

Deadly Vision - Economically and socially speaking (What future can we build?)

ABSTRACT

One of the major limitations of Mankind is not being able to predict accurately what will happen in the future. Understanding the past and projecting it into the future, or even combining it with the purest speculation, may help Man to create potential and feasible scenarios that can determine the evolution of Mankind, and determine how to be an interactive part of it.

This paper aims at providing some potential economical extreme scenarios for the near future that may be taken into account by governments, policy makers, nongovernmental organizations, enterprises and individuals when planning and deciding on their own and other's futures. Whatever ends up happening, should be understood within enough time to decide on an alternative plan.

Keywords: Strategic management; value; robotization; future scenarios.

SETTING THE BASIS

This text is an attempt to combine a new proposed concept of value, from all stakeholders points of view, with the historical and potential future evolution of society, in order to foresee possible scenarios that future may reserve for us. The creation of different types of value may contribute to different outcomes in society's evolution. Businesses' success will depend on it.

The future and its constant uncertainty

Since the beginning that Mankind has persistently tried to perceive and foresee what may happen in the future. If Man actually had that capability, they would also have the possibility of changing events in such a way that it would put the future under his controlled influence. In order to predict accurately, some defend the utilization of past information, and based on the idea that the past will repeat itself, the tendencies identified from historical analysis may be used to foresee future happenings. Others tend to break with the past and, speculatively, try to find causes and effects "out of the box" that can determine what will happen in the future. Both methods may suffer insufficiencies. The first may fail because the past will never be repeated. The second may also fail because it is based on imagination and speculation. Therefore, without the capability to predict the future with precision, Man is left with the possibility of combining past with visions of the future. Therefore, whatever scenarios one may conceive, their feasibility is always questionable. That is also the case of this paper.

What history has to tell us.

The first leap that took Mankind to a different level, differentiating him from other primates, and, consequently, leading him down an independent line of development, thus turning him capable of influencing his own path, was the fabrication of tools or artefacts (Toda, 2001) (de Scarre, 2005). Differentiating from their primate relatives, who were limited to use as a tool what was available in nature, such a simple stick of wood to drop fruits, Man created his own tools and other means as a result of his ability to understand time and, consequently, the future. This simple understanding gave Man the possibility to preserve and store not only the tools but also the outputs of his activities as a hunter and re-collector, to be used later. The search for food and materials to produce tools took Man to become nomad and to travel into aggressive and inhospitable environments, which forced him to develop new solutions for each new difficulty. Intelligence and imagination took Man away from nature's constraints which were still an impediment for other primates to develop further. If we were to characterize the economic paradigm of that time, we could say it was based on Man's capability to collect, transform and preserve goods, either to be utilized or consumed.

The second leap or the first great revolution that took Mankind quite further happened with his settlement during the Neolithic, after domestication of the first animals (Toda, 2001; de Scarre, 2005). Man could produce his own food provisions, such as meat, cereals, fruits and vegetables, without the need of constant travelling as in nomad times. Man could also use animals to help with the production of food provisions, in conjunction with new tools to cultivate the land. The domesticated animal became Man's main ally, reducing the effort needed to survive. This also allowed individuals in those first communities to develop other specific and specialised activities, producing tools and new products and exchanging these for food, produced by others. Accumulating and preserving tools and goods for consumption was hence easier. The sedentary life style improved some aspects of life, but also reduced the possibility of travelling to distant territories in search of other goods, which created the need for exchanges amongst different settlements. Commerce emerged as an expedite way to answer such needs and to create value for the exceeding production of goods. Tools became more sophisticated and Man based his survival on what he produced with the help of domesticated animals

and more complex equipments. The economic paradigm of that evolutionary period was mainly based on the ownership or control of land with which Man could produce consumption goods, and on the production capability supported by Man and domesticated animal labour, combined with tools (Toda, 2001). Currency came into use as a means of payment for the exchange of goods, initially not relevant in the creation of value, but later gained the ability to create added value due to the growth of commercial activity and the need to finance it (Davis, 2002; Inventors).

