The Persistence of Poverty in Free Market Economic Systems and the Basic Income Proposal. An Economic Analysis.

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Abstract

A new economic model is presented. The Persistent Poverty Model shows one possibility of long term general equilibrium with unemployment. This model allows us to explain the NAIRU level and the poor results of conventional economic policies against poverty and long term unemployment. According to this theoretic model, an unconditional basic income policy would be able to reach both targets: poverty eradication and maximise economic efficiency.

Key words: Basic Income; Poverty Persistence; Quality Life Function; Quality Life Economic Theory.

JEL classification: A13, B14, D61, D63, H21, H23, H24, I31, I32, I38, J21.

Resumen

Se presenta un nuevo modelo económico. El Modelo de Persistencia de Pobreza muestra la posibilidad de un equilibrio general a largo plazo con desempleo. Este modelo permite explicar el nivel de NAIRU (tasa de desempleo no aceleradora de la inflación) y los pobres resultados de las políticas económicas convencionales contra la pobreza y el desempleo de larga duración. De acuerdo con este modelo teórico, una política de renta básica garantizada podría alcanzar los dos objetivos: erradicar la pobreza y maximizar la eficiencia económica.

Palabras clave: Subsidio universal garantizado (SUG); Persistencia de la pobreza; Función de calidad de vida; Teoría económica de la calidad de vida.

Clasificación JEL: A13, B14, D61, D63, H21, H23, H24, I31, I32, I38, J21.

1. Introduction

Most of us are convinced that some modality of Unconditional Basic Income (BI) is the best way for redistribution. The general assumption is that we need some level of redistribution and BI is probably a better way to reach that purpose and better in the means of getting it than any other way of redistribution. In this general assumption there is implicit another one: every redistribution policy has an economic cost —perhaps even a high cost— although is defensible that BI has the least net cost. This economic cost looks evident; we need to finance BI with some kinds of tax and taxes are necessarily a cost. But not always. In this paper an economic analysis which shows that an economic system with BI redistribution could be more efficient than one without any redistribution is presented. Therefore, BI would be able to improve both the ethics and efficiency of an economic system. It is at least possible in theory. But probably not according to conventional economic theory (CET). The problem is CET is unsuitable for the proper evaluation BI policies.

The major value in CET is production. So, life —even human life— is only considered like a production factor. Therefore, poverty and environmental damage are only secondary economic problems. Of course, many people —some economists included—have been critical of Conventional Economic Theory and rejected it for these and other related reasons. Criticism is necessary but it is not enough. If we want to evaluate Basic Income and other economic policies properly, we will need both theory and scientific methodology. In the case of BI it is much more relevant to change the priority from material production to quality of life. We will see what happens when we take human quality of life as the major economic value. Obviously, production will still be valuable but it will only be a factor of human quality of life. In this framework we will try to answer such questions as the following:

—Could Basic Income be a useful economic policy in the maximisation of economic efficiency?

—Could we suggest something useful to implement and improve Basic Income proposals?

2. Changing priorities in theoretic view. Some corrections into fundamental microeconomics

First, let us introduce into microeconomics the poverty threshold or poverty line concept. What do we mean by that? As is probably known, beginning in 1992, the Panel on Poverty and Family Assistance of National Academy of Sciences/National Research Council recommended a new poverty measure based on the concept of satisfying the family's needs for the basic necessities: food, clothing and shelter (including utilities)[1]. This is the right concept about poverty. Let us call it "necessity minimum" or M_n. The existence and relevance of this concept is evident. But it will not be found in a textbook of microeconomics usually[2]. Poverty doesn't exist in conventional microeconomics theory.

It is important to stress the difference between "necessity minimum" and "subsistence minimum" or M_s. Below subsistence minimum M_s people would soon die, between subsistence minimum (M_s) and necessity minimum (M_n) people can stay alive but remain poor. This difference is important because biological subsistence minimum

[1] *Focus*, vol. 20:2, spring 1999

[2] See for example VARIAN H. R. (1992) *Análisis microeconómico. Tercera edición.* Barcelona. Antoni Bosch Ed. Org.: *Microeconomic Analysis, 3rd edition.* Norton & Company Inc.

(M_s) could be extremely low and may virtually disappear due to public assistance and charitable aid in developed countries, while (M_n) may be quite high and increasing with development.

Second, let us introduce necessity minimum (M_n) in the conventional income-leisure microeconomic model and make some small corrections. We will substitute the subjective utility function for an objective **quality life function** $l_c = f(i_c, t_c)$ where potential quality of life (l_c) depends on quality income (i_c) and quality time (t_c). Quality Income (i_c) equals disposable income minus necessity minimum (M_n), while Quality Time (t_c)equals to disposable time minus work time (time for necessary daily activities is also excluded). The indifference curves map we show in **figure 1** has been generated by a simple Cobb-Douglas equation as follows:

$$l_c = i_c^{\,a}\, t_c^{\,1-a}$$

The parameter a ($0 \bullet a \bullet 1$) represents income preference and ($1 - a$) time preference. We assume $a = ½$. (See appendix for more details). The economic individual problem is maximising potential quality of life for disposable time and income possibilities depend on individual and professional capabilities. As we can see in figure 1, the more a person earns the less he wants to work, but this substitution effect is smaller for high wages (incomes) and larger for low ones. In other words, people with high incomes can choose between leisure and work according to their preferences. Nonetheless, people with low incomes are compelled to work.

An interesting question is what happens to a person who cannot get necessity minimum income (M_n) in the labour market. The answer is that this person is out of the market. She doesn't count. She has no quality income and no quality time. She is poor and, in this way, we have included poverty in a microeconomic model. Now, we will be able to derive an aggregate labour supply curve unusual in economics because it will have a flat section which may explain a long term poverty trap.

Before moving to macroeconomics, we would like to use this quality of life function for Basic Income analysis. Let us do it by a theoretical experiment, which may be neither a real nor a representative experiment. It may be considered as a metaphoric experiment, but it is informative and allows us to introduce and make precise some interesting quality life economic concepts.

3. Theoretical experiment: can Basic Income policy be more efficient than labour market liberalisation?

Let us imagine an economic system with only three people. The "A" person earns 120 Euro per day, "B" person earns 30 Euro and "C" person earns 15 Euro per day. The disposable time is 14 hours per day for everyone and the legal workday is 8 hours. If we suppose equal preference for time and money (a = ½) and the necessary minimum is 15 Euro per day, we have all information we need for computing potential quality of life with quality life function (for details and results see Appendix). We have drawn **figure 1** to visualise this initial state of economy. We can see "A" equilibrium point on the right side of workday line, so "A" would like to work less than 8 hours per day. Nonetheless, "B" and "C" have their equilibrium point on the left side of workday line, that is they would like to work more than 8 hours per day. It looks evident that all people will be better off if the legal workday would be eliminated. This idea represents the classical market labour liberalisation proposal. Now, the question follows: can we

find any other economic policy more efficient than labour market liberalisation? The Conventional Economic Theory answer is: no, it is mathematically impossible!

