

Taxation and the “Organismic” Behaviour of Firms: Darwinian Rationale at Work?

Shafi U Khan Niazi, Monash Business School, Monash University

1. Introduction

Building on the interdisciplinary approach, this study seeks to explore the “organismic” nature and tax behaviour of firms within a Darwinian framework. Firms struggle and compete to maximize profits. This study labels the income generation activity of firms as a key “organismic” trait that firms manifest, akin to the struggle for survival attribute among the living species. The paper, at the intersection of economics, biology, law and taxation, first attempts to draw firm’s “bio-analogies” with living organisms and then seeks to trace the Darwinian logic in tax behaviour of multinational firms with a view to assess its implications for international tax governance.

Since formulation of the Darwinian principles of “struggle for existence”, “natural selection” and “survival of the fittest”,¹ the proximity between economics and evolutionary theory in life sciences is well established. In life sciences, Theodosius Dobzhansky, the renowned evolutionary biologist, once stated that “Nothing in biology makes sense except in the light of evolution”.² On the contrary, a similar assertion in economics, despite an increased recent debate on Darwinian rationale among evolutionary economists and social scientists,³ is often

¹ Charles Darwin (1888), *On the Origin of Species by Means of Natural Selection, Or, The Preservation of Favoured Races in the Struggle for Life*, 6th edition (London: John Murray).

² Theodosius Dobzhansky (1973), “Nothing in biology makes sense except in the light of evolution”, *American Biology Teacher* 35(3): 125–129.

³ Geoffrey M Hodgson (2002), “Darwinism in economics: from analogy to ontology”, *Journal of Evolutionary Economics* 12(3): 259–281; Geoffrey M Hodgson (2004), “Darwinism, causality and the social sciences”, *Journal of Economic Methodology* 11 (2): 175–194; Geoffrey M Hodgson and Thorbjorn Knudsen (2006), “Why we need generalized Darwinism and why generalized Darwinism is not enough”, *Journal of Economic Behavior & Organization* 61(1): 1–19; JW Stoelhorst (2008), “The explanatory logic and ontological commitments of Generalized Darwinism”, *Journal of Economic Methodology* 15(4): 343–363; Howard E Idrich, Geoffrey M Hodgson, David L Hull, Thorbjorn Knudsen, Joel Mokyr and Viktor J Vanberg (2008), “In defence of generalized Darwinism”, *Journal of Evolutionary Economics* 18(5): 577–596; Geoffrey M Hodgson and Thorbjorn Knudsen (2010), *Darwin’s conjecture. The search for general principles of social and economic evolution* (Chicago:

viewed as an odd claim in economics.⁴ Ronald Coase, the economics Nobel laureate, observes that although “economists take pride in the fact that Charles Darwin came to his theory of evolution as a result of reading Thomas Malthus and Adam Smith”, yet the scholarship in economics is far from having the triumph that biology has gained in “detailed understanding of the complicated structures that govern the functioning of living organisms”.⁵

Admittedly, scholarship drawing bio-parallels in evolutionary foundations of social and economic sciences is lacking when biological evolution is explained in terms of DNA, crossing-over, recombination, gene mutation and genetic evolution.⁶ The central role of evolution in biological sciences provides a single theoretical framework to comprehend all aspects of life that indeed still goes missing in economics.⁷

Nevertheless, discussions on evolutionary economics, in particular on the ontological foundations of Generalized Darwinism, have reached at a point where there is a need to move on and apply Darwinian principles to develop some concrete theories of economic phenomena.⁸ By the same token, there is a rising need to take the foundational tenets of Darwinian theory and employ them to the rapidly changing structure of firms and assess their tax behaviour in increasingly globalized and integrated transnational markets.

So far as tax economics is concerned, the literature at the intersection of Darwinian logic and tax-induced behaviour of firms is virtually non-existent. Based on the cross-fertilization of related disciplines, this contribution undertakes that task in explicit terms. To that end, the study relies on some of the key fundamentals of Darwinian framework to explain the causal

University of Chicago Press); Geoffrey M Hodgson (2013), “Understanding Organizational Evolution: Toward a Research Agenda using Generalized Darwinism”, *Organization Studies* 34(7): 973–992.

⁴ Ulrich Witt (2014), “The Future of Evolutionary Economics: Why Modalities Matter”, *Journal of Institutional Economics* 10(4): 645–664, at 645–646.

⁵ Ronald Coase (1998), “The New Institutional Economics”, *American Economic Review* 88(2): 72–74, at 73.

⁶ JW Steolhorst and PJ Richerson (2013), “A naturalistic theory of economic organization”, *Journal of Economic Behaviour & Organization* 90(S): S45–S54, at S54.

⁷ David S Wilson and John M Gowdy (2013), “Evolution as a general theoretical framework for economics and public policy”, *Journal of Economic Behavior & Organization* 90(S): S3–S10, at 3S.