The third leap, or the second revolution (Toda, 2001), took Mankind to a greater level in societal and economical development, and is known as the industrial revolution (Cipolla, 1994; History World). The steam engine, the petrol engine and the electricity, with developments in the chemical field in terms of new methods for the syntheses of raw materials from nature, took Mankind to its greater evolutionary jump since creation. The industrialization allowed labour to move from rural areas to the cities, leaving behind a drained agricultural activity. This labour was to be valued in the new factories as a function of individual production capacity. The industrial revolution changed the agricultural process as well, draining the remaining devoted labour. It also created the capability to produce consumption goods and equipments at a low cost, democratizing the economy (Snooks, 1994). In addition, the industrial revolution introduced the possibility of the warfare industry to enter new areas, never thought before, inducing its tremendous growth. The importance passed, all of a sudden, from the conjunction of man - domesticated animal - land to the conjunction of man - machine - raw materials. Machines substituted animals, but still needed people to operate them. The cost of many products and consumption goods lowered due to productivity increase; the capacity to reward workers increased due to higher profit margins; industrial workers became themselves heavy consumers of goods and services, some of which appeared to answer new massive demands such as tourism, health, education and others; housing construction for the new working class developed in answer to the new buying power becoming a new and strong industry. Despite this, there was still enough buying power amongst the working population to buy luxury and well-being related products and services. This value creation brought on demand for new products, which ended up creating even more value in a kind of spiral of value creation supported by the financial component, which warranted value through

adequate currency exchange rules and availability. The economic paradigm was based mainly on capital, while land lost importance in the value creation process. Society tended towards equality regarding work and compensation, land owners lost power and capital owners exercised their power through selective investments. The power of public opinion grew into a new dimension and economic, political, religious, military and social elites lost their capability to exercise will by force, having resorted to alternative processes of persuasion (Callinicos, 2000; Montfort).

The forth leap in Mankind's evolution is related to the communication and technological revolution as well as to new forms of energy (we still need to come to an adequate name for this new cycle). Man, who during the previous period needed his own labour to create, control and utilize machines, sees himself now in a position of having only to create the solution, leaving the control and utilization of the "hardware" part of the solution to the ICT component of the machine, without any further interference on his part. Automation (robotization) is now growing beyond science fiction (Asimov, 1942) and is irreversible. Man creates a machine that with the help of its ICT part will be completely independent of his involvement to control and execute its duties (Evans, 2007; Pegman, 2007). Man creates machines than can also build other machines, which will produce goods and services that Man needs, without him having to participate with anything other than his imagination and rational and creativity processes. In a few decades, and even if we account for current knowledge and technology, Man won't need any people to produce most of his needs. Man is the creator and the final beneficiary of a complex system which will satisfy all his needs and allow him to benefit from the quality of life that he has ambioned (Norihiro, 2004), all at a very low cost due to inexpensive machines.

Value: Are intangibles what create the most value?

Value is a concept that can have different points of view. One perspective is related to the value obtained by someone who developed an activity or obtained some kind of result, with or without employing inputs, that always creates an output that can be transacted. This is value for those who produce or sell. Another perspective is related to someone who needs to pay, with some kind of resource, in order to obtain something, in a material or immaterial form. This is value for those who

buy. A third perspective is related to society in general and is connected to the tangible and intangible aspects that something can have for someone, who, even not having a direct interest, can somehow be related to the that something in the first place. This is the value that sums up all previous values and is reflected in society in its simplest form: the creation of wealth.

The first and basic concept of value deals with the difference between resources utilized as input and resources obtained as outputs. Sowing a seed will generate a plant that will provide many more seeds. Nature basically works this way and Man has learned how to replicate the process of adding value more efficiently. The output can be transacted or consumed. No matter who consumes it, the value creation process ends immediately after consumption. The transformation of raw material into something, for example a stone into a pre-historic hammer, was one of the first forms of creating value that didn't end with a singular utilization as in consumption, but created the possibility of repeating the functional performance over and over again. The output could be transacted or utilized to create further value. The value of a thing (a tool or food) could be increased to a maximum level, related to its performance or scarcity, losing all its value once destroyed or consumed. Value was related to the time needed and the difficulty Man had in producing it. We still use the same concept today.