With Conventional Economic Theory in mind this is right. But we are trying to think in a different way. Perhaps we are wrong, but we would want to think human life is not only a production factor but it is more important than goods. For this reason, we cannot forget the necessary minimum, because necessary minimum represents the cost of human life. If we could reduce necessary minimum level, indifference curves of potential quality life also move down and every person would be better off. This happens, for example, when food prices are cut. Basic Income has the same effect.

Let us go on with the theoretical experiment introducing a 6 Euro per day Basic Income. We also need to introduce taxes. 15% income tax above 15 Euro per day income will be sufficient. The results can be appreciated in **figure 2**. We have represented initial indifference curves and wages with discontinuous lines and the new indifference curves and wages with continuous lines. As can be seen, "C" and "B" are better off after BI introduction because they have indifference curves higher than before. On the contrary, person "A" loses something from his initial position. For Conventional Economic Theory it is neither possible to compare nor to aggregate interpersonal utilities, that's right because personal utility is subjective, not observable and not measurable. But the indifference curves in this model don't represent utility. They represent **potential quality of life** and this is an objective, observable and measurable concept because it depends on income and time. Thus, we can compute potential quality of life, quality income and total income for every person and the aggregate results in every case. The results are presented in **tables 1 to 4**. They allow us to understand the crucial relevance of theoretical view and different ways of measurement. The major conclusions are the following:

a) Measuring by **total income**: liberalisation policy is the best for "B", "C" and for aggregate results. The best income for "A" is without liberalisation.

b) Measuring by **quality income**: it takes into account relevance of necessity minimum. The best for "A" is the same. In aggregate results, the best is liberalisation too. But for "B" and "C" the best is liberalisation with BI.

c) Measuring by **potential quality of life**: we take into account necessary minimum and quality free time value. In this case, "A" is better with liberalisation, but "B", "C" and the aggregate find out that liberalisation with Basic Income is the best.

d) Liberalisation and Basic Income are not opposite but synergetic policies.

e) In **table 4** we can see that income based measurement underestimates the benefits of all reforms —including liberalisation of labour market effect— compared with potential quality life based measurement. That is, the result of evaluation depends on what kind of measurement has been chosen.

4. The Poverty Persistence Model

Now let us go back to quality life function and use it to build an aggregate labour supply curve. Although individual labour supply curve decreases when wages increase, in the aggregate case there are people coming in and out of labour market and we can expect a normal increasing curve for aggregate labour supply. The question now is what happens when the lowest wages go down below necessity minimum? People are thrown out of labour market. Probably these people still "work", but they cannot get legal paid jobs. The problem in Conventional Economics Theory is that it doesn't value non-paid work. Think about women without jobs. Don't they work? Think about students. Don't they work? Think about the elders helping relatives in daily activities such as children

care. Don't they work? We think all these activities are valuable, perhaps more valuable than some paid jobs. In consequence, we need to correct Conventional Economic Theory by introducing a necessary minimum concept. The result is an aggregate labour supply curve with a flat section. Then, as we can see in **figure 3**, it is possible to envisage a long term equilibrium with unemployment at point "E". At wage w —equals to necessity minimum— point "A" represents people who want a job, but only "T" people can find employment. The point "F" represents theoretical equilibrium according to conventional economic theory (CET). In this situation we have a long term persistent unemployment (A-T). We can understand this as persistent poverty because it is below M_n line. In fact, some people can accept jobs below $w = M_n$ line. They will have a job, but they will remain poor. Perhaps a hard free market liberalisation policy can be designed to force all these people to work, but they will nevertheless remain poor. Therefore, necessity minimum level represents a limit for free market efficacy in poverty reduction.

Well, you may think this model looks similar to Keynesian models. But there are at least two significant differences. First, Poverty Persistence Model states it is possible that there is a long-term unemployment equilibrium while Keynesian models explain short-term unemployment equilibrium. Second, Keynesians suppose monetary wages are short term inelastic to cut down, while PPM states low real wages are inelastic, not amenable to reduction in the long term.

This is a model of real economy. We suppose a monetary market in equilibrium. According to this model, long term demand policies (fiscal or monetary) will be useless against unemployment and improving free market policies (like stabilisation and liberalisation) will be useless against poverty too. Then, what can it be done?

Of course, there is still Basic Income Policy. But before BI economic analysis, we must complete the model setting up the relation between labour market and goods market. It is relevant in this model that necessity minimum level is a result from goods market. We can try to think about Poverty Persistence Model as a general equilibrium model with long term poverty and/or unemployment.

Let us suppose that all markets are in equilibrium. We represented in **figure 4** both labour market on the left and goods market on the right, connected by line of necessity minimum level. "T" represents employment; "A" the active labour force at wage w equals M_n; and (A - T) equals unemployment level without inflation that is (A - T)/A will be NAIRU (non-accelerated inflation rate of unemployment, it is also called "natural rate of unemployment). The last point to be made before analysis is about prices. Let us break down the prices index into two components: we will call cost of life index or **life index LI**, the market price of the necessity minimum goods basket, while we will call cost of quality life index or **quality life index QLI**, the price of the non-necessity goods set. As we have supposed, the general prices index remain constant, while life index and quality life index movements will always go in opposite directions. In Poverty Persistence analysis it will be essential to differentiate whether the principal effect of supply or demand movements is on Life Index or on Quality Life Index.

Imagine an exogenous increase of goods demand (for example, due to an exports increase). In **figure 5**, we can see the result when most of the impact is on non-necessity goods relative prices. We can expect some employment increase equal to the same effect on unemployment reduction and all this without inflation, so it is a reduction in long term NAIRU rate. We could define this **as an ideal Keynesian case** because some governmental economic policies could be useful. But in **figure 6** we can see the result when most of the impact is on necessity goods relative prices. Now, we can expect some employment increase without any unemployment reduction. In this case NAIRU

remain long term with very little changes. We could define this as a **dismal neo-classical case** because all governmental economic policies will be useless.

In the other hand, imagine an exogenous increase in goods supply (for example caused by technological innovation). In **figure 7** we can see the result when most of the impact is on non-necessity goods relative prices. We can expect some output (GDP) increase but no effect on employment or unemployment. In this case, NAIRU can also remain long term with very little change. We can define this as a **nonsensical growth case** because economic growth is not useful in measuring quality life terms. But in **figure 8** we can see the result when most of the impact is on necessity goods relative prices. Now we can expect some employment increase with some unemployment reduction. Therefore it is possible there will be a long term NAIRU reduction. We can define this as a **sustainable growth case**.

