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EPISODE OR HYSTERESIS? SOME THEORETICAL AND POLICY LESSONS FROM THE CRISIS OF 2008

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The post-2008 crisis seems to have come to an end in most countries, but its long-term impacts are increasingly felt by most players of the world economy. Certain economic problems were aggravated, others created by the crisis that seems to have generated significant structural and behavioral changes in most national economies and their international relations. These lasting changes are listed, and new directions for research suggested in the present paper, using an approach combining the human, the financial and the growth dimensions.

Keywords: financial crisis, growth, fiscal policy, inequalities, bounded rationality, financial integration, trade policy

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"There is a demand today for men who can
make appear wrong for right."
Terence (Terentius), Roman playwright from
the 2nd century BC

The 2008 economic crisis left a lasting memory. Even 10 years later, economists try to understand two or three things regarding the long-term impacts of the crisis. First, the extent to which economic thinking and the relationships between economics and economic policy have changed, or ought to have changed. Second, the institutional conditions for successful economic policy may not be the same any more. Furthermore, the relevance of traditional priorities of economic policy, such as striving for low inflation or full employment may also have been reduced or, at least, relativised. Economics is likely but not yet completely able to assess those fields of the profession in which 2008–2009 appear only as an episode without lasting consequences, and those where symptoms of hysteresis have to be diagnosed and, if possible at all, cured.

One of the Webster definitions of hysteresis sounds as follows: "the retardation of an effect when the forces acting upon a body are changed" (http://www.merriam-webster.com). This is the definition describing hysteresis in physics, conveying its most essential elements, and strongly relevant also for economics.

A certain crisis in economics was sensed in the profession already at the wake of the crisis (e.g. Csaba 2009). This kind of warning had, however, an outspoken methodological character at the outset (a certain revival of the old term *Methodenstreit*, see e. g. in Louzek 2011). Csaba and other authors (Fine – Milonakis 2009; Klaes 2012; Kurtakko 2014; Heise 2017) were concerned about the growing dominance of quantitative approach and thinking in economics as opposed to a more balanced approach including qualitative elements. The economic counterpart of "vulgar mathematics", where mathematical symbols without any potential data content were applied, was also commented (Török – Nagy 2014).

The focus of "Methodenstreit" has, however, changed since 2010. The key question seems to be not the *quantitative vs. qualitative* relationship any more, but rather the role of economics in understanding the 2008 crisis and its implications. In addition to this, it is expected to be clarified how crises of such depth could be prevented using more sophisticated economics[1]. It may well be the case that purely quantitative models such as Dynamic Stochastic General Equilibrium (DSGE) will have to be substantially developed or perhaps replaced by ones

[1] The task is daunting: Paul Samuelson once lampooned stock markets for predicting nine recessions in a time period when actually only five took place (Samuelson 1966). The 2007–2008 financial crisis was not predicted by the stock markets.

with an outspoken behavioural character (Farmer 2014; Korinek 2015; DeLong 2016; Keen 2016; Kocherlakota 2016; Krugman 2016; Romer 2016; Smith 2016; Wren-Lewis 2016). A Keynesian approach to developing economic theory based on the lessons from the crisis was presented by Farmer (2014) as one of the rare attempts at renewing Keynesian economics in a changed international economic environment.

This essay cannot even try to offer solutions to such complex problems. It might attempt, however, to list the acutest challenges faced by economics in an international environment, where financial crisis is not completely over, and a string of changes with potentially far-reaching implications have been identified by movers and shakers in economics (Stiglitz, Krugman, Blanchard, Thaler, Piketty, to name but a few). This essay is, in part, about *research that did not take place but would be strongly needed by the profession*.

1. OPEN PROBLEMS

An old example from mathematics comes to the mind. At the World Congress on Mathematics in Paris (1900) the famous German mathematician David Hilbert presented a list of 23 mathematical problems awaiting solution. A significant part of his research program materialised in the appearance of new fields of mathematics research (Devlin 2000).

Our ambition is much more limited: in the following, we try to identify some of those problems in economic research, solutions of which might be crucial for fighting income and wealth inequalities more successfully while putting the world economy on a much more dynamic and financially sounder growth path.

Our tentative list of problems cannot be a coherent one. It includes century-old issues coming back to the fore after 2008–2009, and old economic dogmas challenged by the crisis or its consequences. There are also such conjectures on the list which were produced by the recession but have not been subject to really in-depth theoretical scrutiny.

Our focus is the problems themselves. This is why we prefer questions to answers here, although all questions posed are commented to some extent. Our list of problems is partitioned among three dimensions of economic policy or science: the human, the financial and the growth dimensions.

1.1. The human dimension

Growing inequalities in income and wealth: A significant part of Western social science showed certain reluctance after WWII to deal with the topics potentially smelling of Marxism. To be fair, most industrial societies did not show dramatic symptoms of social inequalities until the early 2000s, and thus emphasis was on growth rather than on the fairness of wealth distribution. Whenever the issue of fairness was prudently raised, a theoretically justified question on the definition of fairness came back disguised in response. This reaction was, in many cases, sufficient to block the debate.