The second concept of value is related to those who acquire or "buy" a thing, product or service, in a material or immaterial form, or have some other interest in the transaction. The value of that same thing is defined by the function "satisfaction of needs / utilized resources" (EN 12973:2000). The number of functions performed, the qualitative level of that performance, the availability and other attributes against the price paid and other resources utilized, like time, are factors that influence the "value" of a certain thing that becomes the "solution" for a need. A "solutions", that is product, service or both, (Eades & Kear, 2006) can be perceived as common and simple, similar to others, being commodities, or can also be unique, functional and qualitatively different, more complex, thus being premium (Fernandes, 2007). The price that the buyer is willing to pay can be lower for the first and higher for the second description. The "solution" has to provide an answer to a certain need. We know that we can have many different types of consumers needs (Rosemberg, 2003; Max-Neef, 1987) but for the purpose of this subject we may only consider five basic levels: physiological, safety, belonging,

esteem and self-actualization (Maslow, 1943). Most “solutions” for the physiological needs can be considered commodities, as they only answer basic necessities with their intrinsic functions (Fernandes, 2007). As we move on to other kinds of needs, like safety or belonging, most “solutions” available to the market increase in value, getting closer to premium. At the top of the needs pyramid, all solutions are premium, where luxury products answer essentially emotional needs. We can identify a clear relation between the value of the “solution”, including the price as part of the needed resources, and the kind of need that the solution answers.

The third concept of value, in its most wide perspective, is related to society in general and reflects on common or individual wealth creation, influencing the level of well being of part or all of society. In Value Management (VM) value has a much holistic perspective, as all possible stakeholders have some potential interest in any transaction, despite the fact that it still uses the same previous formula to determine value (EN 12973:2000). However, the concept most used to understand the total “added value” for different stakeholders is the one expressed in the Value Chain (Porter, 1985), that combines and agglomerates the seller’s value with the buyer’s value, being it lower in commodities and higher in premium solutions. The added value can be a result of both the tangible and intangible components of the “solution”. The tangible part is “material”, having a physical form or not, and is subject to wearing out or disappearing, like when we ingest food or use a transportation service. The intangible part is “immaterial”, also having physical form or not, and is related to the human knowledge and to the possibility of being replicated. Tangibility refers to what comes out of the contractualization between parties when transacting a solution and intangibility refers to what comes out of the non contractualization between parties involved in a transaction (Allee, 2003). According to this, we can evaluate the value of a solution for each and all parties involved, including society.

Based on these three concepts of value, it is proposed in this paper that it’s possible to determine four archetypes of combined value, as shown in figure 1.

The first is the “simple tangible value” of a solution, like a food product or a travel ticket, which has a limited sum of value, as a function of its finite duration and impossibility of being replicated. The

second is the “complex tangible value” of a solution, like a machine, a building or a road. The value creation does not end for those who have produced the solution when a transaction is made, but it continues to create value for those who repeatedly utilize it after the initial transaction, while the “thing” lasts. These two kinds of added value suffer, due to the commoditization phenomenon (Tesmer, 2002), a constant loss of capability to continue to create the same value for the producer or seller. The third archetype is the “simple intangible value”, which is based upon the intangible value of the solution, like a painting or sculpture or yet a product resulting from “breakthrough innovation” (Fernandes, 2008), but only while it doesn’t suffer from the natural commoditization process. The value of the solution is not determined by its material component, but by the intellectual one, by the impossibility of repetition and by the emotional aspects attached to it. In the case of a piece of art, its destruction annuls all value attached to it, making it impossible to add any further value. In the case of a product resulting from breakthrough innovation, its commoditization dramatically lowers its potential to create any further high added value. The fourth archetype is the “complex intangible value” and is based on the tangible component completed with the intangible component of the value of the solution, like a musical piece or a discovery as a result of a R&D process, as it was with radioactivity. These situations can create unlimited value, as they are neither subject to time duration nor to physical destruction. Taking the four proposed value archetypes, one can ask who creates more added value: someone who has produced tonnes of some kind of food or consumption goods during his working life or someone who has written a theatre play which is repeated over time or has created a software language which is used by everyone else to create more added value in new solutions?

THE MOST PROBABLE FUTURE SCENARIOS

Past and present

Along the last few centuries, society and economy have suffered a giant transformation, through industrial and information revolutions. Labour is one area that has been directly affected by those huge societal and economical changes. During the last two centuries, the volume of labour used in each of the three activity sectors, have suffered an enormous transformation, as represented in figure 2.

In the beginning, about half population made their living on agriculture. The industrialization of the economy forced rural population to look for work in the new industries, progressively substituting agriculture and also absorbing the female population in the work force. The economic growth that industrial revolution brought to society created a new class, the middle class, with more buying power and higher qualitative requests. Reduction of occupation in the primary sector was compensated by the increment of occupation in the other two sectors. The percentage of non-active population, which at a certain stage in the last half of the Twenty Century was basically reduced to youth during education, elders during retirement and some residual but ever lasting number of unemployed people, suffered an increment in a later period of the observation, due to unemployment, population growth and aging and inbound migration movements.