The key difference between negative and positive results is what happens with the necessity minimum relative price. We can conclude that the key against poverty is the long term relative price reduction of necessity minimum. This theoretical conclusion is not surprising and it is very consistent with historical economic data[3].

5. Fight against poverty and unemployment: Conventional Economic Policy limitations

Poverty Persistence Model helps us to understand economic difficulties in 70s and 80s. In the early 70s the well known petroleum supply shock created the contrary situation that represented in **figure 8**, due to elevation in necessity minimum price. This caused an increase in NAIRU long term level but governments thought in terms of short-term unemployment and tried several keynesian recipes. Keynesian recipes are useless in increasing necessity minimum level case and situation was getting worse towards “slumpflation”. Then, the unique possibility was to implement some orthodox neoclassical policies of free market and waiting for better days. It was a dismal period especially for poor people since long term NAIRU and poverty increased.

It seems that Conventional Economic Policies are fine when the economic environment is benign, but when necessity requires to do something, Conventional Economic Policies are useless. They cannot prevent real economic crisis and they cannot solve them. Worst of all, the production priority and income based partial measurement drive us to the **nonsensical growth case**, squandering the basic resources of Earth while millions of people remain poor without hope.

We need something better than conventional economic points of view. We need new economic policies founded in a less dogmatic and more scientific view of economic theory. We need less ideology and more measurement, fewer discussions and more experiments. We need to remember that social institutions are human inventions, as is technology, and if it is possible that technological innovation improves efficiency it should be possible for that institutional innovations to improve efficiency too. We need to believe in free creative thinking and use it for to design practical ways towards a future without poverty where all people could be possessed of real freedom. For all these objectives, Conventional Economic Theory may be a drawback, a load on our shoulders. But it may be also a bag filled with interesting research tools, if we can avoid the poison of dogmatism. This is our challenge. This is the aim of the Quality Life Economic Theory.

[3] LANDES D. S. (1999) *La riqueza y la pobreza de las naciones.* Barcelona. Crítica. Org.: (1998) *The Wealth and Poverty of Nations.* New York. Norton & Company.

6. Towards an efficient full employment economy without poverty

According to the Poverty Persistence Model analysis, the key factor is the life index or necessity minimum relative price decrease. Free markets will get full employment if the Life Index is low enough. Certainly, many political systems have noticed this and have tried to get it by several regulations like maximum prices for basic goods or minimum legal wages. The objective was right, but the means were wrong. These are only naive political illusions. In practice, they only get the opposite they pretend.

Fortunately, there is another, more intelligent proposal: the Basic Income for all[4], As is known, a basic income is an income, unconditionally granted to all on an individual basis, without means testing or work requirement. Above, we have analysed Basic Income introduction from a microeconomic point of view. It was convenient to understand why there is a flat section in the aggregate labour supply curve and —more important— that income measurement is only a partial measurement and how much it underestimates potential positive effects of Basic Income policy. If we want to evaluate the real positive effect of Basic Income policy, we need to develop the quality life measurement as an alternative to conventional macroeconomic aggregate measures like GDP, GNP, National income, etc.

We haven't yet developed this measurement. But Poverty Persistence Model allows us an approximation to macroeconomic analysis of BI effects. In **figure 9** is presented a BI financed by proportional income tax according to Buchanan proposal[5]. In Poverty Persistence Model, the free labour market is inefficient due to (T-A) unemployment. (T-A) size is an inefficiency measurement. If a Partial basic income is introduced to lower necessity minimum towards “J” level, free market labour will be able to get a new equilibrium at T'A' where the efficiency sloping section of the labour supply curve begins. In consequence, Basic Income policy could drive inefficient labour market to efficiency reducing NAIRU size. Moreover, we can expect some effects on goods market. Basic Income implies a net benefit for low income people and these people have bigger consumption propensity than high income people. On the other hand, entrepreneurs could now get some labour force more cheaply than before. If something like that happens, employment can increase even more to T"A" long term equilibrium. The global outcome may be more production, and more quality of life with the same resources. That is, the new equilibrium may be more efficient. We believe that that will probably be more efficient, but it is not sure because there are many uncertainties. A real economy is a very complex system which does not always work as in theory. For example, if necessity goods supply were inelastic, the effect could be increasing inflation instead of poverty reduction.

Basic Income can be financed in other ways. In **figure 10** is presented a Basic Income financed by value added tax (VAT)[6]. Let us suppose that VAT increase is automatically redistributed. The net effect will be like a "progressive consumption tax". That sounds quite well. At first the global outcome may be similar, but a Basic Income financed by value added tax could be better in several significant ways: for entrepreneurial activities, for saving and investment, for preventing consumerism and "nonsensical growth case"... For these reasons a VAT financed Basic Income Policy may be the best for putting an economy on the way of both market efficiency and

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[4] VAN PARIJS P. (1995) *Real Freedom for all what (if anything) can justify capitalism*. Oxford. Oxford University Press.

[5] BUCHANAN J. (1997) “Can Democracy Promote the General Welfare”, *Social Philosophy and Policy*. 14 (2), 165-179.

[6] According to Roland Duchatelet proposal.

sustainable growth. A full employment economy without poverty is not a naive dream, it is a real possibility if we really want it.

7. Some answers

Now we could answer the questions:

—Could Basic Income be a useful economic policy to maximise economic efficiency? Basic Income could be a useful economic policy to improve efficiency in at least two senses:

1.- In the sense of **quality life efficiency**: In quality life microeconomic analysis we have seen that it is possible to obtain more potential aggregate quality of life with the same resources if a labour market liberalisation and a Basic Income Policy are implemented. This outcome depends on the measurement method and the reference theory. Conventional Economics only values income and this measurement heavily underestimates human life benefits of welfare reforms. Quality life measurement values both quality time and quality income; moreover it is possible to aggregate individual potentials because units of potential quality life are objective and comparable. This shows that it is possible to go beyond the limited Paretian criteria for social welfare evaluation.

2.- In the sense of **quantitative efficiency of allocation**: Poverty persistence model shows that if M_n is relatively high, the free market cannot get full employment itself and output —even in conventional quantitative terms— may be less than it could be. In this inefficient initial state, Basic Income introduction can improve economic efficiency reaching full employment. This efficiency improvement shows that it is necessary to go beyond Paretian criteria.

These comments suggest new questions about efficiency. Does the very best Basic Income level for efficiency of allocation exist? Does the very best Basic Income level for quality life efficiency exist? What must be the political aim. Is it to get the very best for quantitative efficiency or the very best for quality of life?