⁸ Jan-Willem Stoelhorst (2010), *The firm as a Darwinian Machine: How Generalized Darwinism can further the development of an evolutionary theory of economic growth* (IDEAS Working Paper Series, Federal Reserve Bank of St. Louis, USA).

logic embedded in the “living” nature of firms. For this purpose, the organismic nature of firms is explained in terms of maximizing fitness in the struggle for existence. Building on the famous Friedmanian notion that firms are entities having a responsibility to maximize profits,⁹ this study presumes income-generation activity as “genetic trait” of firms. That activity is the fundamental “biological trait” since success (or failure) of firms to raise profits not only increases (or decreases) the probability of their survival but also impacts chances of their growth and development. The paper therefore views firm as something akin to a *living species* and explores its “biological nature” in a transaction cost economics paradigm. In doing so, taxes are taken as cost of firms in the global political economy structure in which they struggle to mitigate (tax) costs (enhance profits) for maximizing chances of their fitness and survival.

Against that backdrop, the study investigates the tax behaviour of multinational firms in a naturalist Darwinian world. In doing so, it argues that the classical international tax policy package may gradually but increasingly become incompatible with the ever-changing nature of the modern firm. The classical international tax instruments largely consider firm as a static legal entity with little appreciation to its organism-like evolving character. The understanding which has given rise to widespread global anti-avoidance tides in recent times is, for example, a key indication in support of this argument. To that effect, one loud and coherent sound is emerging under the Base Erosion and Profit Shifting (BEPS) project. Nevertheless, given the evolutionary nature of firm, a policy response that, *inter alia*, considers the underlying Darwinian logic and “life” in multinational firms may sustain better with the rising challenges to the future global tax governance.

2. The “biological” nature of firm

The legal personhood in firms is long known, at least since the late nineteenth century when the House of Lords handed down the landmark *Salomon* decision on the United Kingdom’s

⁹ Milton Friedman (1962), *Capitalism and Freedom*, (Chicago: University of Chicago Press) stating that “there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.”

company law.¹⁰ This distinct legal entity doctrine indeed forcefully led to the “legal life” notion in firms that eventually, in institutional economics, brought them the nomenclature of fictitious species, organizational species and alike.¹¹

This segment however, does not aim to explore firm’s legal species status standalone. Rather, drawing on analogy and analogical reasoning,¹² it traces “organismic life” in firms alongside and beyond their legal life. The key motivation behind this discussion lies in the fact that the business models of the twenty first century, in the wake of unprecedented rise of international mobility in various forms, are undergoing rapid changes. The changes in multinational firm model draws heavily on the quest to access transnational markets in increasingly integrating economies. The metamorphosis in the firm species is bound to bring several profound implications for markets and stake holders in a range of policy regimes of international arena including taxation. Before turning to the tax-led debate on firms in a Darwinian framework that constitutes core of this study, the reminder of this section is dedicated to capture some crucial organismic traits in the “life cycle”¹³ of firm species in terms of analogies in nature and function of firms to those manifested by living organisms.

In firm economics, drawing analogies between organisms and firms is a long-debated area.¹⁴ In literature at the intersection of biology and economics, use of metaphors is not one that of

¹⁰ *Salomon v A Salomon and Co Ltd* [1897] AC 22. On landmark importance of the case, see, eg, Rob McQueen (1999), “Life without *Salomon*”, *Federal Law Review* 27(2): 181–202. In America, the US Supreme Court also in the later part of nineteenth century ruled about the legal personhood in firms; see *Bank of the United States v Deveaux*, 9 US 61 (1869); *Santa Clara County v Railroad and Co*, 118 US 394 (1886) (holding that as for individuals, the equal protection clause of the US constitution also applies to corporations).

¹¹ Lon L Fuller (1967), *Legal Fictions* (Stanford: Stanford University Press); Ugo Pagano (2010), “Legal persons: the evolution of fictitious species”, *Journal of Institutional Economics* 6(1): 117–124; Ugo Pagano (2001), “The origin of organizational species” in A Nikita and U Pagano (eds), *The Evolution of Economic Diversity* (London and New York: Routledge), pp 21–47.

¹² See, eg, Paul Bartha (2010), *By Parallel Reasoning: The Construction and Evaluation of Analogical Reasoning* (Oxford: Oxford University Press); Paul Bartha (2016), “Analogy and Analogical Reasoning”, *Stanford Encyclopedia of Philosophy*, Winter Edition, at <https://plato.stanford.edu/entries/reasoning-analogy/> (last visited 11 June 2017).

¹³ For one of the initial instances on insights for a life-cycle model in firms, see Alfred Marshall (1925), *Principles of Economics*, 8th edition (London: Macmillan).