From a basic empirical observation, we may admit that progressive processes' automation of the last decades, due to ICT utilization in the first two activity sectors, has diminished the need for labour, which has been partially absorbed by the tertiary sector. The information revolution gave the secondary sector the needed capability to create "complex tangible value" and also the ability to create "simple intangible value" through breakthrough innovation, generating higher added value. This phenomenon has become lately a result of new discoveries and knowledge creation, which are later applied in innovation processes. The tertiary sector has also benefited from the information revolution, creating new services based on ICT, comprising "simple tangible value" and "complex tangible value". All were supportive of middle class growth. Availability of capital, essentially in the upper class but also in the middle class, as a result of the rapid economic growth, benefited many industries that create "simple intangible value" and or "complex intangible value", resulting in strong growth of those industries.

Present and future

The automation of mining and agriculture processes will continue to reduce labour needs in the primary sector, all over the world. In developed countries, where high intensive labour industries are moving to regions with low cost labour, labour needs will be reduced to a minimum in the secondary

sector (Krasna, 2007). The predictable less use of labour in many services, also due to automation, will reduce employment rates in the tertiary sector as well. Unemployment growth seems unavoidable, due to further robotization of all activity sectors (Hawksworth, 2008). In addition to unemployment predications, longer life expectancy will also contribute for non-active population increment (figure 2). High consuming middle class in eastern countries may disappear further, lowering demand for many products not considered life essential or with high added value. Potential reduction of population buying power, on one hand, and attempt to maintain the existing production capacity output, on the other, may take many industries to over produce and over stock. The relation between the needs' pyramid and the consumers' pyramid (Friedman, 2005) may lose the existing equilibrium, and only basic products may maintain the current demand, but only at the level of the most commoditized solutions, in opposition to equal or even higher demand for premium products at the top of both pyramids.

Causes and effects

The potential mistake made by many eastern countries to obtain economic growth basically supported on internal consumption, often maintaining the buying power of their population with financial aid, even obtained externally and to buy imported products, can become fatal to them. The loss to other economies of many industries with a high added value may create an enormous problem for those countries where a Social State financed by taxes is preeminent. With not enough value creation in a sustainable manner, in quantity and quality, taxes may become insignificant and insufficient to support any social system. Potentially, the rapid increment in non-active population, needing social support, may enlarge the necessity to increase taxes to extreme levels, affecting those industries still creating value, making them not profitable. Even considering that all active population may be involved in industries creating high added value ("simple intangible value" and "complex intangible value") and supplying high profit margins, the economical weight of non-active population may be so great on society that it may take all wealth created by the economy and collect in the form of taxes, vanishing any incentive that investors and entrepreneurs may have to get in business. This almost reality in all

eastern countries may extend to other economies, as these last countries tend to imitate the first ones, levelling, in future, the existing different stages of economic development.

Based on those premises, we can formulate some scenarios: (1) A large reduction in global population, by natural or induced methods, may reduce the disproportional relation between active and non-active population ratios, specially reducing the last. The methods can vary from natural disasters, pandemic diseases, induced birth control to, even, wars. (2) A sudden migration of large populations, like non-active populations in search for work or active populations escaping from heavy taxes or lack of opportunities, may create high instability at national, regional, continental or even global level. These potential migrating movements created by purpose or not, may originate social and economic disequilibrium that might take governments to decide on closing borders or expelling parts of their populations, representing these a regress in the free movement of people, goods and capital concept. (3) Active populations, mainly composed by favoured and upper social class, dominating others as a result of their own ability to generate added value, may take power into their hands and may expulse the non-active populations from its territories, forcing a general compulsive exodus of the lower classes and creating strong and powerful elites and closed societies, in social and territorial terms. The dimension of this potential phenomenon may be determined by a selective process that may select those who have the highest capability and competences to generate added value. Internal security and external defence will be the biggest issues of these “elitelized” societies. (4) Non-active populations, composed by the lowest and poorest social classes, on their desperation, may take power in their hands. This event may destroy all existing knowledge and the organizational basis, both being the support for high added value industries. That may create more equalized but poorer societies, based on primary and basic industries, through a process of “barbarization”, where intellectual property might be destroyed and material property might be divided and degraded. An economical and qualitative life style regression will be the biggest issue of this scenario. In the case of any of those two last scenarios, society may face a deep change in the current economic paradigm, with money losing and individual knowledge gaining importance. The access to solutions may be used to compensate the most fit and with more knowledge and not with the most capital. In a “barbarization” process of a society, goods