Thomas Piketty attained world fame when insisting on asking this question post-2008 (Piketty 2014), he developed his theory on the inherent trend of modern capitalism towards an ever increasing concentration of income and wealth, and this also in the so-called welfare states.

Piketty's research was carred out by an international team of researchers (Piketty et al. 2018). Here are some impressive data from this report: between 1980 and 2015, the relative share of the highest 1 per cent income category in the national income of the United States increased from 11 per cent to 20 per cent, while the percentage share of the lower 50 per cent group decreased from 21 to 11 per cent. The same trends in Western Europe were up from 10 to 12 per cent and down from 24 to 22 per cent. The growing income inequalities indicated by these data are further aggravated by the relative worsening of access to higher quality healthcare and education for the poorer parts of the population as also shown by the report.

The diagnosis is given, but literature is still in debt regarding both socially and economically optimal solutions. Piketty's book suggests fiscal solutions in the first place: a higher taxation of income (primordially capital income) and wealth (including all kinds of financial assets besides real estate), but the shortcomings of such proposals are widely known to exist. To name just one, the impact of socially focused taxation schemes on economic growth is not adequately known yet, including the size of capital flight potentially generated by such tax policy.

Piketty and his co-authors were sometimes criticised not for the quality of their arguments, but their alleged sympathy with Marxism (e.g. Harvey 2014; Jacoby 2014; Lordon 2015). It seems important to note at this point that the normative part of their research is far from Marxism: it proposes the fiscal instead of the political/revolutionary solution.

Rational behaviour in the world of finance: "The intellectual impact of the crisis just seems far more muted than the scale of the crisis might have led one to ex-

pect" (Krugman 2018: 157). The failure of prediction, according to Krugman, was less attributed to the models than to the problems of data collection. Moreover, he and Ricardo Reis (Krugman 2018; Reis 2018) seem to share the conviction that macroeconomics ignore financial factors. Stiglitz goes considerably further: most regulatory attention was focused on preventing the financial sector to do harm to the rest of the society, but the problems of too-big-to-fail, too-interconnected-to-fail and too-correlated-to-fail banks were not solved (Stiglitz 2017). Neither the researchers nor the regulators have addressed the underlying problems in corporate governance and the legal system that both are unable to hold accountable those responsible for the crisis.

Stiglitz indicated a crucial new direction for research when pinpointing "naïve beliefs in securitization and capital markets" that ignore the problems of moral hazard generated by these beliefs. He also made an indirect reference to information asymmetry weakening the effectiveness of macro-financial regulation. This argument might be developed towards a potential integration of the theory of financial regulation with behavioural economics.

The mainstream of behavioural economics (Kahneman – Tversky 1981; Thaler – Sunstein 2008; Kahneman 2011 and Chang – Ghisellini 2018) has focused on patterns of and constraints on microeconomic behaviour, and to mention but a few, "framing" or "nudge". In any event, these models dealt primarily with such actors of the economy who take decisions merely concerning their own welfare. Behavioural economics has been only modestly extended towards similar problems of regulatory behaviour, or behaviour in corporate governance, that is fully or partly collective decisions. New Political Economy seems to be the field where promising attempts at linking behavioural and institutional factors of policymaking have appeared (Eggertsson 1990; Dequech 2006; Branch 2014).

In the literature briefly surveyed above, failures in macro-financial regulation are attributed mainly to some weaknesses in rules, namely of financial regulation and corporate governance. We believe these problems really exist, but they were largely aggravated by behavioural factors linked to as yet not entirely known problems of collective regulatory behaviour.

Transition of the labour market: The years since 2008 have brought about a sea of change in labour markets, at least in most industrial economies. The century old problem of unemployment was partly transformed into the opposite kind of labour market disequilibrium, namely shortage of labour, both skilled and unskilled (Capelli 2014; Reymen 2015; Liu et al. 2017). This trend was markedly present in the European Union where a 10 million decrease in the number of employees (age group 15 to 39 years) entailed a significant dwindling of the supply side of the labour market between 2006 and 2016 (Artner 2017a).

The reasons of the weakening of the supply side of the labour market have been well charted by labour economics literature (e.g. Krause – Sawhill 2017). The main reasons have appeared, of course, in different proportions in several industrial countries. They include, for example, the progression of aging along with the improvement of life expectancy and the decrease of activity rates in a string of welfare societies[2], the growing reluctance of incoming cohorts to accept low-paid, unskilled jobs, and the overcoming of some regional barriers to mobility owing to the fast growth of demand for distance work.

The increasing tendency of average commuting distance and time (Sandow – Westin 2010) between the working and living place is desirable for the labour market because it provides solutions to decrease the unemployment rate and the mismatch between regional patterns of labour supply and demand. Many employees prefer commuting instead of migration due to improvements in infrastructure and the availability of faster travel modes (Haas – Osland 2014).

The problem of increasing labour shortage has not appeared to the same extent in a string of countries, mainly in the developing world, where the rates of demographic reproduction have improved in recent decades due to better healthcare and decreasing infant mortality[3]. Interestingly, such improvements could also be registered in some industrial economies (e.g. France), where the average age of the population is relatively low due to several waves of massive immigration after WWII.