¹⁴ Literature for and against this premise is abundant; see, eg, S J Chapman and T S Ashton (1914), “The Size of Businesses, Mainly in the Textile Industries”, *Journal of the Royal Statistics Society* 77(5): 469–555; T S Ashton

a superficial resemblance but of a substantive nature.¹⁵ To that end, the analysis at hand is not one of a pure metaphor “in which resemblances between the two phenomena are used a picturesque note to an otherwise dull analysis”.¹⁶ Rather, the concept of analogy in question goes beyond metaphor “to the whole family of analogies between biological organisms and social institutions that flourished in profusion”¹⁷ during the last two centuries.

Historically, one of the studies during earlier twentieth century, in a brief discussion on firms, labels the process of their growth to that of the development of biological organisms.¹⁸ Another study of the same era, while discussing analogies of firms and living organisms, notices that given the striking similarities in life-cycles of firm and organism, it is more useful to point out rather dissimilarities in both.¹⁹

On the presence of genetic analogies, Armen Alchian, the renowned institutional economist, terms the process of imitation, innovation and profit-earning in firms akin to the existence of variation, mutation and natural selection in organisms.²⁰ Judith Penrose, a firm theorist, on the other hand, is critical of this biological nexus to the life-cycle model of firms, stating it an “undeveloped hypothesis” that does not have the explanatory power and lacks sufficient content to understand the development of firm.²¹ Despite similar critiques (which seems to carry force when firm is explained in biological terms of crossing-over, recombination, gene

(1926), “The Growth of Businesses in the Oldham District, 1884–1924”, *Journal of the Royal Statistics Society* 89(3): 405–451; Armen A Alchian (1951), “Uncertainty, Evolution and Economic Theory”, *Journal of Political Economy* 58(3): 211–221; Judith T Penrose (1952), “Biological Analogies in the Theory of Firm”, *American Economic Review* 42(5): 804–819, and comments on this article by Alchian, Enke, and rejoinder by Penrose in 1953 edition of *American Economic Review* 43(4): 600–609; Juul Foss (1994), “The Biological Analogy and the Theory of the Firm: Marshal and the Monopolistic Competition”, *Journal of Economic Issues* 28(4): 1115–1136.

¹⁵ Elias L Khalil (1998), “The Five Careers of the Biological Metaphor in Economic Theory”, *Journal of Socio-Economics* 27(1): 29–52, at 30.

¹⁶ Penrose, *ibid.*, at 807.

¹⁷ *Ibid.*

¹⁸ Chapman and Ashton, *supra* note 14, at 512

¹⁹ Ashton, *supra* note 14, at 572.

²⁰ Alchian, *supra* note 14, at 220.

²¹ Penrose, *supra* note 14, in particular at 806.

mutation and genetic evolution),²² the Darwinian logic of natural selection applicable to life sciences continues to attract growing amount of scholarly attention in understanding the nature of the firm entity.²³

One must concede that firms do not have many of the equivalents of living creatures. Foremost, and the central issue on which several arguments build, is the fact that firms are not composed of atoms and molecules, and thus lack organic compounds and cells – the building blocks of life. Likewise, systems that characterize living organisms such as respiration, excretion, sexual reproduction, and many others have no equals in the firm species. To that end, the literature denying firms as individuals holds ground.²⁴ Nevertheless, firm's life cycle has some conspicuous analogies to that of the living organisms. The key genetic trait that dictates firm's phenotypic expression in the form of struggle, competition and survival exists in its mission to raise profits foreseen under the Friedmanian thesis.²⁵

On analogies, it is also well known in the corporate legal regimes that firms, like individuals, have, for example, the capacity to buy, sell or own assets, appoint agents, sue others or vice versa.²⁶ Some other processes of remarkable bio-analogies in firms include, for example, perpetuation or reproduction,²⁷ death,²⁸ symbiotic relationships,²⁹ prey-predator relationships (serving as nutrients for consumption of other firm species),³⁰ facing extinctions, and so forth. Then, the phenomena of innate and learned behaviours known in the living

²² Steolhorst and Richerson, *supra* note 6.

²³ See, eg, some of the seminal works: Sidney G Winter (1964), *Economic "Natural Selection" and the Theory of the Firm* (Yale University PhD Thesis); Richard R Nelson and Sidney G Winter (1982), *An Evolutionary Theory of Economic Change* (Cambridge: Belknap Press of Harvard University Press).

²⁴ See, eg, Elias L Khalil (1997), "Is the firm an individual?", *Cambridge Journal of Economics* 21(4): 519–544.

²⁵ Friedman, *supra* note 9.

²⁶ Contemporary company laws across jurisdictions lay down provisions that authorize firms to carry out the contractual activities of natural person and also empower others to sue firms like natural being. See, eg, the *Australian Corporations Act 2001* (Cth).

²⁷ Firms perpetuate regardless of death of directors, shareholders etc. Reproduction of firms is denoted by their expansion through entities like subsidiaries, branches, permanent establishments etc.