—Could we suggest something useful to implement and improve Basic Income proposals? If we can improve efficiency with Basic Income, we must implement Basic Income the sooner the better. A country or economic region could take an economic advantage implementing Basic Income. We must think about Basic Income as an efficient social innovation. Like technology, Basic Income innovation would reduce many economic costs driving economies to the **sustainable growth case**. But like technological innovation it has to fight against scepticism. The majority is always sceptical in presence of innovations. This is a huge difficulty because Basic Income affects all people and it is impossible to implement it against majority wishes. People need some time to learn and to understand social innovations, especially if it means higher taxation. People are right: there is a long way from theory to facts. Thus, we must keep in mind the idea: “the Basic Income is a social innovation”. Therefore, we would have to prefer:

1- A gradual step by step strategy. People would like to feel that it is possible to go back. Nobody likes strong irreversible changes.
2- A planned and announced strategy. People must know what they can expect. This is important because they need to adapt their expectancies, to make decisions, to sign contracts.
3- A broad political support. At first it is difficult, but it will be easier if we design a programme of change keeping that in mind. We need something like a constitutional consensus rather than a political confrontation.

4- Political support, planned announced change and gradualism could be better reached if we try to design a scientifically verifiable programme. With this we mean we have a very concrete plan including all relevant details. We can predict the main effects in every step, we can measure it and adjust the following steps in the light of new information.
5- We are not able to know what is the very best efficiency Basic Income level yet. We would have to find it out. Probably, the very best for quantitative efficiency could be obtained with a relatively low partial Basic Income. To get the very best quality life efficiency would require a higher Basic Income level. But, even the most conservative politicians should agree to get the very best quantitative economic efficiency.
6- A too high Basic Income could damage economic efficiency. It would have to adjust nominal Basic Income level to necessity minimum price evolution and tax collection. Therefore we would need to know the very relevant cost of **Life Index** LI. We know Consumer Price Index (CPI) is not a good estimator for Life Index. Life index would have to include mortgage prices, for example. Moreover, we would need a transparent way to relate Basic Income with tax collection and for avoiding discretionary governmental power on Basic Income level.
7- That means we must think about Basic Income as a variable, not fixed income. It could be convenient to create a new independent economic institution to control short term adjustment in Basic Income level. We need something similar to monetary control by a Central Bank.
8- Most of these points would be more easily achieved if Basic Income was value added tax (VAT) financed. There are many arguments. People would accept an indirect tax increment accompanied by a direct income (negative tax) increment. A gradual, planned and announced introduction is feasible, for example increasing VAT by an additional 1 % every year for several years. VAT collection depends on consumption and it is possible to design some adjustment mechanism to get a reliable automatic short term stabiliser for economic activity because VAT is collected quarterly…

8. Basic Income and the scientific perspective in economics research

In this paper we have tried to show that there are some very relevant mistakes in Conventional Economic Theory and its methodology to Basic Income Evaluation. These mistakes have important practical consequences in whole economy, not only for Basic Income Evaluation.

Evaluated with scientific criteria Conventional Economic Theory is a dogmatic theory[7]. Some prestigious economists have recognised the crisis of theoretical thinking in economics[8]. We need something better than a conventional economics point of view provides. We need new economic policies grounded in a less dogmatic and more scientific view in economic theory. Conventional Economic Theory is a beautiful theory and is a very useful tool for understanding many economic facts, but it has some fundamental mistakes. We must identify these mistakes and correct the theory, after

[7] WILSON E. O. (1999) *Consilience. La unidad del conocimiento.* Barcelona. Galaxia Gutemberg. Org. (1998) *Consilience. The Unity of Knowledge.*
[8] HEILBRONER R. And MILBERG W (1998) *La crisis de visión en el pensamiento económico moderno.* Barcelona. Paidós. Org. (1995) T*he Crisis of Vision in Modern Economic Thought.* New York. The Press Syndicate of the University of Cambridge.

which we need to check the theory by means of empirical research. This is the scientific proceeding.

We believe there are some fundamental mistakes for historical reasons. The major economic problems change with time and economic concepts, theory and that methodology are answers to contemporary economic problems[9]. We could say the Conventional Economic Theory is dying of success because historically the major economic problem has been material scarcity and thanks to economic development the major economic problem today is material abundance. Some people have too much and, surprisingly, these people are not happier. Of course, we need social reforms and, perhaps some new economic innovations and institutions, but above all we need to reform the Economic Theory because we cannot evaluate properly the new answers with the old theory.

The new economic theory must enable us better to understand and solve the new economic problems, better to evaluate political and social proposals as Basic Income, better to diagnose the causes of economic problems, better to design economic policies to prevent and solve economic problems. This doesn't mean we need a very complex and mathematically sophisticated theory. Conventional Economic Theory is such a theory and it doesn't work. From a scientific perspective the simpler is the better.

The **Quality Life Economic Theory** is but a hypothetical theory. It is necessary to check it with empirical research. Perhaps the theory is wrong, but we are right in the method. Over all, we need to change the method in economic theory. We need fewer mathematical demonstrations and more empirical research, fewer discussions and more objective measurement. We need to remember that money and markets are human inventions. We need to believe that we can create new social institutions for a future without poverty. This is our challenge.

At the moment, Basic Income is the best idea to eradicate poverty, but conventional economic evaluations heavily underestimates its potential benefits because it only values income. By means of **Quality Life Function** we have shown it is possible and not very difficult to include quality time of life in economic evaluation. We have shown that we would be able objectively to measure potential quality of life and the differences with conventional based income measurement to evaluate social reforms are very significant.

Basic Income is a good proposal to check quality life economic concepts and a scientific perspective is the best when you want to introduce some innovation. We have the opportunity to learn implementing Basic Income experiences as scientific research. It will not be easy, but we still need to learn. Thus, we need to improve concretion and feasibility of Basic Income proposals. This means we must think before acting: what can we learn from this experience? What questions could we try to answer? What kind of information do we need to obtain to evaluate this experience properly? In this "thinking before action" the Quality Life Economic concepts could be a useful reference framework.

[9] NAREDO J.M. (1996) *La economía en evolución. Historia y perspectivas de las categorías básicas del pensamiento económico.* 2ª ed. Actualizada. Madrid. Siglo XXI.

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Appendix:

Notation:

M_n = necessity minimum.

M_s = subsistence minimum.

$M_n - M_s$ = Poverty income interval

i = income expressed in E

$i_c = i - M_n$ quality income i_c

l_c = quality life measure – quality life Euro units

t_d = disposable time expressed in hours

t_w = work time

$t_c = t_d - t_w$ = quality time

M_j = max quality income of j person = $t_d\, w_j - M_n$

$w_j = \frac{i}{t_w}$: wage per hour.