will be scarce and divided, difficult to accumulate, and money may become redundant. In an “elitization” process of a society, access to goods may tend to be almost free, due to easy access and low production cost caused by the automation processes, and money may lose much of its importance. Individual knowledge will be the tool to obtain and retain wealth in the form of needed goods. Money may get its importance back when a part of the population loses the individual knowledge.

How can we mitigate these impacts?

The following viewpoints are related to businesses and economy. (1) We may need to “humanize” capitalism (Renesch, 2008) and society. The creation of value and the distribution of wealth in such a way that all stakeholders are taken into account may contribute to mitigate the potential collapse of society (Raifu, 1995). Small size organizations may need to have a closer relation with investors, managers, workers, clients, suppliers and others to humanize business through inter-relations, which may reduce unequal and contrary interests, as we may identify in large and global organizations. Economies based on small size organizations may level the generated and distributed added value. These small size organizations will need to invest strongly in R&D in order to generate the most added value, for themselves and also for consumers and society. However, the needed investment may exceed the capacity of the large majority of those organizations, working as constrain to economic development. (2) We may need to re-define the role of governments. Some defend that governments’ job should be helping these organizations, through market regulation that can induce investment and compensate risk taking. Faire value for all stakeholders may provide the needed capacity for organizations to invest and consumers to buy. So, governments may be more regulating and less intervening in the economy (Friedman, 1962), retaining exclusively in their power, the diplomacy, internal and external security and justice, keeping only education, healthcare and social security when the private sector doesn’t cover those, and leaving value creation activities exclusively to the market. However, this may bring a need to create a fair evaluation method for all adding value processes, as governments have to live on taxes applied on added value. (3) We may need to reduce the importance of capital. Capital markets may adopt other ways to evaluate companies’ overall added value and not only their net profits, normally only understood in the money dimension. (4) We may need more

responsible citizens. Individuals may also be evaluated on their participation in the generation of added value, directly or indirectly, not only through their pro-activity and involvement in operational actions but also through their intellectual ability disposed to organizations and society (meritocracy). It should be all citizens' duty, as part of the individual initiative, developing new competences that may be used in the creation of new solutions and in the generation of more added value. In an ideal world it would be: one citizen, one entrepreneur and an independent enterprise, as a way for exclusive self-dependency, but as a contributing part for the whole.

Conclusion

The balance between the type of generated value by technology and the governments' involvement in the transformation of society will determine the final result (Llompart, 2009). A change in the paradigm used until now by society and governments to evaluate "value" may contribute to build a more just society (Science for all Americans), providing a better division of generated and accumulated wealth and also better compensations to individuals generating real value contribution. The importance and focus may not be put on possession of capital or social position but on individual contribution, human and organizational, for the common good, if we definitively assume that Man is a "social animal" and, therefore, cannot generate and accumulate value as a result of its own and exclusive individual activity. The economy may need to be based on many small businesses in opposition to few large and global organizations, as a way to make more people not only accountable but also participating in the decisions and final results. These small businesses may need to choose the correct type of value that they need to create for their own and social benefit.

One day, in the future, society in general may consider value creation and individual contributions as the mainstream for economic equilibrium, and then the current disequilibrium among individuals may be reduced and we may build a more sustainable economy. One thing may happen almost for sure: capitalism, as we know it in the current globalization process, may end up vanishing (Harman, 1997; Gray, 2002), but that seems inevitable in the long term, anyway.