²⁸ Liquidation of insolvent companies denotes death analogy in firm species.

²⁹ Joint ventures between firms represent symbiosis or mutually beneficial relationship.

³⁰ Acquisitions and mergers often depict this phenomenon.

creature is, indeed, also embedded in the firm species: the innate behaviour being direct expression of “genes”, while the learned behaviour nurtured by the environment serving subservient to the survival desires dictated by those genes.³¹ Right from the birth of firms, this genotype is at work in the form of “profit-coded DNA”. The DNA translates into firm’s phenotype that could be evidenced in its quest to maximize profits. That behaviour is innate, and firms, in their struggle for survival, seek to optimize profits (fitness) either through adoption of pre-existing business norms (no genetic variation) or by attempting a variant model (mutation). The mutations in organisms and variations in firms often yield similar outcomes. That is, a variation (innovation) would either bring higher profits (enhanced fitness), or would, if a new strategy fails, result in lower profits (lower fitness). In either outcome, the process may contribute to selection or extinction of firms as it occurs in living organisms consequential to genetic mutations.

Likewise, firms also display the feature of learned behaviour - a characteristic integral to the living world, in particular to the animal kingdom. The literature labels this phenomenon as imitation in firms. In their pursuit to raise profits, firms duplicate the successful business practices observed across the markets (niches) they live in, or from other habitats occupied by the sister firm species. Furthermore, shifts in business strategies triggered by the environment (eg changing market demands), in part, also indicate the phenomenon of learned behaviour in firms.

Building on the organismic nature notion of firm, the paper moves on to the next section that expounds the “profit gene” notion in firms and explores the Darwinian logic in the cost mitigation behaviour of firm including its tax costs.

3. “Profit genes”, taxation and Darwinian principles

³¹ The literature classifies the interaction between genetics and environment in three categories. Of these, the one analogous to the situation at hand is known as “active gene-environment correlation” wherein species seek experiences that are compatible to their genetic traits and behaviours to create a matching environment; Deborah W Denno (2011), “Courts Increasing Consideration of Behavioral Genetics Evidence in Criminal Cases: Results of a Longitudinal Study”, *Michigan State Law Review* 2011(3): 967–1047, at 976 (citing Matt McGue (2010), “The End of Behavioral Genetics?”, *Behavioral Genetics* 40(3): 284–296, at 288).

As theorized in previous sections, the genetic code of firms deciphers into their profit maximizing behaviour. Based on that thesis, all activities undertaken by firms to optimize profits could be presumed, in biological parlance, as phenotypic expressions of their genetic material or “profit genes”. To that end, firm activities concerning optimal use of factor and non-factor inputs, innovations, customer attraction and winning markets in the pursuit of profits are, for example, some of the phenotypic expressions of profit genes. On the same rationale, limiting transaction costs or curtailing business expenses would also be labelled as phenotypic traits of profit genes. In that model, many of the issues of mainstream transaction cost economics on the nature of firm, for example competing for transaction-cost efficiency as suggested by Williamson,³² could be deemed as products of profit genes.

Thus firms, both under the transaction cost model and the profit-gene thesis, would tend to follow reduced cost methods since inflated costs would be in conflict with the functional pursuit of profit genes. In that proposition, firms inherently avoid expenses, or seek to keep them to a minimum – a level that is otherwise inevitable to the process of profit-creation. Along these lines, it is established in economic theory that “where market transaction costs are low, transactors should be required to use the market.”³³ In biology, similar thesis is evidenced under the Optimal Foraging Theory (OFT),³⁴ where:

[A]nimals, plants and other organisms choose [the least costly method of producing or catching a given prey, nutrients, or sunlight, so that the harvest per unit of time/effort is maximized. So, optimum foraging theory in biology is identical to the [...] theory in

³² Oliver E Williamson (2005), “The Economics of Governance” *American Economic Review* 95(2): 1–18. See also Oliver E Williamson (1985), *The Economic Institutions of Capitalism* (New York: Free Press); Oliver E Williamson (1998), “Transaction Cost Economics: How It Works; Where Is It Headed” *De Economist* 146(1): 23–58; Oliver E Williamson (2007), *Transaction Cost Economics: An Introduction* (Discussion Paper 2007-3, Economic Papers, Germany).

³³ Richard A Posner (1977), *Economic Analysis of Law*, 2nd edition (Boston: Little, Brown), p. 121.

³⁴ For more details on optimal foraging theory in biology, see Barry Sinervo (1997), *Optimal Foraging Theory* (Department of Ecology and Evolutionary Biology, University of California Santa Cruz), available at http://bio.research.ucsc.edu/~barrylab/classes/animal_behavior/FORAGING.HTM (last visited 11 June 2017). For a social perspective of the theory, see Guy Beauchamp (2013), *Social Predation: How Group Living Benefits Predators and Prey* (Burlington: Elsevier Science).

economics: in both cases, the agent tries to optimize the objective function, given its input endowment and capacity type.³⁵

Thus, both in living and economic worlds, the key to attain optimal produce lies in the adoption of least costly methods. Put differently, the agents in both worlds seek to mitigate costs in their struggle for survival. In Darwinian framework, the most successful agents would represent the “fittest” taxon and favoured by the selection process; the least successful ones, on the contrary, would lose fitness, facing a risk of gradual elimination.