Quality Life Function•

$$\text{Max } l_c = i_c^{\frac{1}{2}} \; t_c^{\frac{1}{2}}$$

$$\text{s. a. } i_c + w_j \, t_c = M_j$$

taking ln: $l^*_c = \frac{1}{2} \ln i_c + \frac{1}{2} \ln t_c$

$L = \frac{1}{2} \ln i_c + \frac{1}{2} \ln t_c - \lambda (i_c + w_j \, t_c - M_j)$

$$\frac{\delta L}{\delta i_c} = \frac{1}{2 i_c} - \lambda = 0$$

$$\frac{\delta L}{\delta t_c} = \frac{1}{2 t_c} - \lambda \, w_j = 0$$

$$\frac{\delta L}{\delta \lambda} = M_j - i_c - w_j \, t_c = 0$$

Solutions: $t_c = \frac{i_c}{w_j}$ and $i_c = \frac{M_j}{2}$

Results:

For person A: $i_c = 97.5$ E; $t_c = 6.5$ h; max (l_c)= 25.17 Euro quality life units.

For person B: $i_c = 18.7$S; $t_c = 5$ h; max (l_c)= 9.68 Euro quality life units.

For person C: $i_c = 5.62$S; $t_c = 3$ h; max (l_c)= 4.11 Euro quality life units.

TABLE 1 Comparative effect of liberalisation workday and Basic Income policies on person "A" measured by total income (Euro), quality income (Euro) and potential quality life (Euro Q. L. Units)			
	Quality life	Quality income	Total income
1) Initial	25,10	105,00	120,00
2) Only Liberalisation	25,17	97,50	112,50
3) Only Basic Income	23,79	94,36	103,36
4) Basic Income + Liberalisation	23,92	85,43	89,93
difference (2 - 1) in %	0,30	-7,69	-6,67
difference (3 - 1) in %	-5,49	-11,28	-16,10
difference (4 - 1) in %	-4,91	-22,91	-33,44
difference (4 - 2) in %	-5,22	-14,13	-25,10

TABLE 2. Comparative effect of liberalisation workday and Basic Income policies on person "B" measured by total income (Euro), quality income (Euro) and potential quality life (Euro Q. L. Units)			
	Quality life	Quality income	Total income
1) Initial	9,49	15,00	30,00
2) Only Liberalisation	9,68	18,75	33,75
3) Only Basic Income	10,61	18,75	27,75
4) Basic Income + Liberalisation	10,61	18,94	23,44
difference (2 - 1) in %	2,02	20,00	11,11
difference (3 - 1) in %	10,56	20,00	-8,11
difference (4 - 1) in %	10,56	20,79	-28,00
difference (4 - 2) in %	8,72	0,99	-44,00

TABLE 3. Comparative effect of liberalisation workday and Basic Income policies on person "C" measured by total income (Euro), quality income (Euro) and potential quality life (Euro Q. L. Units)

	Quality life	Quality income	Total income
1) Initial	0,00	0,00	15,00
2) Only Liberalisation	4,11	5,63	20,63
3) Only Basic Income	6,00	6,00	15,00
4) Basic Income + Liberalisation	6,16	7,78	12,28
difference (2 - 1) in %	100,00	100,00	27,27
difference (3 - 1) in %	100,00	100,00	0,00
difference (4 - 1) in %	100,00	100,00	-22,14
difference (4 - 2) in %	33,35	27,71	-67,94

TABLE 4. Aggregate effect comparison of liberalisation workday and Basic Income policies measured by aggregate total income (Euro), aggregate quality income (Euro) and aggregate potential quality life (Euro Q. L. Units)

	Quality life	Quality income	Total income
1) Initial	34,59	120,00	165,00
2) Only Liberalisation	38,96	121,88	166,88
3) Only Basic Income	40,40	119,11	146,11
4) Basic Income + Liberalisation	40,70	112,15	125,65
difference (2 - 1) in %	11,24	1,54	1,12
difference (3 - 1) in %	14,39	-0,75	-12,93
difference (4 - 1) in %	15,01	-7,00	-31,32
difference (4 - 2) in %	4,25	-8,67	-32,81

Figure 1: Graphic representation of quality life function, initial state.

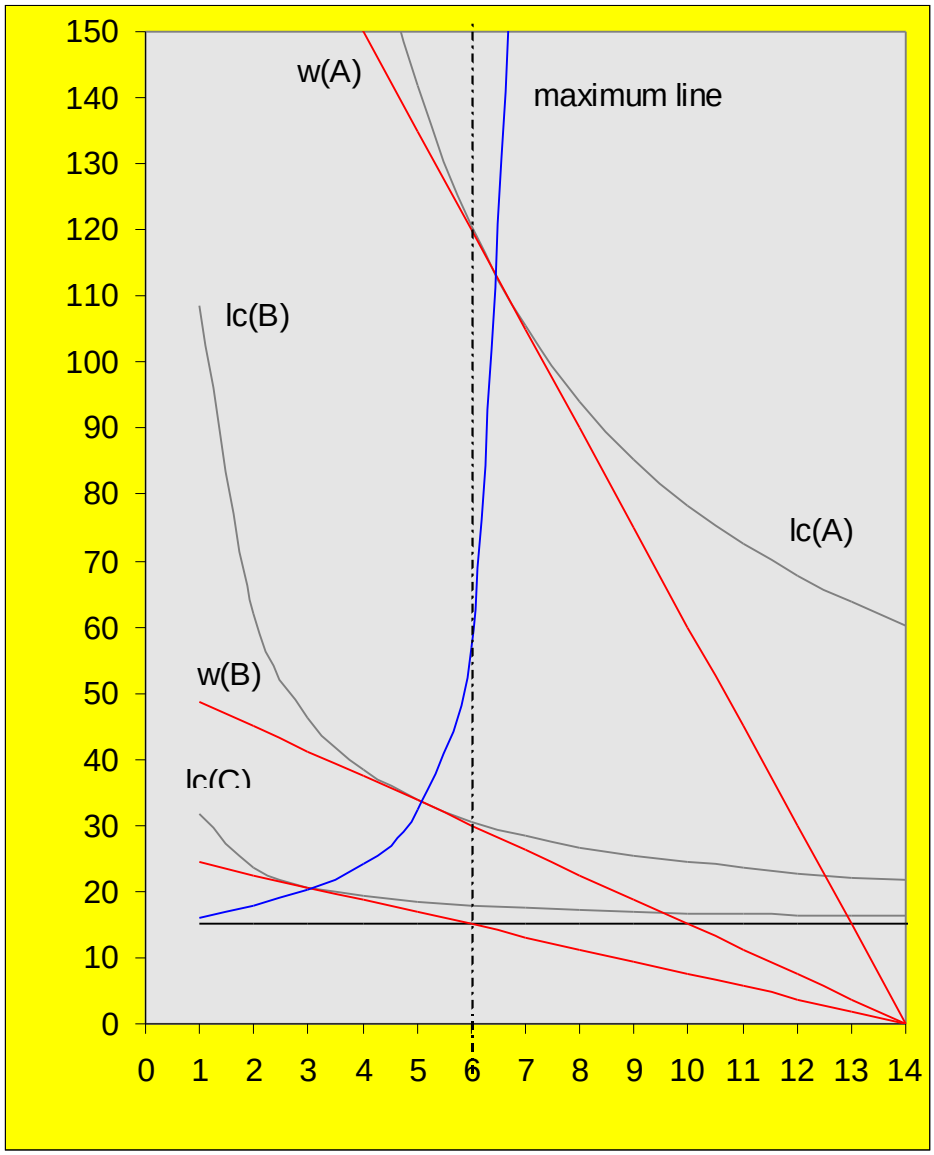


Figure 2: Graphic representation of quality life function, the effect of Basic Income introduction.

