2019, WEA On-Line Conference

GOING DIGITAL:
WHAT IS THE FUTURE OF BUSINESS AND LABOUR?

Discussion Forum: 15th November – 9th December 2019

Artificial intelligence, big data, platform capitalism and public policy: An evolutionary perspective

Marc Jacquinet

The present paper aims to discuss the change in political economy when considering the new context and complexity of social, environmental and economic issues today, and more recently all the debates around artificial intelligence, big data and platform capitalism. First, it is important that the reflection be situated in the new and latest phase of transformation of the capitalist system, either globally or locally. Second, the convergence between artificial intelligence, big data, computer science and platforms is not fortuitous and there is more than buzzwords, but new real economic processes emerging. Third, the evolutionary perspective adopted here is based on complexity theory and the recent developments in the study of innovation, technological change and institutions, from a rather heterodox view mixed with economic history. Fourth, the historical dimension of change and the need to adopt a long view of historical processes, namely because of uncertainty, ignorance and constraints on economic agents. Finally, the problem of framing political issues and measures is tackled and is related to the level of complexity of what is at stake with the digital transformation of capitalist economies and different types of democratic societies.

Marc Jacquinet mjacquinet@uab.pt

Artificial intelligence, big data, platform capitalism and public policy: An evolutionary perspective

Abstract

The present paper aims to discuss the change in political economy when considering the new context and complexity of social, environmental and economic issues today, and more recently all the debates around artificial intelligence, big data and platform capitalism. First, it is important that the reflection be situated in the new and latest phase of transformation of the capitalist system, either globally or locally. Second, the convergence between artificial intelligence, big data, computer science and platforms is not fortuitous and there is more than buzzwords, but new real economic processes emerging. Third, the evolutionary perspective adopted here is based on complexity theory and the recent developments in the study of innovation, technological change and institutions, from a rather heterodox view mixed with economic history. Fourth, the historical dimension of change and the need to adopt a long view of historical processes, namely because of uncertainty, ignorance and constraints on economic agents. Finally, the problem of framing political issues and measures is tackled and is related to the level of complexity of what is at stake with the digital transformation of capitalist economies and different types of democratic societies.

Introduction

One central issue of artificial intelligence is its impact on employment, work and economic and social inequalities. Another issue is the development of big data infrastructure and analytics that impacts business life, work, as well as social and political life, and significantly so those of democracies. Both issues are connected to platform capitalism as being a new form of economic concentration. Both issues imply profound economic and social effects that call for a renewal of economic policy on new grounds.

In practice and in recent economic history, especially since the financial meltdown of 2007-2008, economic policy is focusing on debt management, i.e., on controlling the yearly deficit; and, accordingly, it comes down to deciding who pays what and who gets exempted. This is the policy of austerity (Blyth 2013).

Obviously public finance is important for economic policy, at least for financing the measures that are due to be implemented; but public finance is not everything, especially if we consider that the bailout of banks (private debt) was transformed into public debt without much debate and transparency with debatable arguments, such as too big to fail.

These policy measures in austerity programs - still in place today - are short sighted, focusing on the annual debates around deficits and either cuts or taxes. This policy without planning or strategy is highly contrasted with the behavior of public investment and economic policy of

countries such as China, or India. It is important to reflect on it because of the challenges ahead and the coming new configuration of international relations and conflicts, namely, but not exclusively, in terms of natural resources and the demographic structure of the world population. These two latter aspects have to be related to the transformation of the economic production center of industries and services around the world and enacted locally in variegated manners.

1. Capitalism as restless and unstable

Most of the history of the capitalist history is out of equilibrium and balance, swinging from periods of growth and crisis. The economic activity is an interweaving of cycles of different periodicity and time span. Technological change, innovation and clusters of investments all have something to do about it, but probably technological change is the one that has attracted the most attention in recent decades, especially when we move far beyond the neoclassical growth model and adopt some kind of more complex explanations like evolutionary and institutional economics.