Europe seems to be a future beneficiary of inflows of labour from Africa and the Middle East. This is, however, not a question of numbers of incoming manpower only. Scarcely available data show that average professional and social skill levels of immigrants coming from India or the Far East are significantly higher than those from the Southern Rim of the Mediterranean who form the vast majority of immigration into Europe. Very active training and social policies would be needed in order to make Europe a safe haven for incoming immigrants while preventing a potentially dramatic increase of reluctance of European populations towards them.

Shortage of skilled labour is also a major problem in such developing countries (e. g. Nigeria, India, Brazil) where the fast growing supply of manpower is not matched by an educational system of adequate size and quality.

[2] Activity rates diminished in Denmark, Ireland and Norway between 2008 and 2017. The decrease was 2-3 per cent between 2008 and 2017. In the US (FRED 2018), activity rates also changed in the negative direction, from 70.7 per cent in 2008 to 67.5 per cent in 2017.

[3] Infant mortality decreased the most in the Maldives between 2000 and 2016, where the rate became one tenth of the value in 2000. African countries (Central African Republic, Sierra Leone, Somalia, Chad, Lesotho, Congo, Mali, Nigeria, Equatorial Guinea and Ivory Coast) had the 10 highest infant mortality rates in 2017 (The World Bank 2018a).

An obvious policy option towards easing the tensions on the supply side of the labour market seems to be a massive increase in both government and private financing of lower and higher education. This is, however, far from being an obvious solution to the problem due to the difficulty in measurement of returns on investment in culture and education massively highlighted by research. Measuring just the quantity of output could be very misleading in immaterial sectors[4], and there is ample literature on the serious methodological problems in the ranking of universities (Pollard et al. 2013; Marginson 2013; Hazelkorn 2015; Daraio – Bonaccorsi 2017; Johnes 2018). There are currently more than 6 frequently cited international university ranking lists, but none of these has been able to gain a leading position based on a widely accepted methodological dominance.

1.2. Fiscal sustainability and banking

Sustainability and de facto *versus* de jure *bankruptcy:* Before the crisis of 2007–2008, solvency or bankruptcy of countries could be clearly distinguished. Solvency meant at least a short-term sustainability of government finances and public debt (both at the national and the international level) along with an ability to fulfil the country's current obligations of payment on time.

Bankruptcy meant two things: 1. the inability of the country to meet its debt reimbursement and other payment obligations on schedule; and 2. an official declaration of the above by the country's government. In case both conditions were met, the country had a more than difficult access to new credits from abroad, except if consolidation programs were assembled by international organizations, for example the IMF.

Literature produced just on the wake of the crisis (e.g. Reinhardt – Rogoff 2010) tried to introduce quantitative indicators of the long-term sustainability of public debt. One of these was the debt ratio (public debt/GDP), with consensus that a debt ratio above 100 per cent is critical for debt sustainability. Another widely used measure has been Credit Default Swap (CDS), an indicator of the probability of state bankruptcy within the next five years.[5]

Such quantitative approaches to debt sustainability lost some of their relevance when it turned out that a third status between *de facto* and *de jure* bankruptcy also

[4] Cf. the "string quartet paradox" by William Baumol (2001).

[5] The mean value of CDS in Germany was 54.8 base points between April 2009 and July 2012. Portugal's average CDS level was nine times and Ireland's eight times more than the German mean value. Greece had one of the highest average CDS levels among the EU members (3792.8) (González-Hermosillo – Johnson 2014).

exists. In other words, the binary understanding of bankruptcy versus solvency has become a thing of the past (Reinhart – Rogoff 2010; Pescatori et al. 2014; Chudlik et al. 2015; Ostry et al. 2015; Guzman et al. 2016; Schadler 2016). The case of Greece is a good example for the third state.

Greece's debt ratio was 178.6 per cent in 2017 (mean of the EU28 was 81.6 per cent), a record level within the EU (Eurostat 2018). The country has been in a *de facto* state of bankruptcy since 2009, but it is not bankrupt in a legal sense because it has not declared bankruptcy any time in the 21st century[6]. Technical bankruptcy means a country's inability to meet its debt reimbursement obligations, but it becomes bankruptcy *stricto sensu* only if this is an officially recognised fact and foreign creditors behave accordingly. The Greek case is between the two alternatives. The state is unable to pay by itself, but it is continuously bailed out by the countries of the Eurozone. This strange situation raises the issue of "*fiscal sovereignty*", already discussed in literature to some extent (Rodden 2004; Dietsch 2011). "Fiscal sovereignty" means, in our approach, a situation in which a heavily indebted, technically bankrupt country has completely maintained its sovereignty in terms of international law, but its fiscal policy is determined by its creditors (international organizations or countries). It is an interesting topic for interdisciplinary legal/economics research to what extent may this constraint on fiscal sovereignty affect political sovereignty.

Instability of the banking sector: The economic profession's knowledge of the banking sector in general, and more specifically of European banking has largely benefitted from post-2008 developments. In a simplified approach, prior to 2008 banks in most European countries were imagined to functioning as sausage filling machines: meat (deposits and reimbursements) went in and sausage (credits) came out; and the two quantities were linked to each other in a close to linear model. This model was maintained by collaterals among other things, more specifically by the usually stable value of collaterals. The latter consisted mainly of real estate and enterprise assets, with stability expected from real estate in the first place.

