

H.E.P.T.

Human Economic Psychological Time
Theorem

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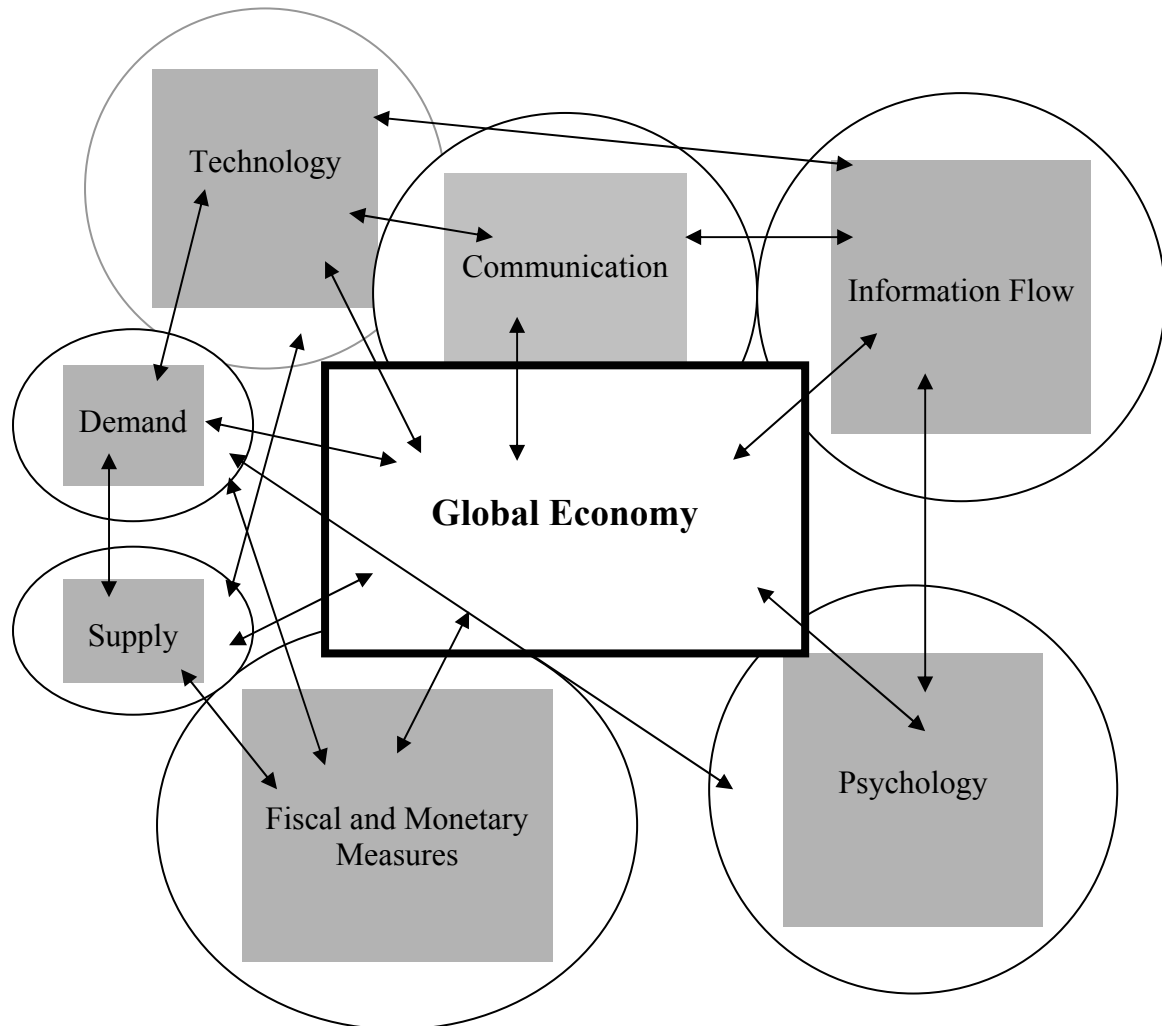
Human Economic Psychological Time Theorem (HEPT)

The role of psychology is essential in the new world of global economics. There is a strong relationship between the overall human psychological state of mind and the overall global economic situation. This relationship is crucial to the time period that the economy lives within a growth phase or a so called boom period or in a decline phase or so called recession period. Certainly there are the known factors that affect the duration of the given cycles, but the psychological state of the human mind within the economy is a driving factor. So to speak the psychology within the economy is the crucial motivator for the duration of economic cycle. There are four new factors that impact the cycles and their duration in the modern world:

- *Technology (e.g. Product Life Cycles, Innovation)*
- *Information Flow (e.g. Internet)*
- *Communication (e.g. Mobile Communication)*
- *Public Psychology (e.g. Consumer Confidence and Awareness)*

The future will show that the economic cycles will be more efficient, meaning that the growth periods will last longer and the recession periods will have smaller importance. The economy has been and always will be affected by demand and supply and inflation that is also what determines the future but on top of these factors, there are now new indicators that accelerate global economies. The result is a decrease in overall stability due to faster cycles but on the other end we find faster improvement and more efficiency. Efficiency is the key word and on top comes the factor that the general population is more aware of economics where as when the most relevant economic theories haven been established, the overall economic awareness and understanding among the general public was less than in the world we live in today.

Global Economic Interactive Factors



The above graphic shows the interacting fields and the way they interact with each other it is more complex now than it was. The change has caused a new economic environment that we must first comprehend before we can position ourselves appropriately in it and act efficiently. Nevertheless the direct result of the new factors added to the old factors that are shown above is certainly greater efficiency.

Capitalism and thereby the market economy may come closer to “perfection” in the future, even though the so called modern economic school excludes a perfect economic condition. It may well be that in the future, recession and boom will continue to exist as today it is hard to imagine that the global economy may be prosper without interruption.

Economies are shifting from mainly being production industries to being service industries. Leading the way to this modern economic development are the United States of America. The result of being more service oriented rather than production oriented is, that unemployment will be more volatile, therefore it might become less efficient. Economically the supply of goods is more efficient and therefore the demand is constantly fueled. Why? Because the internet offers a new medium to distribute and promote goods and services without borders and boundaries. Even though this particular industry does not weigh sufficiently much to be a deciding factor, in the near future it will impact the economies of the world or the global economy with an importance that we may not understand or consider today.

Another factor that has not been considered is the forced drive to greater efficiency due to the global growth of population. We move faster, we live faster, we produce faster, we think faster. If we don't match up with the ever growing criteria and the ever growing competition we are simply left behind or left aside. On a psychological level, that may create great difficulty in the future because we are all replaceable and though in the past efficiency was not as important as security, we now face a new economic environment where efficiency is crucial to survival.

These mentioned factors and impacts are all side effects of a new economic era and the downside of the drive towards greater efficiency.

The old economic process is altered into the new economic process by the mentioned factors, namely : **Psychology, Technology, Information Flow and Communication**. The role of the different factors appears as follows:

- **Psychology (P_m)**

- More awareness of economic patterns and the meaning of economic indicators leads to greater response to a given economic environment. This adds to the speed of the economy.
- Less fear of recession diminished risk of economic depression.
- Greater enthusiasm towards economic growth therefore more motivation towards greater efforts leads to greater efficiency.

- **Technology (T_e)**

- The technological improvements of the 1990's have accelerated the global economy and made it more efficient. Amongst those advancements we find the internet as a public resource, we find telecommunication and we find the rapidly moving computer industry.
- Technology therefore renders the economies more efficient.
- Technology is the accelerator of demand and supply.
- Product Life Cycles (PLCs) are reduced.
- Technology triggers a faster pace of development.
- The technological advances trigger a snowball effect in economic improvement as businesses grow faster and become more efficient, the pace of all activities is increased.

- **Communication (C_e)**

- All new influencers of the economy are inter-related, therefore as technology evolves, communication improves.
- The new medias that have been developed allow communication at higher speed.
- Human interaction is improved therefore the economy may function more efficiently.
- Facilitate communication, as we see it today and even more in the future allows substantially better response to economic problems and also faster response to all developments.

- **Information Flow (I_m)**

- As we communicate, information flows, as communication is improved, the flow of information is more efficient.
- The current flow of information comes close to the state of “perfect information” as virtually any information required is available anywhere at any given point in time.
- The flow of information as we see it today also corrects the lack of transparency, since more information is available from more sources than ever before. Information has always been a market of its own but never has information been shared so publicly through so many different medias.
- The result of the current state of the information flow is that the global economies become, once again, more efficient but most importantly more sensitive to events and indicators as we are globally more alert.

