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On the Patterns of Behaviour
in Digitalized Societies

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Abstract

The study intends

(1) to look at the importance of individual rationality as the main principle of economic behaviour, incorporated best in the concept of “homo oeconomicus”.

(2) to show how the third technological revolution, the “digitalization of society”, may transform individual behaviour in the three pillars of an economic system (real, financial, public).

One major achievement of main stream economics of Western style is the “homo oeconomicus”. Behind this concept stands the idea of rational man relevant for all parts in economic systems. It allows a consequent application of profit and efficiency maximizing in the real and financial sector and of vote and utility maximization in the public sector as agents' behaviour.

Psychology, sociology, behaviourism, anthropology are strictly against the idea of the “homo oeconomicus”. Evolutionary and Neo-Schumpeterian Economics also claim that it is wrong because it doesn't allow to include uncertainty considerations which are a condition sine-qua-non for innovation, change and prosperity.

But, is this concept completely wrong? Or is it perhaps relevant for specific parts of an economic system, if they develop within the process of digital revolution?

These are the questions which will be tackled in the paper. The analysis will follow a comprehensive approach, looking at the three institutional pillars of an economy, the financial, the real and the public sector trying to work out the effects of digitalization on the patterns of behaviour.

All in all, the effects of digitalization can be summarized as follows: In the financial pillar it modifies the culture of doing business from “symbiotic capitalism” to “financial capitalism” with prevailing

olympic rationality. In the industrial pillar it induces changes from short term maximizing “managerial capitalism” to a long term oriented “entrepreneurial capitalism”. In the public pillar it may open ways to institutional change, at least partially, from a “bureaucratic tax state” to a system of “social capitalism” with high potentials for enabling individual creativity and resilience capabilities.

Keywords:

Behavioural Economics , Neo-Schumpeterianism.

JEL Classification:

B52, D00, O1

On the Patterns of Behaviour In Digitalized Societies*

1. Introduction

Economic science differs remarkably compared to other disciplines, especially the natural sciences, in one respect. In its history it has worked out during the last two hundred years quite different concepts and theories to explain what's going on in a country or global region with respect to economic affairs. The most thoughtful and analytically brilliant approach is without question the classical or neoclassical one. Why is that so?

A major reason for its outstanding scientific reputation in the Western world might be seen in the ingenious idea to formulate and conceptualize the idea of "homo oeconomicus". Behind this notion stands the view of "rational man" relevant in all parts of a socio-economic system based on liberal markets. It allows a consequent application of profit, utility, welfare and efficiency maximization as agents' behaviour in the real, the financial and the public sector of an economy. As Paul Samuelson has shown all three sectors can be brought together in an ideal mathematical model and analysed rigidly with respect to an optimal welfare equilibrium solution (SAMUELSON, 1955). This was a magnificent scientific achievement.

Concerning the empirical verification of the Samuelson model, however, more and more critical voices came up in the last decades, for Instance in psychology, sociology, behaviourism and anthropology, which strictly deny and question the empirical relevance of the idea of "rational man" as the primary mode of individual behaviour. Evolutionary and Neo-Schumpeterian economics also claim that homo oeconomicus is an inadequate approach because it doesn't allow to include future oriented uncertainty considerations which are a condition sine-qua-non for innovation, change and progress, the basic elements of Schumpeterian thinking. Especially in modern, post-industrialized societies which heavily rely in their development on striking advancements in technology "homo oeconomicus" doesn't play any major role as an agent who is willing and capable to think future oriented and foster innovation and economic prosperity in the long run.

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The most important technological disruption which is on its way nowadays to change fundamentally our way of living and consuming, of producing goods and services and of politically acting is the digitalization of societies (BRYNJOLFSSON AND MCAFEE, 2014). But is this movement also influencing or even changing behavioural patterns of individuals or agents determining the socio-economic and the development of economies and societies? Is the concept of pure rationality still of utmost importance in a computerized and interconnected world or is it basically related to other types of behaviour.

Or, maybe, one can observe and must consider in a technologically super-developed world even a quite opposite phenomenon: Rational behaviour characterized by the “homo oeconomicus” isn’t losing but gaining importance when the computer, the internet and all the appliances of information and communication around these technologies are shaping the decisions and actions of economic or political agents in the three institutional pillars of an economy, the financial, the real and the public sector.

Having that in mind, this paper intends to give an answer to the following questions: Is the concept of “rational man” in the sense of neoclassical economics completely displaced in the modern digitalized world as so many disciplines of social science are stating? Or, is it perhaps more relevant for specific parts of the socio-economic system than it has been ever before?