With that in mind, and presuming taxes as costs integrally in confrontation with the profit-raising genetic behaviour of firms, some pertinent questions merit attention: whether the above thesis of economics and biology (OFT) also applies to the tax behaviour of firms. More precisely, whether the Darwinian rationale is also at work in tax behaviour of firms, in particular those multinational firms which operate cross borders where country to country tax costs may vary significantly. And, more importantly, if response to this question is in affirmative, what implications does it carry for the avoidance-related challenges posed to the global tax governance? As noted earlier, no systematic study investigating these questions exists at the interface of tax economics and Darwinian framework. Nevertheless, it is well established in tax literature that firms tend to prefer and move towards low or no tax markets³⁶ (niches in bio parlance or jurisdictions in legal words).

In profit-genes model, taxes, being firm’s cost would be presumably at work against its genetic instinct. It is not only the tax payment itself that firm’s DNA would struggle with but rather a

³⁵ Elias B Khalil (2009), “Natural selection and rational decisions: two concepts of optimization”, *Journal of Evolutionary Economics* 19(3): 417–435, at 421.

³⁶ See, eg, Michael A Baker (2017), *Essays on Tax Systems and Corporate Tax Avoidance: The Effects on MNC Location Choices and Firm Value* (PhD Thesis, Southern New Hampshire University); Thomas Silva and Sergio Lagoa (2011), *Corporate taxes and the location of FDI in Europe using firm-level data* (IDEAS Working Paper Series, RePEc, St. Louis); Toshiharu Ishikawa (2015), Effects of Corporate Tax Rates on Factory Location Through the Function of the Transfer Price, in Toshiharu Ishikawa (ed.), *Firm’s Location Selection and Regional Policy in the Global Economy* (Tokyo: Springer); James Hines (1999), “Lessons from behavioral responses to international taxation” *National Tax Journal* 52(2): 305–322 . On tax havens and firms, see Ronen Palan, Richard Murphy and Christian Chavagneux (2010), *Tax Havens: How Globalization Really Works* (Ithaca, N.Y.: Cornell University); Gabriel Zucman (2015), *The Hidden Wealth of Nations: The Scourge of Tax Havens* (Chicago: University of Chicago Press) Ch. 5.

whole range of procedures incidental to the tax system may serve as potential costs or barrier to the “nature” contained in the firm’s DNA. These procedures include, for example, those meant for acquiring tax knowledge, record keeping and accounting, tax filing, tax consultancy, tax deduction of employees,³⁷ and so forth.

It is now clear from the standpoint of profit-genes notion that adoption of least costly methods in firms is truly a Darwinian behaviour. On that rationale, one can also posit that, to minimize costs (and maximize profits), firms are also predisposed to choose low or no tax markets. Since the differential tax phenomenon is profoundly explicit across national borders, the inherent propensity to prefer low-tax markets should be more evident in transnationally mobile firms (multinationals). The tax literature on mobile firms also broadly supports this proposition³⁸ albeit without using the Darwinian lenses.

The DNA-led, tax-induced mobility is thus a “natural” firm behaviour in a Darwinian world. Under this presumption, the firm mobility may be viewed as its rationale choice to pursue higher chances of survival and growth (increased fitness), favoured at the end by the selection process. The activity generally also aligns with the free enterprise notion of the capitalistic open market economy.

Against the foregoing argument that brings the existence of profit genes in firms and the consequential Darwinian behaviour at the fore, the study moves to the key sections with two issues at the heart of discussion. The first issue concerns the ways and means firms adopt to demonstrate their tax-induced Darwinian behaviour in markets. In other words, it (section 4) presents the positivist scientific analysis that Milton Friedman, building on the Keynesian

³⁷ See, eg, Tracy Oliver and Scott Bartley (2005), “Tax system complexity and compliance costs – some theoretical considerations”, *Economic Round-up* Winter Issue: 53–68, at 55.

³⁸ See, eg, Christian Bellak and Markus Leibrecht (2009), “Do low corporate tax rates attract FDI? Evidence from Central and East European Countries”, *Applied Economics* 41(21): 2691–2703; Celine Azemar (20), “International corporate taxation and U.S. multinationals’ behaviour: an integrated approach”, *Canadian Journal of Economics* 43(1): 232–253; Olzem Onaran, Valerie Boesch and Markus Leibrecht (2012), “How Does Globalization Affect the Implicit Tax Rates on Labour Income, Capital Income, and Consumption in the European Union”, *Economic Inquiry* 50(4): 880–904.

thoughts, refers to as what actually lies in the nature.³⁹ The second issue concerns, as notes Friedman, “what ought to be [done]”⁴⁰ keeping in view the innate Darwinian tax behaviour of firms. In doing so, section 5 provides some insights into potential tax policy shifts that might necessitate pursuant to that behaviour.