Economic Scenarios

Certainly there are different scenarios in which the given factors are applicable and they are to be considered as motivators and influencers with the cycle. Only an extraordinary event in one of the four factors may lead to an independent shift of the economic situation. For example a technological breakthrough may certainly trigger an economic boom and that has been seen in the recent past at several occasions, if we simply look at the boom of the internet in the late 1990's. The boom was so strong that it affected all other factors and had a strong stimulating effect. The main forces that make up an economy – demand and supply – are therefore dependent on these four sub-factors if we want to call them that. But not only are they sub-factors, they are key factors to the global economy and as described before, they are main influencing forces on the duration of economic cycles. These factors have not been considered in “modern” economics until now and the tendency of each of the four factors works as a multiplier or magnifier within the macro environment. According to mathematics, there is a multitude of different scenarios for those four factors: Psychology (P_m); Technology (T_e); Communication (C_e); Information Flow (I_m). Not all possibilities may appear relevant as the factors appear more or less to have the same weight on the economic equilibrium. In fact, The Psychology of the general public acts as a multiplier or magnifier, Technology is a key factor to speed → Efficiency (E_s) and the same with Communication and finally the Information Flow is another multiplier / magnifier (m).

Scenario Formulas

Naturally if all factors are positive, the best result, meaning the best speed in economy and efficiency will be achieved, but since the world is not always “perfect” as we see in recessions and booms as well as in war and peace, the indicators may vary according to the economic condition. Certainly if the efficiency factors namely Technology and Communication are positive but the magnifiers are negative, the impact on the economy will be favorable but certainly less favorable than if all indicators are positive. In the first scenario, the conditions are optimal for a “perfect” economic situation.

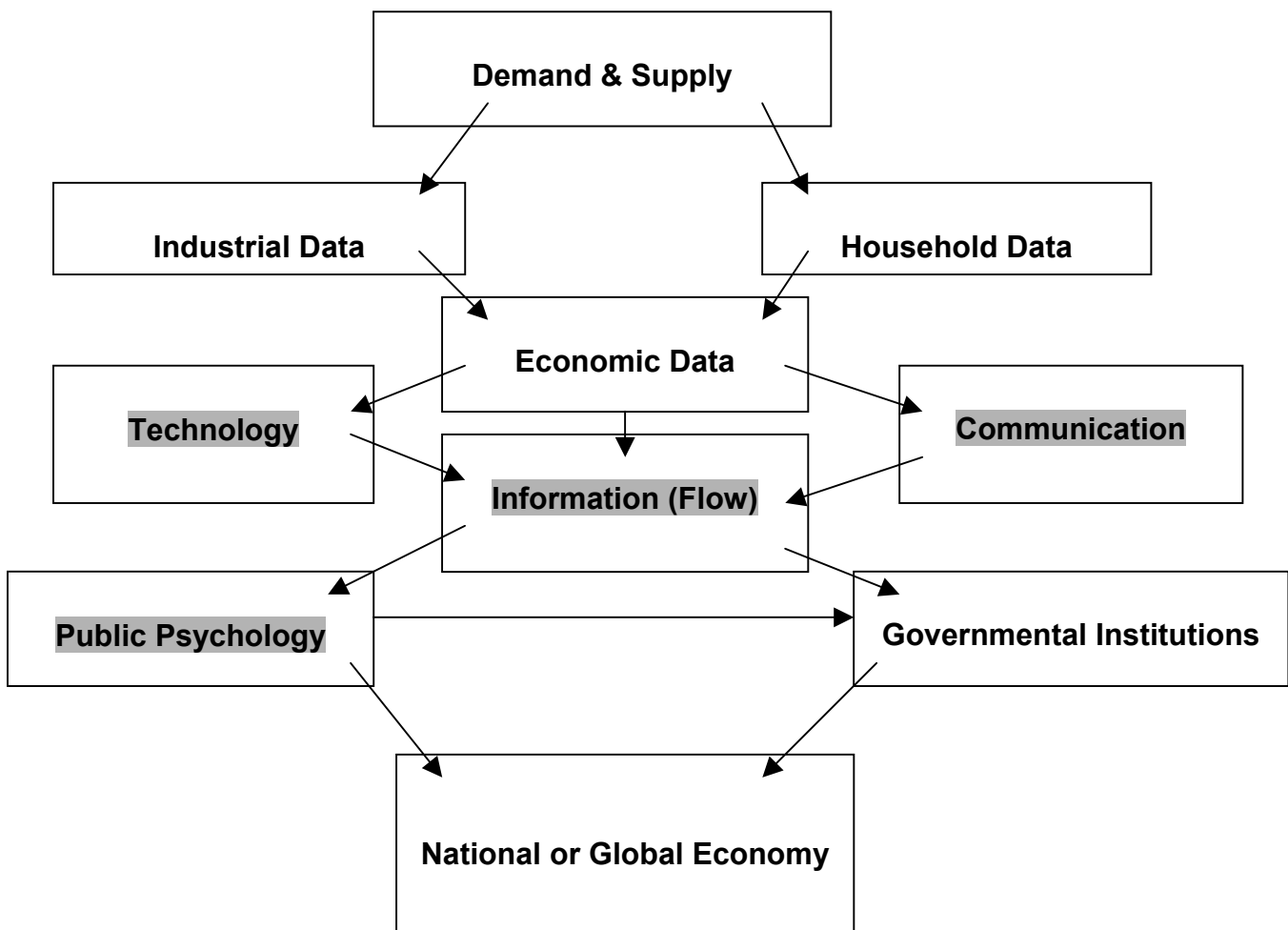
$$P_m \uparrow \quad T_e \uparrow \quad C_e \uparrow \quad I_m \uparrow \quad = \quad E_s \uparrow$$