Capitalism is restless, as Stan Metcalfe put it frequently (Metcalfe 1994, 2001; Maleberba 2013). Capitalism has always been rather unstable, going through periods of boms and busts, innovation and stagnation, creative destruction and creative creation, and accelerations and recessions. If the logic of debt is not much different in macroeconomic terms (Reinhart and Rogoff 2009), the institutions, norms and instruments and techniques - the latter through innovation - are different, creating a new system that goes beyond markets and prices. The processes of economic exchange are embedded in societies, values, culture and new institutions and artefacts. All these bring new phenomena that transform not just the relative prices of markets, but the very values and expectations of economic agents, with important impact on how the future is perceived and shaped.

The current evolution of capitalism is one of a new cycle of innovations that some have called the fourth industrial revolution based on the widespread use of knowledge through ICT, large databases, new generations of algorithms and platforms.

A central issue in the present paper is the importance of institutions in the shaping of the emergence of new technologies and technological systems and their impact on jobs, labor markets, social interactions and the functioning of solidarity and political systems.

The debate that interests us here is the impact of ICT, AI, big data, and the quantification of reality on jobs and the regulation of wealth generation, its distribution and accumulation. This is the new period for capitalism and democracy with new challenges and opportunities that go much beyond the rhetoric of meritocracy (Arrow, Bowles and Durlauf 2000; Kahn and Jerolmack 2013; Littler 2013; Nasir 2017).

2. The new phase of transformation of (digital) capitalism

The recent emergence and convergence of artificial intelligence (AI), big data, and platform capitalism sounds like a paradigmatic shift in business and social and political life. It sure

transforms the perception of agents, but it also change our reality and above all the dominant institutions and actors are shaping the new technologies to their advantage, leaving behind those less connected and with much less resources and capabilities to adapt to a change that is also imposed and not negotiated.

Machine learning, big data, widespread use of algorithms and artificial intelligence are converging on different scales with ICT to bring a profound change to productive systems and societies. These transformations imply that the way firms will be organized tomorrow will be different. There is a recent tendency to continue to mount pressure on labor as a factor of production and on trade unions as negotiating entities to accommodate most of the cost to adapt to change.

The problem is that the costs of transformation and the necessity of change are institution-based. They are structured around institutions such as political parties, political systems, judiciary, legal norms, management culture (including managerialism) and the shape the norms of the agents of today and tomorrow. This is in this vein that we can understand the growth of the gig economy, the short term labor contracts and the expansion of the precariat. It is not fatally inscribed in the technology but rather it is shaped by knowledge (Antonelli 2019), institutions and power. The powerful interests of capitalists and ruling elites are shaping the current law, minimizing the impact of such agents like workers, families, trade unions and local communities.

With the co-evolution of, on the one hand, the gig economy, precariat and short-term labor contracts and, on the other hand, the new technologies, we assist on a profound transformation of the economy, how work is organized and how incomes and wealth are distributed as well how welfare systems are structured, with access being hierarchized. So the benefits and costs of the adjustments are not evenly distributed.

All-in-all, this brings us to conceive policy in terms of complexity, integrating aspects of uncertainty and ignorance (Loasby 1976, 1999), with aspects of hierarchical relations between structures and agents and with an arrow of time (Allen 2013).

3. The evolutionary perspective on economic policy

The evolutionary perspective is on the one hand based on universal Darwinism as developed by Hodgson (2009; 2012; 2015) and on the other hand on complexity theory and the notion of complexity as defined here. We have not time here to discuss evolutionary theory and universal Darwinism, but we refer to the literature cited in the reference. It is more crucial here to refer to the problem of historical time or time arrow and the notion of complexity, especially because it relates to systems and components, aspects very relevant for policy discussion. Complexity, in the first place, is not completeness. There are still so many areas that are unknown and may be unknowable. The second point is that the central principle in the figure is complexity, nurtured partially by ignorance and uncertainty of human action and decision and vagueness of human and socio-economic phenomena whose limits are not as clear-cut as in the natural world. Third, there is a recursiveness or recursivity of and within the whole and, in particular, of the interactions between the elements. Causality is not viewed as a one-way direction only like it is found in Newtonian physics and its legacy in the positivist building of the social sciences,

including economics, during the nineteenth and twentieth centuries. Causality is more complex, closer to what Bernard and Darwin had come to design in their own research (Cziko 2000).