European banks' and clients' attitudes seemed to ignore former American experience – the Savings and Loans crisis from the early 90s (Federal Deposit Insurance Corporation 1997), of the obnoxious impacts of bubbles on real estate markets. Rising real estate prices, mainly in Spain, Portugal and the Republic of

[6] NB: Greece has been bankrupt for more than half of its last 200-year history as an independent state (Reinhart – Trebesch 2015). Still, its sovereignty was not challenged by any of these bankruptcies and the state survived all of them.

Ireland (Hilbers et al. 2008), generated a fast inflating demand for housing credits is also fuelled by a low interest rate environment. The double turn of events including the collapse of real estate prices and the sharp rise in interest rates had neither been expected nor predicted and came therefore less as a shock than as a tsunami.

The ensuing drama including a sequence of smaller tragedies can best be visualized with the case of the Irish economy (Conefrey – FitzGerald 2010; Lane 2011; Williams – Nedovic-Budic 2016). The Irish real estate boom was generously financed by the country's banking sector, but the crisis of 2007–2008 brought about an almost simultaneous increase in interest rates and a dwindling of real estate prices.

Low interest rates, favourable credit conditions, impressive economic growth, immigration and tax incentives from the government fuelled the threefold increase of Irish house prices between 1996 and 2006. In many cases, the market value of a piece of real estate dropped significantly below its owner's debt exposure. In case the owner declared himself/herself insolvent and rendered the collateral (the apartment) to the bank, the latter found itself with a piece of quasi worthless real estate plus an amount of irrecoverable credit linked to it. Irish real estate prices started to increase strongly again after 2013 as a result of resilient demand and the shortage of supply (Delmendo 2017; Lyons 2018) – i.e. after seven years!

The accumulation of such cases brought a string of Irish banks close to insolvency. The Irish government faced two, similarly and extremely unpromising policy choices in 2008-2009, originating from the trade-off between banking debt and government debt:

1. Letting several commercial banks active on the Irish market go bankrupt with the ensuing massive loss of private and corporate savings and a lasting crisis of confidence in the country's financial system. Since Ireland was already a member of the Eurozone, this loss of confidence could have unpredictable implications for the entire European economy including a "one-notch downgrade of sovereign bonds in Greece, Ireland and Portugal", in addition to the already persisting Greek problem. "The estimated spill-over effect from Greece and the impulse response functions points to severe contagion risk hitting particularly Ireland, Portugal, Italy, Spain, Belgium and France" (De Santis 2012).

2. Preventing the above by massive government intervention. This option materialized at the end of the day and at the other side of the trade-off. The government offered a helping hand to the banks with a rescue program including the takeover of part of their debt and granting subsidized credits to them in order to restore their liquidity. The bill of this rescue action was enormous: the debt to GDP ratio increased from 42.4 per cent (2008) to 119.6 per cent (2012) (Eurostat

2018), transferring Ireland quickly from the group of best to that of the worst debtors within the EU.

The Irish case of basically uncontrolled explosion of bank and consequently government debt raised concerns about the reliability and effectiveness of traditional European systems of banking regulation. Several pieces of literature (Acharya – Steffen 2013; Klomp – de Haan 2015; Lee – Lu 2015; Hoque et al. 2015; Beck et al. 2017; Rey 2018) argued that in-depth regulatory reform in order to constrain banks in financing "bubbles" (e. g. on the housing market) would be inevitable to prevent similar crises in the future. While more accurate regulation could certainly have a major role in preventing threats of collapse of the banking system, it would be exaggerated to say that bank instability is first and foremost a regulatory problem.

Regulation could play an eminent role in preventing banking crises if it could actively intervene in credit supply in cases of incipient formation of bubbles. That is, regulation would be able to constrain credit supply when an abrupt shrinking in the value of collaterals, mainly tangible assets is observed. Such intervention might be considered useful in order to prevent banking crises of the Irish kind, but the question of its toolkit remains open.

A likely flaw in the above argument is that neither interest rate policy nor administrative barriers to increasing credit supply could prevent the creation of market bubbles without causing major harm to the financial system of the country (Brzoza-Brzezina et al. 2014; Mian – Sufi 2015; Brunnermeier – Schnabel 2015). Raising interest rates within the country would be impossible if it is a member of the Eurozone, therefore such options are excluded for most heavily indebted EU countries. In other countries, a rise in interest rate would unnecessarily tighten credit supply in sectors other than housing, thus harming economic growth in times when most industrial countries seem to suffer from its low rate.

Challenges to the euro: The conversion of bank debt into government debt occurred in several Mediterranean member countries as well, generating significant instability also there.

Certain pieces of literature (Eichengreen 2010; Kuenzel – Ruscher 2013; Aizenman 2014 and Koyoma 2016) interpreted the Eurozone's development and expansion (these terms are not at all used here as synonyms) as an incomplete realization of the several decades old model of optimum currency areas.