If now we find that one or two factors are flat, being either an efficiency factor or a magnifying factor, the efficiency (E) may still be given but without the speed (s) therefore the velocity of the overall global or national economy will be reduced. The number of scenarios is certainly reduced because it is hardly imaginable that Technology (Te) will be negative as innovation always takes place. We may see it flat, meaning a reduced pace of development due to the lack of resources or other factors but in no case will technology be regressive. It appears to be the same with Communication (Ce) as the tendency of the human being is to communicate rather more than less, furthermore communication is always developed, maybe at a slower pace but it is always evolving. The key though to all efficiency is once again technology.

$$\xrightarrow{P_m} \quad \xrightarrow{T_e} \quad \xrightarrow{C_e} \quad \xrightarrow{I_m} \quad = \quad \textit{Stagnation}$$

For better understanding the symbols may be rearranged, in that sense we can place Psychology (Pm) at the last position, that makes doesn't make it less true, only more understandable.

This theory is to be seen as an accelerating model, the laws of economics remain valid for all goods and services, simply we may assume that considering the given four factors have never before been considered and function as an accelerator to the economic cycle we may improve existing models as they impact the demand side of the economy as well as the supply side. The models vary depending on the current economic situation, where we find ourselves within the given cycles but as very relevant example for the newly applying laws in economics we can take the 2001 – 2002 recession which has come to an end after only 15 month. It is perfectly explained, why we anticipate reduced negative cycle times and extended positive cycle times, namely booms and recessions. A simple model can illustrate how the new economy functions.



The previous illustration is to be understood as a cycle, an ever flowing way of action and reaction. In the so called “old economy”, the four factors that have now gained importance in the “new economy” have never been a deciding factor but the shift is clear and will become more and more obvious within the coming years, eventually decades, depending on the movement of economic cycles. Never the less, time is reduced, much more speed is applied to the economy and that leads to greater efficiency in both ways, upstream and downstream. The old economic models are less complex with less factors and indicators. Today we have models and means to direct and predict economic shifts before they happen. The efforts to a more efficient economy are well on their way. The stock market as well is gaining great importance all over the world, as technologies and means of communications are put in place to accelerate the information flow. Once again in this statement alone we see the interrelation between all those factors. The faster information flows, according to technology and communication, the more efficient is the psychology with the economy. A simple example, the process of collecting industrial and household data is reduced, indicators can be established at a much faster pace, therefore a turnaround is seen much faster as the public awareness is higher as well as the knowledge of the public about the economy.