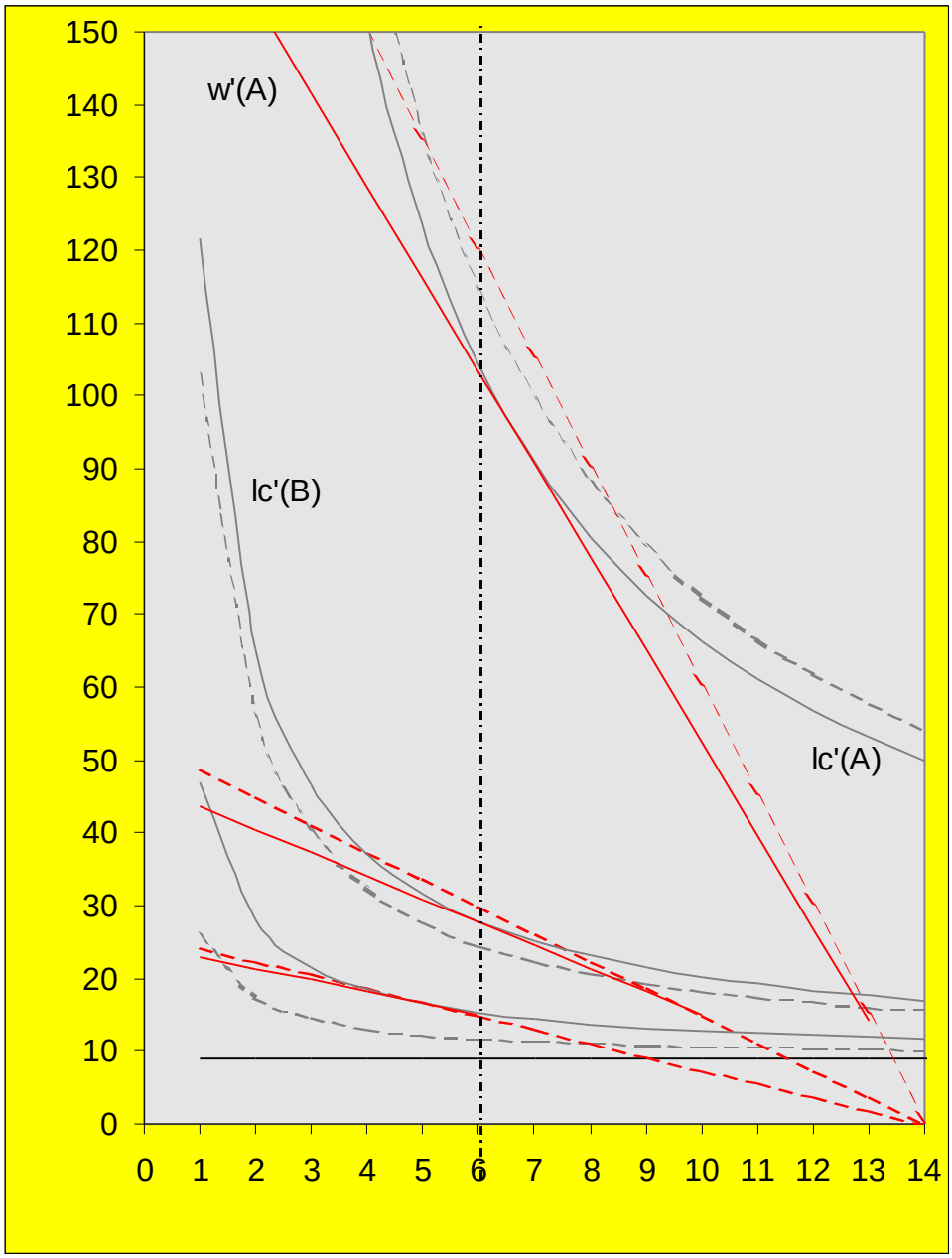
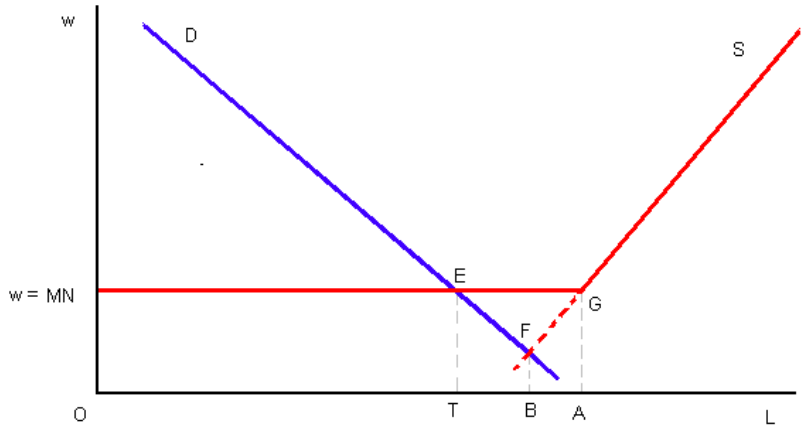