Already in its initial forms (Mundell 1961; McKinnon 1963; Kenen 1969; Kunroo 2016), the model went beyond the introduction of a single currency, and suggested in-depth co-ordination of economic and fiscal policies. Common fiscal policy governance was also referred to as a long-term option, and theoretical

literature on the optimum currency areas was, to a certain extent, biased towards supporting this idea[7].

An old issue repeatedly rose as an alternative to, or a replacement of effective single governance of fiscal policy was not fully settled when the Eurozone was enacted. The rule of "no-bailout" was officially adopted, but it was dropped in 2010, just when it could have had undergone its first practical test in the Greek crisis.

As a result, the Eurozone exists, at least in one respect, in a stumped form in 2018: a common fiscal policy governance scheme which is at least potentially capable of forestalling debt crises in the member countries is not in place, but its alternative ("no-bailout") is missing from the system as well. This situation may be understood as a further version of the "Schrödinger's cat" problem (temporary inapplicability of binary logic) in economics, discussed in regard of Brexit (Török 2016).

As a "second-best" solution, the ongoing common financing of Greece was chosen along with partly informal political pressure on indebted member countries of the Eurozone in order to significantly improve their fiscal policy discipline. The target countries of this initiative included Italy, France, Spain and Portugal in the first place, whereas the Republic of Ireland seems to have become the best pupil in class with its self-imposed reform of fiscal policy (Avellaneda – Hardiman 2010; de Vries 2015; Eichengreen – Wyplosz 2016).

The Eurozone's attractiveness has diminished since the crisis of 2008. The EU member countries in the obligation of joining it (without deadline, as stipulated by their EU accession agreements), such as Sweden, Hungary, the Czech Republic or Poland (Dandashly – Verdun 2016; Tomann 2017) seem to have a lack of current interest in entering the exchange rate mechanism (ERM)[8]. Scepticism *vis-à-vis* introducing the euro is not exceptional within the European Union in the 10th post-crisis year, and mapping its reasons could be based on a re-assessment of the theory of optimum currency areas.

This re-assessment is not likely to be conducive to any rejection of the theory itself or important elements of it. It should rather mean modernization and com-

[7] McKinnon emphasized the importance of common monetary standards in a given integration to increase the efficiency of commodity trade and fiscal flows (McKinnon 1988). Frankel and Rose analysed the criteria and the impacts of entering a Currency Area. They found a positive relationship between the degree of bilateral trade intensity and the bilateral correlation of business cycles. It means that EMU accession may foster trade expansion and more highly correlated business cycles (Frankel – Rose 1998). O'Rourke and Taylor saw the solutions in a strongly centralised fiscal policy and new institutional architectures like a bank union (O'Rourke – Taylor 2013).

[8] Two years in the ERM is an obligatory prerequisite of joining the Eurozone.

pletion. There is currently no strong linkage (with some mutual references disregarded) between this theory and the much more recent theoretical line of fiscal policy accountability.

This latter line is represented by works of, for example, Rogoff (2001), Alesina et al. (2010) or more on the policy side Kopits (2004). Fiscal policy accountability is usually effective only if it is embodied in a politically independent institutional anchor[9] (called Fiscal Council in certain countries) which is able to do expert monitoring of the government's fiscal policy. Doing this, it may share with Parliament the political responsibility for adopting the budget bills.

A possible challenge for both the theories of optimum monetary zones and fiscal accountability is establishing a theoretical linkage between them. The long-term sustainability of optimum monetary areas is probably strongly conditional upon fiscal sustainability of all of its member countries. The latter could be strongly supported by institutionally and legally well embedded independent monitoring institutions. The existence of such a strong monitoring function (and potentially institution) in all member countries could be made a prerequisite of constituting a new currency area or reforming the existing one (Zilioli 2012).

1.3. Factors of growth

Free trade and economic integration: Both fields had shown quite straightforward development patterns in the world economy between 1947 and the 2008 crisis. Import substitution based trade policies gradually disappeared in spite of the fact that GATT regulations offered generous exemptions from trade liberalisation to developing countries in which the belief in the usefulness of import substitution was "deeply entrenched" (Krueger 2012: 42).

The promotion of free trade by GATT and later WTO proved extremely successful: the average tariff level of world goods trade decreased from well above 50 per cent to less than 3 per cent during these six decades, and quantitative restrictions and visible non-tariff barriers/red tape barriers (NTBs or RTBs) have almost disappeared from world trade (The World Bank 2018b). Economic integration became more than widespread: more than 260 regional trade agreements (RTAs, including EU, EFTA, Mercosur and NAFTA among many others) existed in 2010 (Stevens et al. 2015).

[9] This idea is similar to the concept of monetary policy independence and also based on the "time inconsistency" concept by Kydland — Prescott (The Royal Swedish Academy of Sciences 2004).