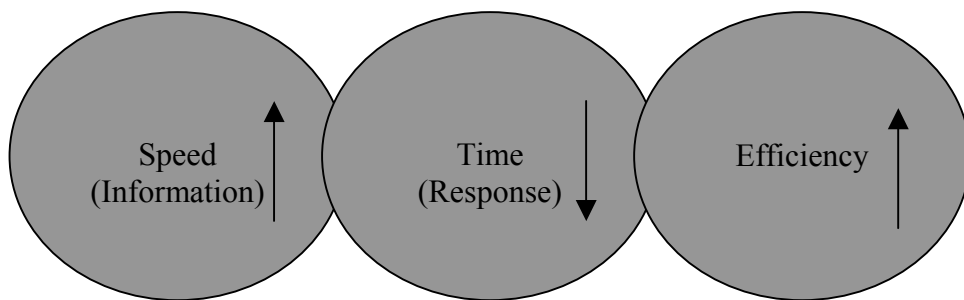
$$P_m \downarrow \quad T_e \quad C_e \quad I_m \quad = \quad \textit{Recession}$$

If the above factors occur in this matter, it appears most likely that the economy will go into recession. Certainly the psychology is the key multiplier as all other factors are flat. It may appear possible that the information flow is also negative, meaning that information flows less rapidly due to the lack of economic motivation, though this should only appear when the economy is already in recession. The flow of information will be jeopardized as the economy has no key motivation to function.

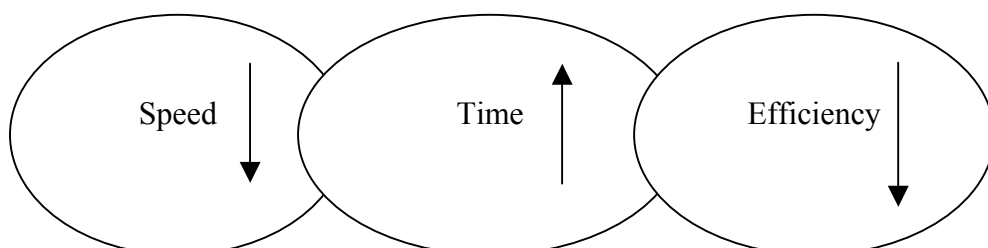
It must be though emphasized that due to the multiplying factors, namely psychology and information flow, the economic cycles times are reduced and as well as possibly expanded. In the future, we will though see reduced declining cycles as negative data, that leads to recession, is transmitted faster and therefore absorbed faster. The same way it will function within recovery periods.

Speed → Time → Efficiency Relationship

New Economy



Old Economy



In the past, the further we go back the more concrete it gets, the efficiency was quite reduced due to the lack of the factors that this theory is all about. Mainly though because the time for the information to get through to all relevant individuals was much higher.

Today data is available within moments, in the past it took significantly more time for trends to get evident, to get clear, to be identified as threats to the economy – days or weeks to get an information was a regular measure. Our world is living at an ever growing pace which leads to increased efficiency on one side of the equation but to destabilization on the other side.