To put it bluntly, institutions are at the center stage of this evolutionary perspective on economic and public policies. It is not limited to economic policy, as construed in mainstream economics, but it is also including public policies as it is discussed in political economy (beyond economics) and political science. Institutions are complex entities that are based on rules (Hodgson 2006 and 2015) and hierarchies.

One important additional aspect to mention is the limited conclusions that evolutionary analysis can give to decision makers. It is more modest, less based on cost-benefit analysis and much more on viewing the issues in terms of wicked systems and complex systems. This means that is harder to make predictions but more rewarding in terms of understanding the interrelatedness of the world and the issues at stake such as climate change, social inequality, and economic transformation and political turmoil.

Admittedly, one illustration of the evolutionary transformation is the limited usefulness of cost-benefit analysis in economic policy. Traditionally, the cost-benefit analysis was associated to the rational decision-making process in public policy as the elicitation of public preferences or the interpretation by politicians of what could be the preferences of the majority of their constituencies. This model based on chimeric preferences was not successful in terms of impact and in terms of what people expected of public policies, with one exception, the effort to contain public expenditure within some acceptable boundaries by the political elites. At least two strong limitations have to be highlighted. First, by defining any social problem as translatable into money, it started to reveal itself as another problem for public policy and democracy. Second, the cost-benefit analysis is too static and does not take into account problems of ignorance, strategic reactions of agents and problems of uncertainty, when compounded year after year, yielded huge problems, financial and otherwise (Loasby 1976, 1999).

4. The historical dimension of public policy

In the economics of innovation and technological change, history matters (David 2007; Freeman 1994; Freeman and Louçã 2001; Mokyr 1999 and 2002; and Nelson and Winter 1982; Nelson 2008) and this is often recognized through the concept of path dependence or in physics and Post-Keynesian economics by the concept of hysteresis. Both are outside the realm of equilibrium analysis. Historical processes are stochastic, rather correlated than not, path-dependent, uncertain and the agents have a rather wide room for manoeuver. Historical dimension could be characterized by the uncertainty of human agents, its non-deterministic evolution.

Historical processes are better described by an evolutionary approach and the lessons from history can inspire decision-making processes in policy building and implementation in a limited and modest way. Complex historical problems in the long-term have to combine different approaches in order to tackle the intertwined issues that are our current legacy, namely with the rise of artificial intelligence and big data. In these matters history can help go beyond the fears of the adoptions of new technologies, namely on jobs.

It is feasible to design institutions related to the control and promotion of artificial intelligence and big data in such a moment of deep transformations (Yeung 2018). The new technologies can be not just limited but also constrained in order to attain such social and political goals that are relevant for individuals and communities and important for representative democracy to thrive. First, mechanism can oblige platforms and other capitalist firms and shareholders to support the most part of the costs for workers to adapt to change (and more often than not that means to lose one's job). This is not limited to training but includes also designing political programs that carry out the very transition for the people affected. A simple comparison of the situation of displaced or laid off in American capitalism and in countries like Japan, Germany and other European countries, where, in the latter cases, workers are following programs to get back to work, while costs are shared more equitably between firms and labor. Second, big firms like GAFA can be either divided or fragmented, or limited in scope, or obliged to meet market standards (competition). Third, the regulation and legal environment can also organize the labor market on other terms, more inclined to respect the dignity of workers and their families.