4. Tax behaviour of mobile firm species and the transnational arena

Following the foregoing argument on profits-fitness nexus in Darwinian framework, firm’s struggle for market seeking may go beyond domestic borders. This quest brings many firms into the international realm – an activity that tags them as multinationals. The increased globalization of world economy has indeed bolstered that activity.⁴¹ Since the genetics of profits and costs is the key determinant behind the mobility, the behaviour of multinational firms to mitigate tax costs inevitably intersects cross-border tax regimes. This propensity in tax behaviour of mobile firms impacts the global tax governance in multiple ways. A comprehensive list of different methods through which firms demonstrate that behaviour and impacts tax governance is beyond the scope of this contribution. Also, it is difficult to strictly categorize various methods of mitigating tax costs since they overlap each other to varying degrees. Nevertheless, in order to illustrate the close nexus of tax-induced behaviour and international tax governance, some well-known examples are summarized as follows.

The first, and more explicit, illustration is the firm mobility towards transnational markets having low tax rates. The crucial implication of this behaviour is mirrored in the tax competition phenomenon across countries and regions. A vast literature exists on taxation and firm mobility, with the latter often labelled in the international economic arena as capital mobility or foreign direct investment (FDI). Generally, the mobility (in the form of FDI) is associated with concepts of growth, employment generation, technology transfer and other

³⁹ Milton Friedman (1966), “The Methodology of Positive Economics” in *Essays in Positive Economics* (Chicago: University of Chicago Press), p 3 [citing John N Keynes (1891), *The Scope and Method of Political Economy* (London: Macmillan), p 34].

⁴⁰ Friedman *ibid*, at 3 (citing Keynes *ibid*, at 34–35).

⁴¹ Masahiro Tokunaga and Ichiro Iwasaki (2017), “The Determinants of Foreign Direct Investment in Transition Economies: A Meta-Analysis”, *The World Economy* 01/2017: 1–62, at 1-2.

economic benefits in the host destinations.⁴² Under that presumption, locations receiving FDI often offer incentives to attract greater firm mobility. In accordance with the firm's tendency to seek low tax markets, nation states compete with each other to attract firms through lower tax rates.⁴³ The phenomenon of tax competition among states has a long history and can be traced in one form or the other since inception of corporate taxation. However, it emerged as a wider global tax issue in the 1990s when the competition took abusive turn in the form of practices labelled in the tax scholarship as "poor-thy-neighbour" tactics and harmful tax competition.⁴⁴ Equally, alongside tax rate tools, countries also compete to attract FDI or firm mobility by offering targeted tax holidays and preferential tax regimes.⁴⁵ International efforts, for example those initiated at the level of OECD and the EU, on curbing harmful aspects of tax competition between governments are ever since integral to the global tax governance.⁴⁶

⁴² Abundant literature is available on impacts of FDI on growth; see, eg, Patricia Hofmann (2013), *The Impact of International Trade and FDI on Economic Growth and Technological Change* (SpringerLink Online); Maria Cipollina et al (2012), "FDI and Growth: What Cross-country Industry Data Say", *World Economy* 35(11): 1599–1629; Maria Cipollina et al (2012), "FDI and Growth: What Cross-country Industry Data Say", *World Economy* 35(11): 1599–1629; Keshab Bhattarai (2016), "FDI and Growth", *Advances in Management and Applied Economics* 6(2): 1–23.

⁴³ There is plethora of literature available on tax competition among countries.

⁴⁴ OECD (1998), *Harmful Tax Competition: an emerging global issue* (Paris: OECD Publishing); Claudia M Radaelli (1999), "Harmful Tax Competition in the EU: Policy Narratives and Advocacy Coalitions", *Journal of Common Market Studies*, 37(4): 661–682.

⁴⁵ In the context of European Union, a study conducted on 271 preferential tax regimes revealed that 66 of them significantly affected the choice of firms' location; European Parliament (2002), *Tax co-ordination in the EU – the latest position* (Working Paper Economic Affairs Series ECON 128), at 15. For general literature on FDI and tax breaks, see, eg, Oscar Amerighi and Giuseppe De Feo (2014), "Competition for FDI and Profit Shifting: On the Effects of Subsidies and Tax Breaks", *Finanz Archiv* 70(3): 374–404; Jean-Phillippe Engel (2009), "Foreign Direct Investment and Tax Incentives in China", *Journal of International Taxation* 2009(11): 48–62; Michael Keen (2001), "Preferential tax regimes can make tax competition less harmful", *National Tax Journal* 54(4): 757–762.