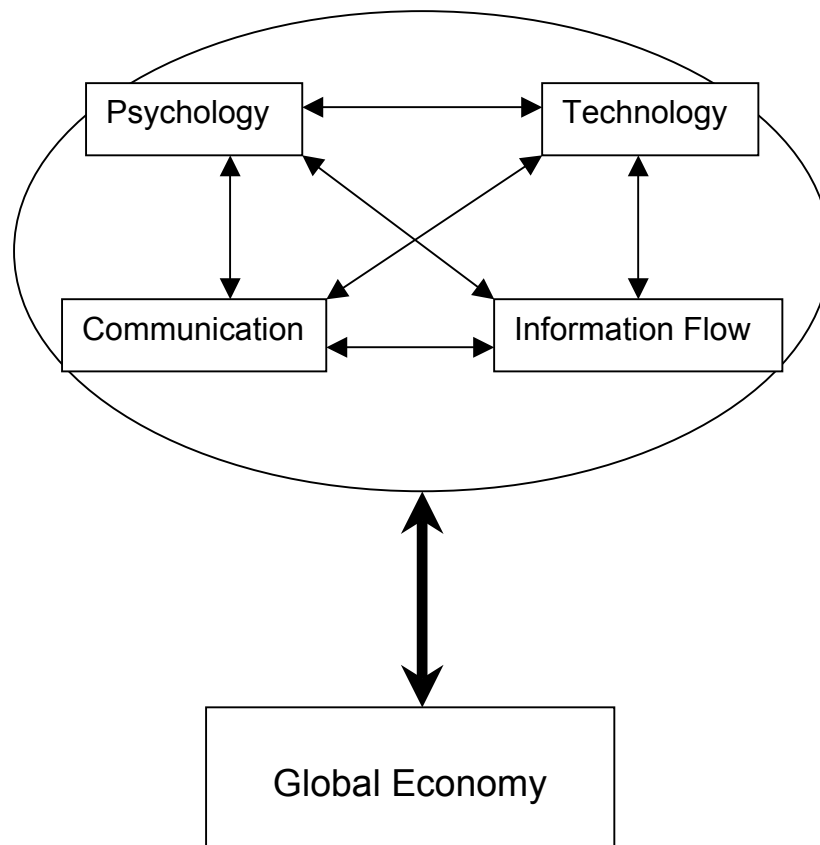
Growth vs. Efficiency

As time goes by, we have been able to witness the shift from a production industry to a service industry. This has become more and more the case and the development is still in process. Therefore, available funds should be allocated to fuel innovation as a sub-factor to technology. Presumably, stimulating innovation and technological development will accelerate economic downturn cycles duration. Thereby we achieve greater economic efficiency. Too much capital injection in the technology sector from public and private resources on the other hand may well lead to an abuse of resources and an economic bubble, as seen in the late 1990's. Accelerating innovation will improve short-run as well as long-run economic efficiency such as employment creation. If resources are injected in production, only a fraction of the available resources will be used to develop new technologies, therefore the impact of capital injections in production is only make-up so to speak, it affects only the short-run profoundly. A healthy balance between short-run and long-run injections in both production and innovation must be achieved. With the recent change in the economic landscape, the tangibility of the economy has changed as a strong shift from production to service has occurred. Fiscal and monetary measures must be adapted accordingly in order to follow the new pace of the economy.

Conclusive Statement & Reasoning

Every time, in the history of economics, whenever there was a greater technological development, mankind was stunned and euphoric. So the greatest impact out of the four mentioned factors, namely Psychology, Technology, Communication and Information Flow, has always been resulting out of the technological and then the psychological aspects of human development. In the 1990's, the remaining two factors, being communication and information flow, in order of appearance, came into play. Technological evolution has always been driven by the need for more efficiency. The lack of efficiency therefore drives mankind towards change. In the recent past, the world of business has been introduced to the concept of change management. Economics is made up of business, a significant change has occurred in the economical environment that we have known up until this day, we will without doubt see more change and as we advance in technology, change will become more frequent. The world, as a result of this development, should in any case become more competitive. If we closely observe recent change. Be it globalization strategies, be it the single European currency, be it the internet, be it biotechnology or be it the mobile telephone. Development has great effects on life, global as well as from an individual point of view. What can easily be lost out of site is the simple fact that the economies around the world, the global economy, is made up of people – is made up of minds. As we saw in the age of industrialization the technological focus was emphasizing on movement, simply motorization. From the railroads to the car up to commercial air travel. The best examples of the shown relation are thus those technological (r)evolutions, that change the economic landscape for a lasting period of time. Like we saw the railroads, the automobile and the internet.

The core idea in this theory is, that economic factors are impacted by the four mentioned factors (P; T; C; I). But also, the factors have interrelated impacts that increase the effect on the overall economy. Graphically it can be presented as follows:



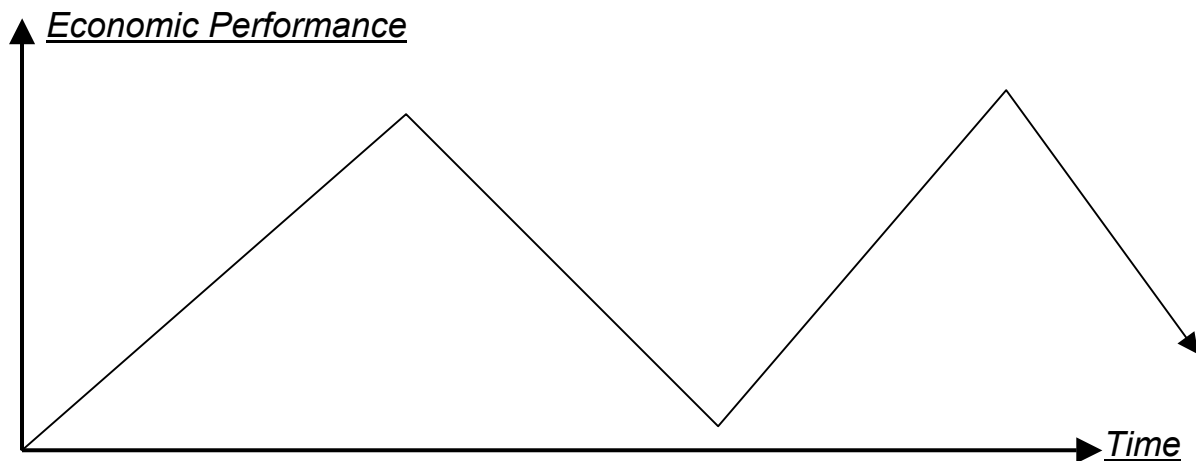
Over the past decades we can clearly identify a shift in development focus towards the movement of information which has now reached a very sophisticated level. As explained previously within the theory, it affects the efficiency of the global economy in a way that mankind has not seen before. It has a multiplying effect on all economic factors.

Psychology has been discussed as an economic factor by the great economists of the 20th century such as Keynes and Friedman but it has never been acquitted the role that it deserves. Fact is that the economy is very much effected by the psychological aspect and that is mainly due to the developments in human interaction over the past years. Now, through all the available media, the individual is directly affected by the economic condition and also responds to it. As education level rises over time, people in general are able to make more educated decisions and have a greater understanding of the way our world functions over time. It is not necessarily a profound knowledge, for now we can speak of a general awareness. Information provision and the value of information as well as its availability has very much supported the current development.

Example:

Year 1929: The average man has an employment, he works until one day his job is ratified. His company explains him that it is due to a decrease in the demand for the company's products. Some weeks or even month later he reads in his local newspaper that the economy has gone into recession. The economy struggles thereafter and will most probably remain in recession until fiscal and monetary policies start to work from within the economy. He will then several months later read in his local newspaper, which is at the time his only relevant and reliable source of day-to-day information, that the economy is slowly recovering. He will probably read that the government has helped the economy out of its slump. Thereafter he will intensify his search for an employment and eventually find something but he will find it difficult because the supply is much greater than the demand for workforce. When he then finally does find an employment, he will very cautiously start spending again because now he wants to be careful and is scared because to his basic understanding a recession can come back any time.

This is of course extreme, in order to make the point more clear, but this seems to be the course of past individual recessions. Why was the recession of the late 1920's so severe, because the psychological aspect magnified the impact and extended the duration of the down-cycle. Therefore, the old economic cycle looks like a wave if we show it graphically:



Now, in order to contrast and to make the point clear, we can look at an example of the current situation and the results from the new developments:

2001: A man has an employment and leads a regular life. He comes home from work one evening and sees on the news that consumer spending is down and that industry figures are down for the second month in a row. He starts to think about his economic stability and goes on the internet and looks at the stock performance of his company in comparison to the overall industry he is in. He finds that his company has a much weaker performance than the competition. He reasons that his job might be in danger so he starts to get ready for the worst case. Eventually he undergoes efforts to reposition himself within the economy to be safe. He possibly finds a new employment as the economy is on the tip to go into recession.

Fact is, he will keep spending as he repositioned himself well and therefore will also be more resistant to the pessimistic vision that others may have. In other terms, the psychological factor will be pessimistic but not depressive over a short period of time as presumably other people within the economy have done as he did and have not lost their employment. Monetary and fiscal policies are adopted to the situation as soon as the downturn is spotted by analysts, not only after the effects of the downturn become evident. The cycle is more efficient. The man will continue spending with an weakened economy and help recovery. As soon as the first positive data is available it becomes common knowledge due to the media (information flow and communication). Meanwhile new technological developments open new possibilities for growth and improvement and efficiency. These facts add up to create a shift in the public psychology from negative to positive or at least stable conditions with an optimistic trend. The economy, after finding itself in a short recession of only several months is well on its way to recover, people within the economy start to invest and take risks again because the downturn is almost overcome and who is smart will invest towards the end of a down-cycle. The economy starts to grow.



This model is the hypothetical future of the global economic development with the help of information flow; psychology; communication and certainly technology.