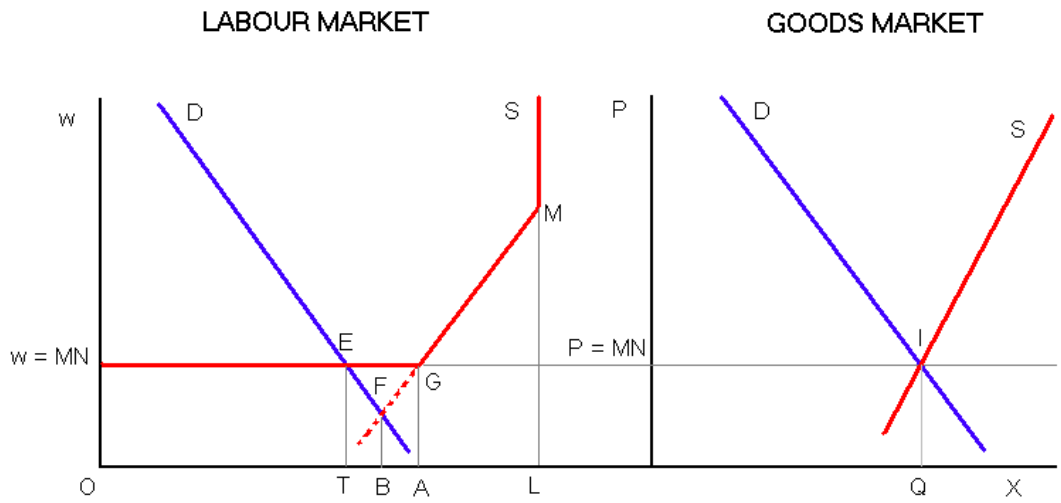
Figure 3



Poverty Persistence Model: labour market

The labour supply curve has a flat section. Due to necessity minimum existence Mn = w, free market cannot get poverty eradication. At point E, there are A - T unemployment. At point F, workers between B and T are poors.

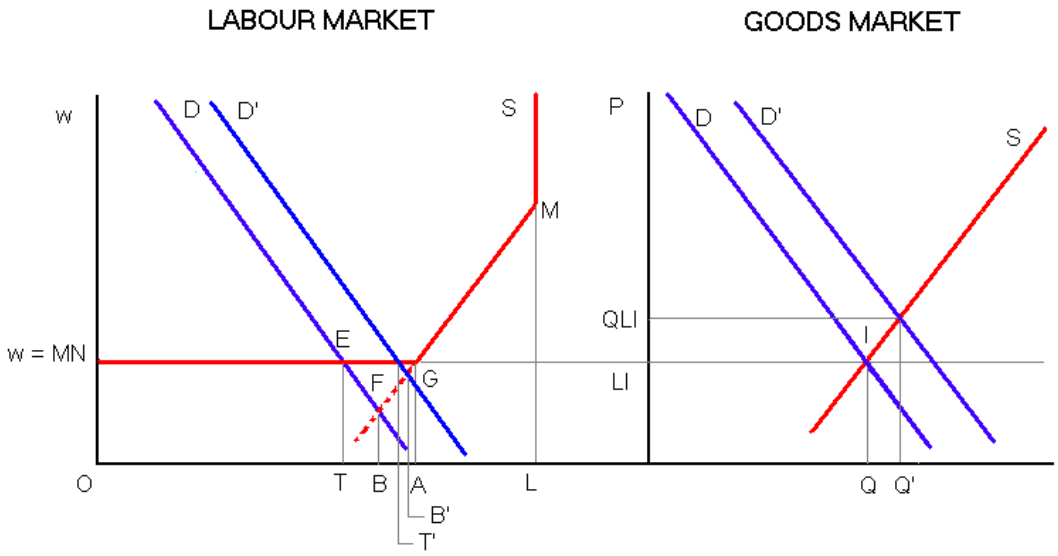
Figure 4



Poverty Persistence Model: labour market and goods market

Level w = Mn = P is due to goods market equilibrium. In this way changes in goods supply and demand may affect labour market equilibrium.

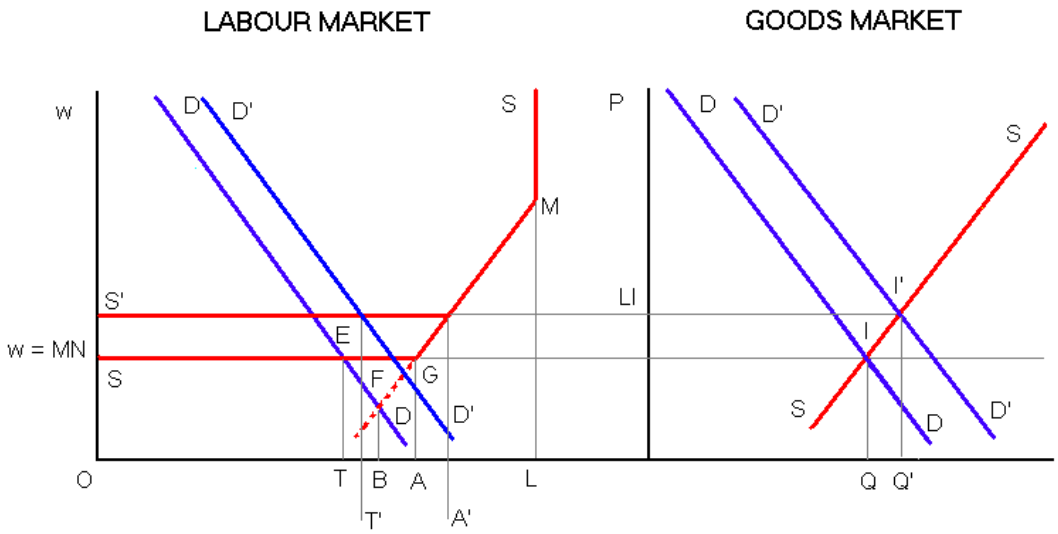
Figure 5



Ideal Keynesian Case Illustration:

Increasing goods demand cause a selective impact on cost of Quality Life Index (QLI)

Figure 6



Dismal Neoclassical Case illustration:

Increasing goods demand cause a selective impact on cost of Life Index (LI)