⁴⁶ OECD (2002), *The OECD's Project on Harmful Tax Competition: The 2001 Progress Report* (Paris: OECD Publishing). On fight against harmful tax competition in European Union, see Code of Conduct on business taxation set out in the conclusions of the Council of Economics and Finance Ministers meeting of 1 December 1997 that is in force as of this day [https://ec.europa.eu/taxation_customs/business/company-tax/harmful-tax-competition_en (last visited 11 June 2017)].

The second example of firm's mobility is based on a rather implicit mode adopted by countries to attract firms through bringing certainty in firms' tax costs before their movement from home destinations. The process is firm or group-specific and works through targeted legal tools in the form of advance tax rulings issued to firms by tax authorities of host countries. The rulings bring certainty to profit-making activities of firms through foreseeing tax costs in advance. Advance pricing arrangements, in which host tax authorities and firms agree *ex ante* on the price of intra group transactions in the home and host locations (transfer pricing), are also aimed at abolishing unexpected future tax costs. While advance rulings are not vehicles of tax concessions *per se*, a recent revelation under the Luxembourg Leaks,⁴⁷ however, has raised questions of "smart tax competition" in the garb of advance rulings issued to multinationals.⁴⁸ The possibility of rulings-based tax concessions to multinationals also evidences from recent actions taken by the European Commission in various cases including the much-publicized Apple Ireland case where the unfair tax subsidy claim spread over a ten years period amounts to EUR 13 billion.⁴⁹ Likewise, the European Commission, in a bid to

⁴⁷ The Luxembourg Leaks is a tax-related financial scandal in the European Union reported by the International Consortium of Investigative Journalists (ICIJ) in November 2014. The revelations (known as LuxLeaks) included information about over 500 private tax rulings issued by Luxembourg, claimed to have benefitted over 300 multinational firms in reducing their tax bills in violation of standard tax rates; see The Guardian (2014), "Luxembourg tax files: how tiny state rubber-stamped tax avoidance on an industrial scale", 5 November, available at <<http://www.theguardian.com/business/2014/nov/05/-sp-luxembourg-tax-files-tax-avoidance-industrial-scale>> (last visited 11 June 2017).

⁴⁸ Paquale Pistone (2012), "Smart Tax Competition and the Geographical Boundaries of Taxing Jurisdictions: Countering Selective Advantages Amidst Disparities", *INTERTAX* 40(2): 85–91, at 90 naming "smart tax competition" to the process where concessional taxation is offered to multinationals through advance pricing agreements. Such arrangements are often implicit in the sense that they go un-noticed by the competition authorities unless specifically pointed out by someone; Raymond H Luja (2003), *Assessment and Recovery of Tax Incentives in the EC and the WTO: A View on State Aids, Trade Subsidies and Direct Taxation* (Antwerp: Intersentia Publishing), p. 55.

⁴⁹ *European Commission Decision (EU) 2017/1283 of 30 August 2016 on State aid SA.38373 (2014/C) (ex 2014/NN) (ex 2014/CP) implemented by Ireland to Apple* [2017] OJ L 187/1.

create level-playing field, has also put question marks on tax concessions being extended to some of the household multinational names like Amazon, McDonald, Starbucks and IKEA.⁵⁰

Third, alongside and beyond the targeted tax incentives granted by sovereign nations, multinational firms in their hunt to attain Darwinian fitness may also avert tax costs through a range of self-planned schemes. The literature tags outcome of these schemes as tax leakages beyond the intended tax cuts offered by host locations.⁵¹ The firm strategies to avert tax costs in such cases include, for example, aggressive tax planning, manipulation of transfer pricing, hybrid mismatch arrangements, thin capitalization and offshore profit shifting. The activities characterize the leading contemporary challenges to the governments worldwide and lie at the heart of the ongoing project on Base Erosion and Profit Shifting (BEPS) initiated by the OECD/G-20 in 2013.⁵²

The fourth issue concerns the propensity of firms to move towards tax havens. There is no exhaustive definition of tax haven.⁵³ However, a study conducted in 2009 notes that almost 15 percent countries, usually comprising small, affluent and better governed nations, are tax havens.⁵⁴ Tax haven countries offer low or no taxes, aggressive preferential tax regimes and less stringent rules besides promising secrecy and/or money laundering prospects. To that

⁵⁰ *European Commission State aid decision SA.38944 (Amazon)* (press release of 4 October 2017), available at http://europa.eu/rapid/press-release_IP-17-3701_en.htm (last visited 20 November 2017); for McDonald, see European Commission press release IP/15/6221, 3 December 2015, at http://europa.eu/rapid/press-release_IP-15-6221_en.htm (last visited 11 June 2017); *European Commission Decision (EU) 2017/502 of 21 October 2015 on State aid SA.38374 (2014/C ex 2014/NN) implemented by Netherlands to Starbucks* [2017] OJ L 83/1, 38; for IKEA, see European Commission press release IP/15/6221, 18 December 2017, at http://europa.eu/rapid/press-release_IP-15-6221_en.htm (last visited 19 December 2017).