REFERENCES

- Allee, V. (2003) *The Future of Knowledge: Increasing Prosperity through Value Networks*, Elsevier, MA: Burlington
- Asimov, I. (1942) Runaround, in *I Robot* (1950), Gnome Press, NY.
- Brito, J.M.B. (1989) *A Industrialização Portuguesa no Pós-Guerra (1948-1965). O Condicionamento Industrial*, "Universidade Moderna, 90", Publicações Dom Quixote, Lisboa.
- Cabral, M.V. (1979) *Portugal na Alvorada do Século XX. Forças Sociais, Poder Político e Crescimento económico de 1890 a 1914*, "Biblioteca de Historia, 5", A Regra do Jogo, Lisboa.
- Callinicos, A. (2000) *Equality*, Polity Press, Cambridge.
- Carrilho, M.J. *Labour force: concept and extension through the Census*, INE - www.ine.pt (online May 12th 2009)
- Cipolla, C. (1994) *Before the Industrial Revolution – European Society and Economy 1000-1700*. W W Norton, NY.
- Davis, G. (2002) *A History of Money from Ancient Times to Present Days*, 3rd ed. University of Wales Press, Cardiff.
- Eades, K. and Kear, R. (2006) *The Solution Centric Organization*, McGraw-Hill, NY.
- European Norm EN 12973:2000, - Value Management, CEN, 2000
- Evans, D., referred by Fitzpatrick, M. 2007, Robots, progress and human cost, www.thehindu.com
- Fernandes, M. (2007) *MAP – Moving along Alignments and Paradoxes*, GT-Transnational, Lisbon
- Fernandes, M. (2008) *Negócios Mutantes e Paradoxais*, Gestão Total, Lisboa
- Friedman, M. (1962) *Capitalism and Freedom*, University of Chicago Press, Chicago.
- Friedman, T.L.(2005) *The World is Flat: a brief history of twenty first century*, Farrar, Straus and Giroux, NY
- Gray, J. (2002) *The end of Globalization*, Resurgence, issue 212, May-June,
- Harman, W. (1997), cited by Gates, J. (2000) *Democracy at Risk: Rescuing Main Street from Wall Street - A Populist Vision for the 21st Century*, Perseus Books, NY.
- Hawksworth, J. (2008) *The World in 2050 - Does the global financial crisis change the long-term outlook?* PricewaterhouseCoopers, Porto, 12 Dec.
- History World, *History of Domestication of Animals*, and *History of Industrial Revolution*, www.historyworld.net/, (online May, 25th 2009)

- Investors, *Information on Monetary History, Contemporary Developments and Electronic Money*, <http://inventors.about.com> (online May, 21st 2009)
- Justino, D. (1988-1989) *A Formação do Espaço Económico Nacional, Portugal 1810- 1913*, 2 volumes, Vega, Lisboa.
- Krasna, B. (2007) *Framework for Tommorrow's Business Models*, European Futurists Conference, Lucerne, November 21th .
- Llompart, J. (2009) *Th impact of the Progress of Science on Modern Human Society*, www.sophialaw.jp, (online May, 28th 2009)
- Lains, P. (1995) *A Economia Portuguesa no Século XIX. Crescimento Económico e Comércio Externo*, "Análise Social", Imprensa Nacional - Casa da Moeda, Lisboa.
- Maslow, A.H. (1943) *A Theory of Human Motivation*, *Psychological Review* 50(4):370-96.
- Max-Neef, M. *On Human Needs and human Scale Development*, www.rainforestinfo.org.au (online June, 4th 2009)
- Montfort *Economia Liberal, Capitalismo e Socialismo*, www.montfort.org.br, (online May, 12th 2009)
- Moura, F.P. (1957), *Evolução Histórica e Estrutura da Indústria Portuguesa*, s.e., Lisboa.
- Norihiro, H. (2004) *Progress of robot technologies, aiming for a society in which human beings and robots coexist*, CIAJJ Comun Inf Netw Assoc Jpn, vol. 44; n° 11, pp 10-14
- Pegman, G., referred by Fitzpatrick, M. 2007, *Robots, progress and human cost*, www.thehindu.com
- Porter, M. (1985) *Competitive Advantage: creating and sustaining superior performance*, The Free Press, N.Y.
- Raifu, A.W. (1995) *Globalization and evolution of human society*, Symposium : The Evolution of Complexity -Evolutionary and cybernetic foundations for transdisciplinary integration, Free University of Brussels, Belgium, May 29 / June 3.
- Reis, J. (1993) *O Atraso Económico Português em Perspectiva Histórica: Estudos sobre a Economia Portuguesa na Segunda Metade do Século XIX, 1850- 1930*, Imprensa Nacional / Casa da Moeda, Lisboa.
- Reensch, J. (2008) *Humanizing Capitalism: Vision of Hope; Challenge for Transcendence*, *Journal of Human Values*, June.
- Rollo, M.F. (1994) *A industrialização em Portugal no pós-Guerra (1943- 1973)*, integrado na *História de Portugal* (dir. José Mattoso), Fernando Rosas, vol. VII - *O Estado Novo*, Círculo de Leitores, Lisboa.
- Rosenberg, M. (2003) *Nonviolent Communication - a language of life*, Puddle Dancer Press, Ca.