The reversal of these trends favourable for globalisation and economic growth started in 2013/2014 with the stalemate of the Doha Round of WTO talks and gained speed in 2015/2016 with three political developments likely to generate political shock waves:

1. Europe's fast growing problems with immigration leading to a certain strengthening of centrifugal forces within the EU;
2. Majority support of Brexit by the British electorate; and
3. The election for U. S. President of Donald Trump, with a critical attitude towards any kind of international business relations with a suspected danger of destroying American jobs. This attitude materialised, for example, in the torpedoing of TTIP, the Transatlantic Trade and Investment Pact by the American administration, and the subsequent withdrawal of the U.S. from TPP, the trade pact called Trans-Pacific Partnership.

The current reversal of trade liberalisation cannot be directly linked to the crisis of 2008, but the indirect implications of the latter may have had an important imprint on this reversal. In any event, most players of the world economy must take their strategic decisions in a trade environment markedly different from the one before 2015. In this new international economic setting, major multinational firms in the textile, steel, chemical, car, IT, aviation or other industries have to reckon with a potential shrinking of overseas import demand for their products due to the re-emergence of certain trade barriers. Plans for R&D and investment may be seriously impaired by such expectations.

International trade theory is one of the oldest building blocks of modern economics, with some of its key elements dating back to the late 18th century. The axiom of comparative costs is the cornerstone of free-trade oriented economic thinking, and its relevance has never been seriously questioned. This approach, however, is strongly based on the traditional paradigm of "*homo oeconomicus*" in the sense that trade patterns are supposed to develop following measurable cost advantages from trade, disregarding other factors of specialization. In practice however, countries/governments in the first place, but also individual players of international trade select their partners driven by other motivations as well.

Countries' selections of trading partners may follow political interests, but also geographical facts and the constraints originating from the flaws of collective decision making (see Arrow 1963), at least in democracies. Furthermore, individual decision makers in governments and businessmen are diverted from pure economic logic by "bounded rationality" or, in more general terms, the not entirely rational mental patterns of any decision maker in any economy (Thaler – Sunstein 2008; Kahneman 2011).

Brexit is an appropriate example of such irrational collective decision making. It is contrary to the logic of free trade theory, but it was taken strongly under the

influence of vaguely defined and sometimes only alleged political, social advantages or other welfare gains (Buckle et al. 2015; Weiss – Blockmann 2016; de Vries 2018). The problem of Brexit offers excellent case study material to connect behavioural economics and public choice theory (in the first place Mancur Olson's "Logic of Collective Action" (2002)) on the one hand and international trade theory on the other. This linkage could be instrumental in showing the increasing discrepancy between comparative advantages oriented thinking in theory and not "bounded", but rather "biased" rationality in practical trade policy and specialisation decisions.

In other words, behavioural kinds of models of international trade both on the macro and the micro level would be more and more welcomed (first attempts: Kindleberger 1978; van Aaken 2014). Theories of economic integration could also benefit from such an extended behavioural approach.

The shifting poles and the changing content of growth: The long-term trend of changing poles of economic growth in the world economy has been present since the 12th century (Bairoch 1993). These poles shifted from Italy to Spain, England and Germany starting in the Middle Ages, then to North America from the late 19th century, and finally to East Asia and the Pacific Rim from the 1960s onwards. The latter trend was not shaken by the crisis of 2008. On the contrary, the key role of Pacific Asia in world growth came even more to the fore (Krueger 2012: 125–127). However, engines were changed within the region: this role was transferred from Japan to South Korea, Taiwan, Hong Kong and Singapore first, thereafter to China, and recently increasingly to Malaysia, Indonesia and India.

Another element of the changing pattern of the regional distribution of post-2008 growth in the world economy appears in the reappraisal of Europe's long-term growth potential. Prior to the crisis, the economy of the Old Continent as a whole was deemed to suffer from serious structural flaws. Though, it may have seemed that the revitalisation of its Mediterranean part could bring it back to a sound long-term path of growth. In other words, the pre-2008 economic atmosphere in Europe could be characterised as moderate optimism (Dixon – Scalera 2016; Eichengreen 2018).

Recognising the real scope of debt crises in Europe, the crisis of 2008 made it clear that the continent's and primordially the EU's long-term growth perspectives needed substantial downward revision. GDP growth rates in the range of 1 to 3 per cent had been traditionally considered in Europe as insufficient for keeping pace with dynamic economies overseas. After 2008, zero or (negative) growth has become a more or less permanent threat for a string of economies in the southern part of the EU, and 3 per cent growth as the average of the EU rather an illusion.

The erosion of the growth potential of the EU has become a well-documented fact (Halmai 2014, 2018; Fic – Orazgani 2013; Teulings – Baldwin 2014). This is true at the level of the entire integration, while most EU-13 countries (new member states admitted since 2004) have come up with growth performances well above the EU-28 average. In 2016 the annual GDP growth of the European Union was 2 per cent. Some leading economies (e.g. the United Kingdom, Belgium, Austria, France or Italy) could not exceed the mean of the EU. GDP growth between 2010 and 2016 was the highest in Ireland, Malta and Lithuania. The Euro Area's mean also could not surpass the average value of the European Union (The World Bank 2018c)

The reasons of Europe's increasingly lagging growth may be linked to a string of factors, including

- the decreasing supply of qualified manpower, emanating partly from inadequate population growth in most European countries,
- relatively inefficient innovation activity,
- the incompleteness of the Single European market,
- low activity rates in certain countries,
- too strong protection of certain primary sectors, and
- the costs of bureaucracy in terms of time and money.