We will structure our analysis by separately looking at the three main institutional pillars of a capitalistic market economy, at the financial sector first, then at the real sector followed by the public sector. At the end some concluding remarks will focus on the relationship between the three pillars trying to figure out whether there exists a stable or changing primacy of the one or the other in the co-evolutionary process of development. Are there elements to be observed which show a kind of “struggle for dominance” in the socio-economic system, induced and directed by the revolutionary processes of digitalization?

As empirical background for our discussion we preferably have in mind the US economy, because the United States are not only the highest developed region in the world with respect to technological progress and especially concerning digitalization. It is also the country where the neoclassical concept of a free market economy based on rational behaviour had dominated not only the thinking and feeling of academic economists but also the practical sphere of doing business.

2. Financial Sector

If one looks at the two most influential theoretical approaches in economics nowadays, the Neoclassical and the Neo-Schumpeterian one, there exist a number of diversities with respect to the

financial sector. The neoclassical approach developed over the years a well-established theory, the so called “efficiency theory” explaining the functioning of financial markets (FAMA, 1970). Based on economic rationality it shows that financial markets are always working in an efficient way by absorbing and employing all information they can get in an economy or on a global level, in order to produce outcomes which can give not only financial investors but also all the other agents in an economy a basis and a frame for rational decisions. In this way the financial sector works like a kind of “intelligence fabric”, serving not only its own demands for financial decisions but also the ones in the other pillars of the socio-economic system. In this way, financial markets are closely connected with other parts of an economy in the neoclassical style. They generate and offer a very important service, namely to observe and evaluate in a rational economic manner what’s going on in an economy and they give these information to all other agents involved in the macroeconomic decision process.

Concerning the financial pillar Neo-Schumpeterians until recently were not able to build up a comparable sophisticated theoretical apparatus in accordance with the main principle of their economic thinking namely innovation as the driving force of development in a capitalistic economic system (PEREZ, 2002). Briefly summarized, the current state of the art doesn’t differ essentially from what Schumpeter had in mind in his “Theory of Economic Development” (SCHUMPETER, 1912). The financial sector - especially banks and other financial agents - has to fulfil one big task, to provide in an unselfish manner the financial means for innovative activities needed in the other sectors of an economy especially the industrial one. There exists a kind of symbiotic relationship in particular between the financial and the real sector with the aim to generate innovations which will induce via “creative destruction” processes of structural change as well as economic progress and a future oriented increase of income and wealth.

Now, which kind of behavioural pattern is nowadays typical for the financial system, if we look at the US as the center of a globalized and digitalized financial world? We can state, that neither the Neoclassical nor the Neo-Schumpeterian notion is fully picturing the behavioural sphere of the real world of financial business. The Schumpeterian view has some importance in places like the Silicon Valley where venture capital plays an important role in financing and directing the processes of digital revolution. But venture capital as well as private equity funding only plays a minor role in the US economy if one takes into account the whole financial capacity of the US.

And, how is it with the Neoclassical approach? Digitalization and as a consequence also globalization created a shocking unexpected effect in the financial world. It fundamentally changed the co-evolutionary symbiosis between the financial and the real sector. The financial system doesn’t work anymore primarily as a provider of financial means and of information services for the other sectors of an economy as it did before. In the last three decades or so it developed into an autonomous

institutional corpus doing business in its own way by cutting down the traditional relationship to the real sector. This “own way”, sometimes called the “financialization” of the economic world (DAVIS AND KIM, 2015), is a very extreme strategy focussing mainly on trading with special financial products developed especially for debt-fuelled speculation. Bankers, in particular investment bankers, are considered to be cormorant persons which maximize the return of their financial trades without deliberating the industrial nor the public pillar (FOROZHAR, 2016). For decision-making a huge digitalized information apparatus and sophisticated mathematical and probabilistic models in the sense of game theory are used (SCHIRRMACHER, 2014). Isn't this the literal embodiment of a “homo oeconomicus” in its most horrible version which neither the founding fathers of Neoclassics nor the model builders of financial efficiency theory had in mind?

3. Real Sector

For the real sector two different behavioural features can be stated, one incorporated in so called “managerial shareholder capitalism” the other related to “entrepreneurial capitalism”. In today's economic world of the West, especially in the USA, the first one is dominating. It is characterized by maximizing profit and shareholder value and artificially reducing uncertainty and future orientation by short term decision making. Isn't this a behavioural pattern mostly identical to that of governing the “homo oeconomicus” in the neoclassical world?