Concretely, and taking into account the history of technological change, we can imagine the case for imposing stronger privacy protections on the internet and the business models of digital platforms. Business models might also be constrained in such a way that platform and internet access providers have to respect a strong version of net neutrality and respect for privacy. This is can be extended to OECD countries and much of Latin America, but not China and other authoritarian countries where the concepts of privacy and the rule of law do not have widespread currency and are counter to the immediate interests of the ruling classes. A current example could be the open banking initiative in the UK.

5. The framing effect

In negotiation analysis, it is well-known the right or wrong framing of an issue that needs agreement can den up into success or deadlock; so it is in public policy matters. The way we frame problems are part of what has to be overcome in order to (1) diagnose the issue at hand, (2) propose measures, (3) implement them, (4) control their execution, and (5) proceed to adjustments if needed or considered convenient.

Framing in economic policy, as already referred to above, is best illustrated with the example of cost-benefit analysis. Take for example pollution and rights to pollute. Up to a certain level, firms can pollute, buying the rights to do so. This allows an unpromising behavior to settle in an age of environmental crisis and climate change.

A way to get beyond cost-benefit analysis could integrate the rethinking of the tools we use, and think in terms of institutions (Hodgson 2005, McGinnis 2011), regulation (Prosser 2006), and historical change (Bloch and Metcalfe 2015; Garrouste and Ioannides 2001; Hodgson 2000, 2002, 2007; Nelson 2008). Accordingly, the framing of the issues and policies can result in different measures and outcomes, in some way more modest, but also closer to reality and the changing environment we all live in.

6. Conclusion: The need for articulating time and space - the need for regional policy

By way of conclusion, it is critical to articulate institutions and respond to challenges both at the global and at the local level, and even at the micro levels of communities and groups. Accordingly, what was known as regional science is central to articulate a policy framework for the future, especially when considering the use of big data, artificial intelligence and the deepening of the ICT revolution at work and at home. The current technological change has the potential to transform issues of wealth and distribution, work, private life and democracies.

Local issues have to be "uploaded" into the framework of national or global policy-making.

Regional policy could be better integrated into economic policy, namely for facilitating the co-evolution of local institutions with national and global ones in order to further not just economic progress, but social and political transformation towards better life, distribution of means and the ability to reach meaningful lives.

References

Allen, Peter (2013) Complexity, uncertainty and innovation, *Economics of Innovation and New Technology*, 22:7, 702-725, DOI: 10.1080/10438599.2013.795776

Antonelli, Cristiano (2019). *The Knowledge Growth Regime: A Schumpeterian Approach*. London: Palgrave

Arrow, Kenneth Joseph, Bowles, Samuel, and Durlauf, Steven N., eds. (2000) *Meritocracy and Economic Inequality*. Princeton, NJ: Princeton University Press.

Bloch, H., & Metcalfe, S. (2015). Restless Knowledge, Capabilities and the Nature of the Mega-Firm. In A. Pyka & J. Foster (Eds.), The Evolution of Economic and Innovation Systems (pp. 431-453). Cham: Springer International Publishing.

Blyth, Mark (2013). *Austerity: The History of a Dangerous Idea*, Oxford: Oxford University Press.

Cziko, G., (2000). *Without miracles: Universal selection theory and the second darwinian revolution*. Cambridge, Mass: MIT Press.

David, P. A. (2007). "Path dependence: a foundational concept for historical social science". *Cliometrica*, 1(2), 91-114. doi:10.1007/s11698-006-0005-x

Freeman, C. (1994). "The Economics of Technical Change". *Cambridge Journal of Economics*, 18, 463-515.

Freeman, C., & Louçã, F. (2001). *As Time Goes By: From the Industrial Revolutions to the Information Revolution*. Oxford: Oxford University Press.

Garrouste, P., Ioannides, S., (2001). *Evolution and Path Dependence in Economic Ideas: Past and Present,* Cheltenham: Edward Elgar Publishing

Hodgson, G. M. (2000). What is the essence of institutional economics? Journal of economic issues, 34(2), 317-329.