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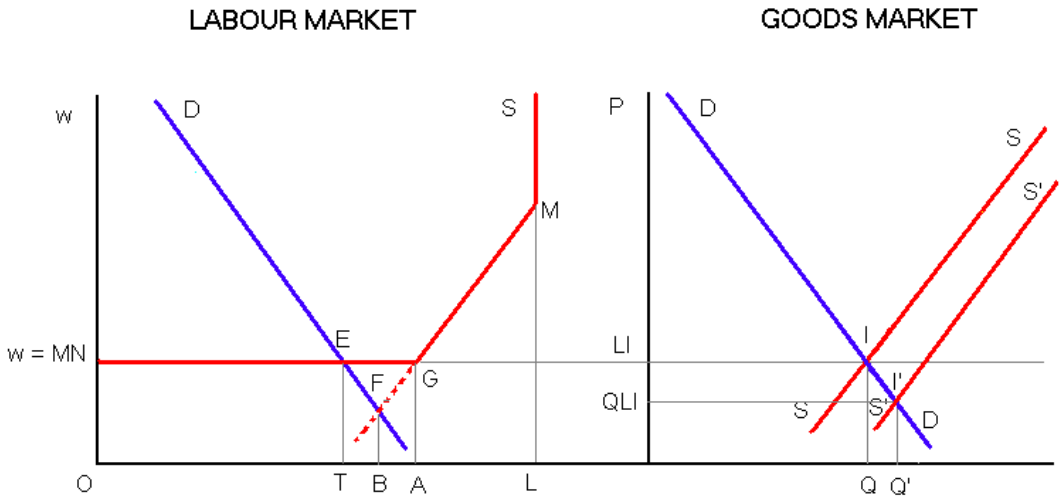
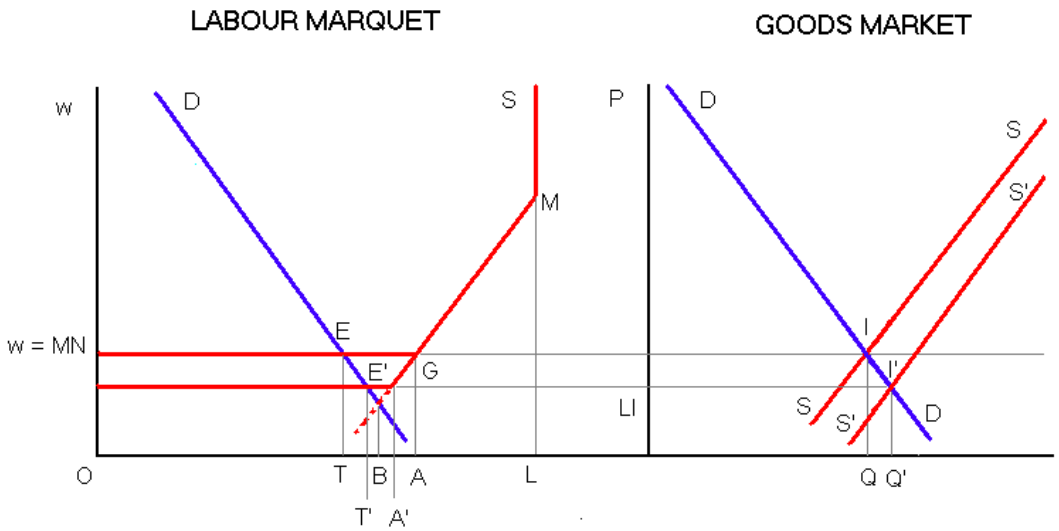
Figure 7



Nonsensical Growth Case illustration:

Increasing goods supply cause a selective impact on cost of Quality Life Index (QLI)

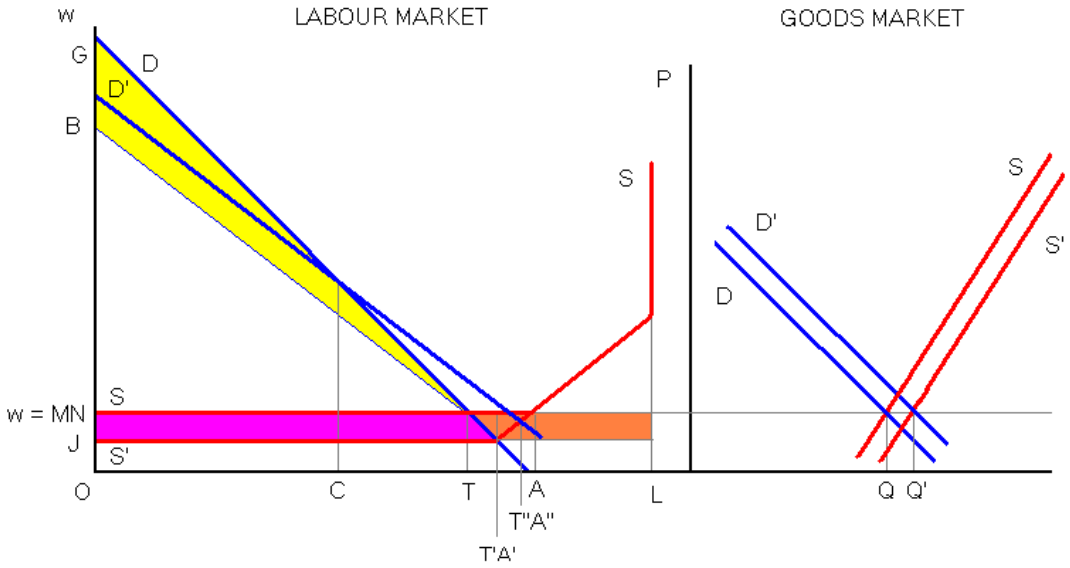
Figure 8



Sustainable Growth case illustration:

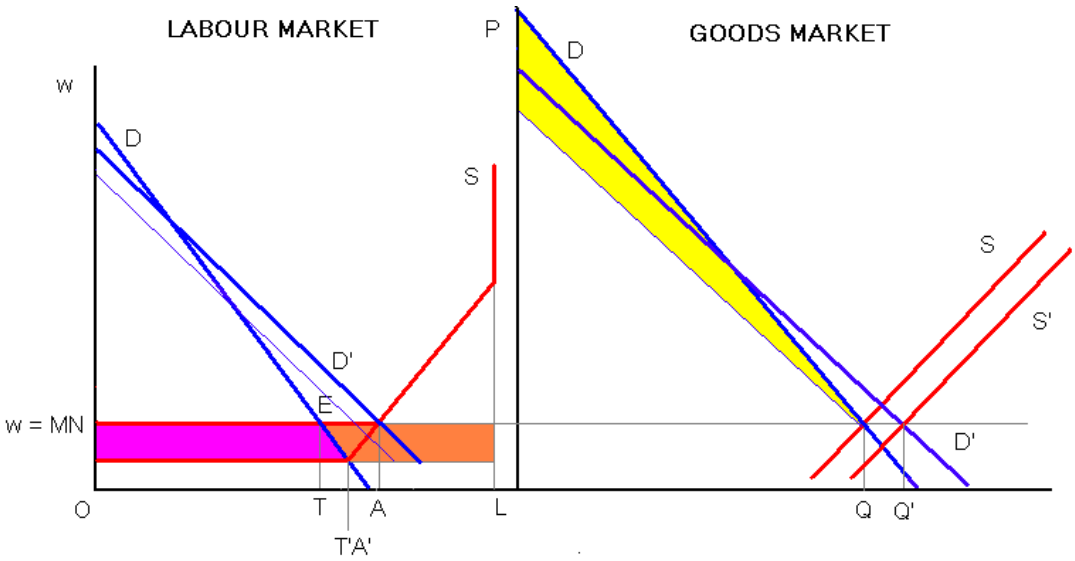
Increasing goods supply cause a selective impact on cost of Life Index (LI)

Figure 9



Basic Income financed by income tax: effects in Poverty Persistence Model

Figure 10



Basic Income financed by consumption tax: effects in Poverty Persistence Model