“Entrepreneurial capitalism” in its ideal form is conceptualized in the “Schumpeterian entrepreneur” as the icon of a world driven by innovation, willing to face uncertainty and even accepting “creative ignorance” by fading out economic risks for the benefit of visionary goals. In this world the “homo creativus” is the dominating actor. It is a world of “makers” and a world of “smart and creative people”. If one looks for a place on the globe where these descriptions have turned into reality, it is the Silicon Valley with all its successful entrepreneurs, its start-ups and its visionary ideas and goals (SCHMIDT AND ROSENBERG, 2014).

The Silicon Valley is also the hub of the ongoing digital revolution. This technological disruption will not only transform the processes of production, the structures of product baskets of an economy but also its modes of communication, learning and solving problems. Maybe, it will also be a disruptive incubator for altering the behaviour pattern of firm management from “homo oeconomicus” to “homo creativus”. This will certainly be the case when ICT firms like Google, Apple, Microsoft or Amazon will enter the fields of traditional branches like the automobile (self-driving cars) or the machine producing sectors (Industry 4.0). These sectors are still characterized, in the US as well as in other industrial countries, by a hierarchically organized management aiming at short-term profit maximization in the neoclassical sense and less by a long-term vision oriented at a Schumpeterian style of management.

4. Public Sector

To talk about behavioural patterns in the public sector is much more complicated than in the two cases before. Because the state sector can contain a number of different roles associated with different behavioural designs, depending on the goals and aspirations of political agents. The public organs can show up as a “welfare maximizing” state having in mind a maximum of benefits for its residents by providing and distributing public goods and services. Or, it can display as an “entrepreneurial state” aiming to foster innovation and development by heavily investing into future oriented activities like education, science and research, health procurement or physical and intellectual infrastructure. Or, it can present itself as a “stability oriented state” intending for secure jobs and steady growth in an economy. A fourth option is the “social state” where distributive justice is the main goal of public activity.

The above four notions are closely connected with predominant theoretical concepts in economics and philosophy, the Neoclassical, the Neo-Schumpeterian and the Keynesian approach in economics and the “theory of justice” developed by Rawls in philosophy (RAWLS, 1971). In the following we will only focus on the first two concepts.

The actors in the public pillar, voters characterized as utility maximizers and politicians described as vote maximizers, are best pictured in neoclassical public finance based on welfare economics. That contains of a system of goods and services defined by the “exclusion principle” and the “principle of non-rivalness”. It distinguishes between “pure private goods” (exclusive and rival), “pure public goods” (non-exclusive and non-rival) and “mixed goods” (combination of exclusion and non-rivalness) (HANUSCH, 1972). Mixed goods, e.g. education, cultural services, health services or physical infrastructure can be supplied by the market or the public sector. Society has the option to choose between them. Both allocation mechanisms assume different individual behaviour in the context of mixed goods. In the market solution individuals reveal their preferences and pay for their demand. In the government solution individuals behave as “free riders” or have personal problems in calculating true values.

Concerning the supply of mixed goods there exist countries in the Western world which prefer the market solution, like the USA, and others like Europe which rely more on the state or government option.

Market as well as government currently experience severe problems in allocating mixed goods. Market has to cope with an extremely uneven personal distribution and rapidly growing costs. Government has to bear severe bureaucratic inefficiency and budget problems. The old solution to tackle problems in the sense of “more privatization versus more socialization” doesn’t work

effectively any more. Where are new institutional solutions to be found? Can the internet technology possibly provide them?

In institutional respect digitalization in the form of a hyper-connected internet 2.0 can be marked as a kind of “transforming technology” (KURZWEIL, 2010). On the one side, it has the power to demolish the exclusion principle by providing free and unlimited access to the supply of goods and services and to destroy the effects of rivalness or proprietary claims. In this way it has a huge potential for different communication and service platforms, which might be employed as a profound source for innovative institutional solutions in the future.

On the other side, the Internet 2.0 with its social platform technology has the power to personalize public goods by motivating and inducing individuals to participate in the process of producing and distributing (participatory network) and to transform the “essence of distribution” from “equality government solutions” or “proprietary market solutions” into that of “personal sharing” (Rifkin, 2014; Sundararajan, 2016). It can alter individuals and their personal behavior from “citizens” less interested in formal social and political affairs into “netizens” bringing in their personal skill potentials and capabilities into the provision of communal or social goods and services.

