The reason behind this is that government spending too has certain drawbacks.

Financed by Debt: Most of the government spending in the world is financed by debt. Governments usually do not have enough money to run their day to day operations. The question of having excess money to spend on economic revival is simply ridiculous since there is no excess money! The problem with money spent after borrowing is that sooner or later, the interest catches up. In the long term a situation is created when the downward spiral begins to rise. But the government has so much debt from the previous attempts to manage unemployment, that it can do very little to rectify the situation this time.

Unproductive: Secondly, there is an inherent difference between projects financed by the government and by private parties. Since private parties have their own money involved, they spend it on creating projects which are sustainable and provide a positive cash flow in the long run. However, governments do not face any such compulsions. In fact most of the projects undertaken by the government are haphazard and downright unproductive.

The money is spent, not with the idea of creating a self-sustaining economic system. Rather the money is spent to put more and more money in the hands of the consumers via wages, rents and profits. A combination of borrowing money and spending it on unsustainable projects is a recipe for disaster in the long run.

Political Considerations: Thirdly, government money is spent with ulterior motives. Governments all over the world spend money to provide benefits to a certain section of society that finances them during election campaigns. In rare cases like Greece, 25% of the people were appointed to government jobs and given salaries even though there were no tasks to be accomplished. In the name of eradicating unemployment, the Greek government was institutionalizing it. No private party could have done a similar thing and stayed afloat for as long as the Greek government.

Corruption: Lastly, governments spend other people's money and as Milton Friedman once put it, "nobody spends other people's money like they spend their own". Government money i.e. public money collected via taxes is usually spent without consideration. Many cases have emerged wherein there have been private benefactors to government deals. Cases pertaining to the scams in India as well as the defense lobby in the United States are well known worldwide. The points related to corruption cannot be emphasized enough and it is one of the main reasons as to why government spending does not seem to work.

CONCLUSION

To conclude, government spending is theoretically a great way to counter unemployment and revive the economy. In theory, it seems like the method will work without any questions. However, as we have seen in practice there are a wide variety of issues that prevent this policy from being effective.

Also, it needs to be considered that the past is the best indicator of the future. In the past, countries like United States and Europe have extensively used government spending as a tool. This enables them to avoid unemployment in the short and medium term.

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However, as it turned out, they were just delaying the inevitable. Hence, government spending should be seen as a short term fix, the overuse of which can cause long term problems which are extremely difficult and painful to cure.

Reference

Porter,M.(1985)CompetitiveAdvantage:CreatingandSustainingSuperior Performance. New York: Free Press.

Recklies, D. (n.d.) The value chain. www.themanager.org/models/ ValueChain.htm

Pinto,J.K.,Rouhiainen,P.,Trailer,J.W.(1998)Customer-basedproject success: exploring a key to gaining competitive advantage in project organizations. Project Management, 4 (1), 6–12.

Pinto, J. K., and Rouhiainen, P. J. (2001) Building Customer-based Project Organizations. New York: Wiley. 5. Keenan, M., and Martin, S. (1997) But we already do it, and other misunderstandings. http://www.value-engineering.com/doitpapr.htm

(n.d.) Kano model analysis. www.ucalgary.ca

Sireli,Y.,Kauffmann,P.,and Ozan, E.(2007) Integration of Kano'smodel into QFD for multiple product design. IEEE Transactions on Engineering Management, 54 (2), 380–390. 8. (n.d.) Kano model analysis. Ibid.

Pinto, J. K. and Rouhiainen, P. (2001) Ibid. 10. (n.d.) http://www.iprod.auc.dk/misg/papers/creese.pdf

Cost management in lean manufacturing enterprises and the effects upon small and medium enterprises. (http://www.iprod.auc.dk/misg/ papers/creese.pdf);

Cooper, R., and Slagmulder, R. (1997) Target Costing and Value Engineering. Portland, OR: Productivity Press, p. 379.

Morris, P.W.G. (1994) The Management of Projects, London: Thomas Telford.

(n.d.) Life-cycle costing. http://dept.lamar.edu/industrial/Underdown/ eng mana/Life Cycle Costing ch10.htm
(n.d.) Life-cycle costing. Ibid.

Dallas, M. F. (2006) Value and Risk Management: A Guide to Best Practice. Oxford, UK: Blackwell.

Wideman, M. (n.d.) Project value management. http://www.maxwideman.com/issacsons3/iac1338/sld001.htm)