Hodgson, G. M. (2002). Economics and Utopia: Why the learning economy is not the end of history. Routledge.

Hodgson, G. M. (2006). What are institutions? Journal of Economic Issues, 40(1), 1-25.

Hodgson, G. M. (2007). An institutional and evolutionary perspective on health economics. Cambridge Journal of Economics, 32(2), 235–256. doi:10.1093/cje/bem033

Hodgson, G. M. (2009). Agency, Institutions, and Darwinism in Evolutionary Economic Geography. Economic Geography, 85(2), 167-173. doi:10.1111/j.1944-8287.2009.01020.x

Hodgson, G. M. (2012). *From pleasure machines to moral communities: an evolutionary economics without homo economicus*. Chicago: University of Chicago Press.

Hodgson, G. M. (2015). On defining institutions: rules versus equilibria. Journal of Institutional Economics, 11(3), 497-505.

Khan, Shamus & Colin Jerolmack (2013) Saying Meritocracy and Doing Privilege, The Sociological Quarterly, 54:1, 9-19, DOI: 10.1111/tsq.12008

Littler, J. (2013). Meritocracy as Plutocracy: The Marketising of "Equality" Under Neoliberalism. New Formations, 80(80), 52–72. doi:10.3898/newf.80/81.03.2013

Loasby, B. (1976). *Choice, Complexity and Ignorance: An Inquiry into Economic Theory and The Practice of Decision-making*. Cambridge: Cambridge University Press.

Loasby, B. (1999). *Knowledge, Institutions and Evolution in Economics*. London: Routledge.

McGinnis, M. D. (2011), An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework. Policy Studies Journal, 39: 169-183. doi: 10.1111/j.1541-0072.2010.00401.x

Malerba, Franco (2013) A tribute to Stan Metcalfe and his contributions to evolutionary theory, Schumpeterian dynamics and innovation systems, Economics of Innovation and New Technology, 22:7, 623-630, DOI: 10.1080/10438599.2013.795783

Metcalfe, J. S. (1994). Evolutionary Economics and Technology Policy. The Economic Journal, 104(425), 931-944. Retrieved from http://www.jstor.org/stable/2234988. doi: 10.2307/2234988

Metcalfe, J. S. (2001). Institutions and Progress. Industrial and Corporate Change, 10(3), 561–586. doi:10.1093/icc/10.3.561

Mokyr, J. (1999). Paths of Innovation: Technological Change in Twentieth-Century America. The Journal of Economic History, 59(1), 240.

Mokyr, J. (2002). *The Gifts of Athena: Historical origins of the knowledge economy*. Princeton & Oxford: Princeton University Press.

Nelson, R. R. (2008). Economic Development from the Perspective of Evolutionary Economic Theory. *Oxford Development Studies*, 36(1), 9 - 21.

Nelson, R., & Winter, S. (1982). *An Evolutionary Theory of Economic Change*. Cambridge MA: Harvard University Press.

Nasir, K. M. (2017). Meritocracy. The Wiley-Blackwell Encyclopedia of Social Theory, 1–2. doi:10.1002/9781118430873.est0704

Prosser, T. (2006). Regulation and Social Solidarity. Journal of Law and Society, 33(3), 364-387. Retrieved from http://www.jstor.org/stable/3838855.

Reinhart, C. M., & Rogoff, K. (2009). *This Time is Different: Eight Centuries of Financial Folly*. Princeton: Princeton University Press.

Witt, U. (2016). "Economic policy making in evolutionary perspective". In Ulrich Witt, Rethinking Economic Evolution. Cheltenham, UK: Edward Elgar Publishing. doi: https://doi.org/10.4337/9781785365072.00022

Yeung, K. (2018), Algorithmic regulation: A critical interrogation. Regulation & Governance, 12: 505-523. doi:10.1111/rego.12158