As a matter of fact, these factors combined may be regarded as elements of a model of slow growth, especially if compared to models of growth in the Pacific Rim.

It takes no special forecasting effort to make it plain that the EU in its current composition and even more after Brexit is not too likely to develop successful models of faster long-term growth. Certain constraints on growth emanating from the European (to be more precise: non-Scandinavian) combinations of low productivity and high-cost welfare state can be added to the above list of shortcomings. These are quite rare in the Pacific Rim where, in most countries, the trade-off between economic dynamism and social protection is strongly biased towards the first. Underdeveloped welfare systems might be considered as a temporary asset lowering the costs of economic development, but their long-term impacts on economic growth are rather questionable at best.

It would be far from obvious to conclude from the above that Europe is going to remain a poor growth performer compared with other continents. A re-assessment of Europe's relative position within the world economy could be made possible due to an important theoretical lesson from the post-crisis time-period. The efforts of the Stiglitz et al. Commission (2008) made it clear that economic growth as traditionally measured using GDP data is not an appropriate indicator of welfare improvement. If, for example, someone's car is stolen and a new car is purchased

instead, the increment of GDP does not generate a higher level of welfare (except if the thief's welfare improvement is also considered).

Therefore a challenging research task potentially building on some findings of the Stiglitz et al. Report could be not only the replacement of GDP with a more comprehensive indicator of welfare, but also the reassessing of Europe's long-term potential of welfare improvement. In this approach, high levels of productivity might not weigh much more than well performing systems of healthcare or social policy in case a broader than economic concept of welfare is applied. The complexity of, for example, European and Asian growth patterns could be thus compared in a more accurate and sophisticated way.

Technology versus competition: The theoretical and policy conflict between these two essential sources of welfare improvement does not seem to have gained momentum from the crisis of 2008, but its visibility has certainly increased. The case of patents visualizes this conflict.

Patents grant exemption from certain competition rules for the patent owner, usually for 10 to 20 years. This is done by the patent authority in order to stimulate innovation by strengthening the protection of the patent owner's intellectual property rights (IPRs). In order to protect IPRs, the protection of competition is substantially weakened. Welfare gains generated by competition are partly given up in order to increase welfare gains on the innovation side. Freedom of competition is also impaired by technology-sharing agreements due to which "production is likely to be more efficient and product quality higher" (Scherer 1994: 57). The improvements quoted above also constitute obvious welfare gains.

Such competition policy trade-offs appeared in the industrial countries already before 2008, but major high-tech firms were rarely persecuted by antitrust authorities between the early seventies (the IBM and the AT&T cases) and the turn of millennium. Regulatory interest in such companies became stronger again with the Explorer case (DOJ and Federal States versus Microsoft (Economides 2001) and the Media Player case (European Commission 2007)). It became quite widely accepted based on these cases that a sound balance should be sought between two fundamental principles of the market economy, the protection of competition and the protection of property rights.

The latter principle is, however, not universally accepted by leading firms in the high-tech sectors. Companies enjoying a technological monopoly based on a fast increasing pool of innovation (e.g. Tesla) may find it unnecessary and too expensive to seek patent protection. Certain pharmaceutical firms believe patenting generates certain risks since patent descriptions may indicate directions of research to competitors. Literature speaks of a wide range of kinds of illegal anti-

competitive behaviour based on abuses of patent-protected property rights (ATD, Abuse of Technological Dominance, Tschammler 2013).

Post-2008 developments on high-tech markets, in the first place in the IT, the aircraft and the pharmaceutical industry largely accelerated the speed of innovation (INSEAD 2010; Malerba et al. 2016). Competition based on innovation also became fiercer, and a string of recent antitrust investigations have involved high-tech giants such as Microsoft, Yahoo, Amazon or Google for example.

Recently, a marked change of regulatory attitude seemed to take place: the antitrust authorities of the United States and the European Commission have become more active with respect to breaches of competition law by high-tech companies. The report called "The Rise of Superstars" (Economist 2016) pinpointed the challenges of growing enterprise concentration in strongly innovation-dependent industries. The joint communication by the two American antitrust authorities (DOJ and FTC) explains the changes in the attitude of these agencies towards abuses of IPR regulation (FTC 2017; FTC – DOJ 2017). A seemingly outdated issue has come again to the fore in American antitrust debates: which is the critical degree of market power in high-tech industries where "the structural solution" (breaking up firms as opposed to the "behavioural" approach – only fines) should be, according to some, applied again after more than four decades (Economist 2016; Jacobson 2018).

The trend of change of regulatory attitude in antitrust policy could have far-reaching implications with a fast growing demand for new research. The "antitrust push" observable in the U.S. in the first place is reminiscent of the "activism" of the mid-20th century (Bork 1993). "Activism" was sometimes very aggressive in blocking even minor merger initiatives or constraining not-too-excessive dominance on the markets in cases where antitrust authorities feared long-term anti-competitive effects. "Activism" also had a reputation of extending the scope of antitrust beyond the boundaries of antitrust fixed by law.