Santos, A.R. (1979) "Política económica e política de emprego: o modelo dos anos 50-60" in *Análise Social*, 15 (59), pp. 611-653.

de Scarre, C. (2005) *The Human Past: World Prehistory & Development of Human Societies*, Thames and Hudson, London.

Science for all Americans, *Human Society*, www.project2061.org (online May, 25th 2009)

Snooks, G.D. (1994) *Was the Industrial Revolution Necessary*, Routledge, London.

Telo, A.J. (1995) *Portugal, 1958-1974: Sociedade em Mudança*. Medina, J. (org) *História de Portugal – dos tempos pré-históricos aos nossos dias* Clube internacional do Livro, vol xiii, pp317-330, Madrid.

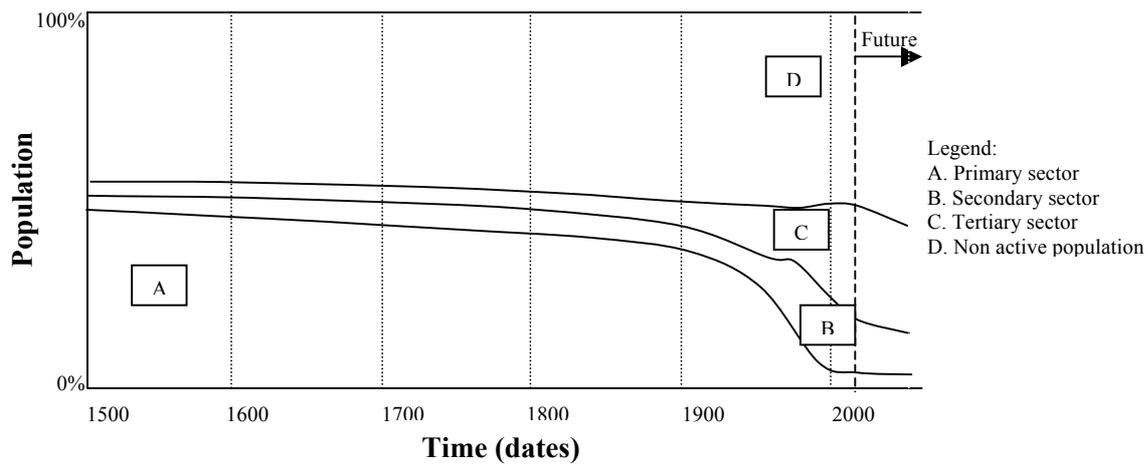
Tesmer, J. (2002) *Your Perfect Business Match*, Career Press, NY.

Toda, M. (2001) *The history of human society as moulded by emotion: past, present and future*, Social Science Information. 40: 153-176

Figure 1. Proposed archetypes of combined Holistic Value

| | | | |
|-----------------|---------|------------------------|--------------------------|
| VALUE STRUCTURE | Complex | Complex Tangible Value | Complex Intangible Value |
| | Simple | Simple Tangible Value | Simple Intangible Value |
| | | Tangible | Intangible |
| | | VALUE MATERIALIZATION | |

Figure 2. Occupation of the Populationⁱ



(Note: for simplification of the representation of labour occupation rates in the different activity sectors due to endogenous factors, all variations related to exogenous factors, such as wars and depressions, were taken outⁱ. The observation is based on figures for Portugal, which may not be exactly the same for other countries, at the same stage of development. All curves' projections after 2006 dotted line are author's estimations)

ⁱ Data sources:

Accurate statistical figures after the Second World War: INE - portuguese statistics agency,

Accurate figures from 1984 to 2006: Eurostat,

All other figures were taken from different authors' calculations or estimations:

Brito, J.M.B., 1989,

Cabral, M.V., 1979,

Carrilho, M.J., 2009.

Justino, D., 1989,

Lains, P., 1995,

Moura, F.P., 1957,

Reis, J., 1993,

Rollo, M.F., 1994,

Santos, A.R., 1979,

Telo, A.J., 1995,