Furthermore, the Internet 2.0 is able to combine the “business principle” of profit orientation with the “collective principle” of social welfare orientation. The “business principle” can be applied to those parts of the production process where social platforms for participation are installed and collective processes of communication and decision building are coordinated or filled with content by private companies with social-minded interests. The “collective principle” is guaranteed by bringing in individual preferences and activities into a process of preference revealing collective decision building, for instance in form of game-theoretic experiments in the context of public goods (Fehr and Falk, 2002).

In addition, Internet 2.0 is able to stimulate creative processes by initiating and activating a process of value-cocreation on social or service platforms using the interactive processes for shared problem-solving and creating new ideas.

Furthermore the Internet 2.0 allows an intensive collaboration between individuals. It is relationship oriented and not principle based following a transactional or contractual connection. It can build up social ties and improve social values like trust, loyalty and satisfaction relevant for common goods and services.

Last but not least, the Internet 2.0 may engage people in the kind of reward-seeking and reward-generating behaviors not relying solely on concrete rewards in form of payments. It can do this by emphasizing non-monetary virtual rewards associated with engagement, status, reputation and recognition. This way it can help financing social goods without using the price principle (market

solution) or taxation (government solution). All in all the Internet 2.0 is relevant for societies which prefer the market solution in the context of mixed goods (e.g. Massive Open Online Courses in university education) as well as for countries where the bureaucratic public sector supply of mixed goods dominates by offering a high potential of options for social entrepreneurs and social innovations.

The Neo-Schumpeterian approach doesn't have a so detailed and sophisticated theory of the public sector as welfare economics is offering. Only recently the concept of the "entrepreneurial state" has come into discussion which induced a lot of interest in the academic as well as in the political sphere (MAZZUCATO, 2013). It shows that the governments in the Western capitalistic hemisphere are doing much more in promoting innovation and technological progress than it was generally assumed in the past. Concerning the USA recent studies show that in the Obama government a dramatic shift took place in the sphere of influencing politics, away from Wall Street and the financial sector towards Silicon Valley and the technology sector. Eric Schmidt for instance, the former CEO of Google, is today one of the most influential and powerful political advisors of US President Obama.

The use of terms like future orientation or innovation by the US Democratic Party already brought up the expression of "Innocrats" to characterize the growing political interest in innovation and the necessary ingredients to foster its advancement (FRANK, 2016). The political instruments in doing so focus to a large degree on creative and productive investments into the future. These are mainly those mixed public goods which Richard Musgrave termed as "merit goods" like education, science, research and development, health procurement and infrastructure (MUSGRAVE, 1959). The concept of "merit goods", however, is a very elitist one which doesn't fit self-propelling into the concept of individualistic welfare economics. So, the conclusion appears that the US government as well as the political authorities of other countries have changed their prime political attitude and behaviour strategy in recent years away from the principle of caring for all voters, i.e. "short-term voter maximization" to a "long-term future orientation" focusing primarily on well educated people and their interests. It thus has gained a more authoritarian or paternalistic "elitist touch" and lost its old democratic "social brush". In other words, it has become an "entrepreneurial state" in the Schumpeterian sense. Politics has realized that educated people are needed to create innovations and, in this way, that they are the motor for a country's future growth and prosperity.

5. Concluding Remarks

All in all, the behavioral effects of digitalization can be summarized briefly as follows:

In the financial pillar of an economy digitalization has modified the culture of doing business from "symbiotic capitalism" to "financial capitalism" with prevailing olympic rationality. That changed fundamentally the relationship between the financial and the real sphere of an economy. The

financial sector developed more and more into an autonomous economic body with its own rules and techniques of doing business. Parallel to this process, which happened globally in all countries of the Western world, the finance sector grew up in importance and is dominating until now the other pillars of the socio-economic system.

In the industrial sector ICT seems to induce changes in agents' behavior from short-term maximizing "managerial capitalism" to a long-term oriented "entrepreneurial capitalism" stressing future development. This means that the importance of "rational man", in the sense of neoclassical theory, is diminishing and the significance of "entrepreneurial thinking", in the tradition of Schumpeter's theory, is gaining importance.

In the public pillar digitalization may open ways to institutional change, at least partially, from a "bureaucratic tax state" to a system of "social or collective decision-making" with high potentials for enabling individual creativity and resilience capabilities. However, it also increases the likelihood of a severe change in the political attitude of Western governments, away from the democratic principle towards an elitist, paternalistic style of governing people, as it is the case in the USA already today. That means, the Schumpeterian notion of entrepreneurship and future orientation could substitute or evaporate the neoclassical principle of short-term rational maximization not only in the real but also in the public sector.

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