The policy conflict between the promotion of innovation and the protection of competition might potentially give rise to efforts of extension of the realm of antitrust similar to "activism". Recent case material (e. g. the Microsoft or Google cases referred to above) provides examples of how current toolkits of antitrust policies are sometimes proving obsolete with respect to markets with high speed of innovation and intangible products. For example, the measurement of the "relevant market" (European Union 1997; Motta 2004; FTC – DOJ 2010; Kaplow 2015), a key tool in assessing the structural scope of anti-competitive behaviour, is highly difficult in the case of software products and IT services.

Old-school antitrust "purists" might dislike the idea that the constraining of the high-tech giants' market power could take forms of intervention not used in

traditional antitrust practice. For example, enhanced data protection requirements or stricter rules of enterprise transparency could be added to old antitrust toolkits in order to prevent more than critical levels of firm concentration in certain high-tech industries.

It is an open question whether the problems of competition versus innovation outlined above could be considered as implications of the 2008 crisis or not (Applegate – Harreld 2009; OECD 2012; Aghion et al. 2014). In any event, post-crisis developments strongly contributed to the globalization of high-tech markets and the growing role of innovation among factors of competition. If really this is the case, technology policies expected to accelerate economic growth should be more effectively coordinated with the regulation of economic competition.

2. CONCLUSIONS

We have argued that most implications of the 1998 crisis have a long-term character, and also that it was far from an episode both in policy and in theoretical terms. It would be more appropriate to speak of hysteresis in several fields of economic policy and economics.

Our three-dimensional survey of human, financial and growth-related implications of the crisis tried to gauge certain shifts in the focus of economic thinking and research. Policy proposals based on a too limited view of society and economy might lack widespread professional and political support and be therefore of little practical use.

Regarding the **human dimension**, *growing social inequalities* need to be corrected, but the fiscal kinds of solution proposed by the Piketty team are likely to negatively impact *economic growth*. The world of *finance* has run into consecutive crises since the late sixties, and it can be surmised that inadequate regulations underlying this long-term vulnerability of the sector have been related, in part, to *bounded rationality*. Growing tensions on national *labour markets* could hardly be eased in the short run by improving domestic *demography*, but mass *immigration* as an unavoidable remedy should be subject to skills-based monitoring.

The **financial dimension** of the implications of the crisis strongly depends on both the changing content and context of *fiscal sustainability*. Certain fundamental concepts and terms of this field of research including, for example, *bankruptcy* and *fiscal sovereignty* need to be reconsidered. Regulatory patterns of the *banking sector* are in need of considerable improvement as presented in our Irish mini-case-study. The *euro zone*'s lasting problems do not only call for a review of the theory of *optimum currency areas*, but also for establishing a stronger linkage with the theories of *fiscal sustainability*.

A major role among the **factors of growth** belongs to global and regional *free trade*. Post-2008 developments speak of a certain shrinking of the elbow room of supporters of trade liberalisation. Significant anti-free-trade initiatives came, quite surprisingly, from major English-speaking countries. Understanding them in-depth might benefit from linking *trade theory* with the *theory of public choice*. The *shifting of the poles of economic growth* seems to take place to the detriment of the European Union, but a more complex understanding of the *content of growth including social factors* might shed some more light on the real growth performance of the EU.

A growing part of products traded has, first of all in the IT sector, an intangible character. In such cases, measuring *product differentiation* becomes difficult and would require a new methodology of the analysis of relevant markets. As long as new solutions to this problem are not found, *the market power of mega-firms* could be constrained only using non-antitrust tools such as an increased protection of privacy in the IT sector and a closer regulatory control of contractual relations between such firms and their clients. All this should amount to much more *effective coordination between R&D and technology policies on the one hand and antitrust policy on the other*.

The fundamentals of modern capitalism are left untouched in most critical analyses of post-crisis development trends, but a string of variables of economic development are being re-assessed. For example, growing differences in wealth and income are now increasingly regarded as factors of risk with respect to political and financial stability.

In addition, approaches to both micro and macro level financial instability (and potentially bankruptcy) have become more sophisticated. Instead of describing financial crises based on two mutually exclusive options, the set of policy choices is now considered more as a continuum.

The growing impact on other fields of the profession of behavioural economics and the theory of public choice is gaining visibility (as New Political Economy, for example). The analysis of collective and individual human behaviour should also increase its influence on fields such as trade theory or the theory of economic integration. Diversions from the doctrine of free trade based on comparative advantage should not become the rule, but behaviour-related constraints on the Ricardian approach to trade liberalisation should gain more ground in international economics research.

There seems to be an increasing social and political need to constraining excessive market power[10], while traditional antitrust tools seem to have lost part of

[10] Similarly to political movements in the United States leading to the adoption of the Sherman Act in 1890 (Bork 1993).

their relevance after 2008. All this is not a direct implication of the crisis. It seems partly a consequence of increased social and political sensitivity to potential or real threats to privacy and individual liberties, partly of accelerated technological development, and partly of the changing character of commerce in goods. All of these trends are taking place independently from the crisis or, in certain sectors, as a structural reaction to it.

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