⁵¹ OECD (2001), *Corporate Tax Incentives for Foreign Direct Investment* (Paris: OECD Publishing), p 30.

⁵² On initial works, see OECD (2013), *Addressing the Base Erosion and Profit Shifting* (Paris: OECD Publishing); OECD (2013), *Action Plan on Base Erosion and Profit Shifting*, available at <http://www.oecd.org/ctp/BEPSActionPlan.pdf> (last visited 11 June 2017). On final reports and action plans, see OECD (2015), *BEPS 2015 Final Reports: Final BEPS Package Reform of the International Tax System*, available at <http://www.oecd.org/tax/aggressive/beps-2015-final-reports.htm> (last visited 11 June 2017).

⁵³ Jason C Sharman (2006), *Havens in a storm: The struggle for global tax regulation* (Ithaca, NY: Cornell University Press), p.21.

⁵⁴ Dhammika Dharmapala and James R Hines, Jr (2009), "Which countries become tax havens?", *Journal of Public Economics* 93(9-10): 1058–1068.

end, not only for individuals but, in seeking markets to consolidate profits and attain greater Darwinian fitness, tax havens often serve as ideal candidates for mobile firms as well. The issue of tax havens emerged high on the international political agenda amidst global financial crisis in 2009,⁵⁵ indicating their deeper nexus with the much-needed tax revenues needed by governments for public goods in the times of economic meltdown. An evidence on US mobile firms also suggests a positive relationship between the use of tax havens with avoidance-related transfer pricing and thin capitalization.⁵⁶ The European Union has been particularly vocal against tax havens and recently in December 2017, for the first time, published a blacklist of tax havens.⁵⁷

Given the volume of developments consequential to the Darwinian behaviour inherent to the genetic construct of firms, the growing amount of challenges in the international tax arena are reasonably foreseeable. While the increasingly globalized economy, in recent times, has proven catalytic to the firm's struggle to "occupy low tax niches", the changing business models and strategies (firm's evolution) may further enhance their capacity to avert tax costs through innovative methods in times ahead. The future challenges to the global tax order are therefore likely to grow exponentially if the policy response is not equally innovative and all-inclusive. The recent wave that, for example, revealed some of the mega tax-scandals in the Panama Papers⁵⁸ and Paradise Papers⁵⁹ at the international level and the Luxembourg Leaks⁶⁰ in Europe indicates the tip of an ever-growing iceberg.

⁵⁵ Palan, Murphy and Chavagneux, *supra* note 36, at 241.

⁵⁶ Grant Richardson and Grantley Taylor (2015), "Income Shifting Incentives and Tax Haven Utilization: Evidence from Multinational U.S. Firms", *The International Journal of Accounting* 50(4): 458–485.

⁵⁷ BBC News (2017), *First tax havens blacklist published by EU*, 5 December 2017, at <http://www.bbc.com/news/business-42237315> (last visited 5 December 2017).

⁵⁸ The Panama Papers comprise 11.5 million leaked files on offshore firms and their beneficiaries in zero tax niches (known as tax haven). The leaked data is based on leaked files of a Panama-based law firm Mossack Fonseca revealed by ICIJ in April 2016; see <https://panamapapers.icij.org/> (last visited (11 June 2017)).

⁵⁹ The Paradise Papers is a dossier of comprise 13.4 million leaked records on more than 25000 firms in offshore tax havens. The data is based on leaked files from law firms including Appleby, revealed by the ICIJ in November 2017; see <https://www.icij.org/investigations/paradise-papers/> (last visited 12 Nov. 2017).

⁶⁰ See *supra* note 47.

5. Genetic behaviour and tax policy considerations

The positivist analysis offered in section 3 demonstrated that the cost reduction (or aversion) behaviour that builds on Darwinian foundations runs in firm's genes – with tax costs being no exception. If the argument that Darwinism is at work in the tax behaviour of firm holds, one may submit that there is an increasing need to revisit the solutions to contemporary (and rising) challenges to the international tax regime – a regime that otherwise does not consider firm as organismic entity in express terms. In the post-crisis times, the new impetus to global tax reforms against base erosions and avoidance schemes is certainly unparalleled in the international tax history. Yet the crucial element that takes into account the tax behaviour of firms following the Darwinian insights is missing from the cross-borders tax reform agenda.

Admittedly, the organismic-nature thesis of firm is hard to sell at this point in time. Equally, it may sound radical to bring Darwin into tax regime. In what follows, however, the contribution attempts to provide some insights on how and why the positivist Darwinian thought deserves some serious attention in the global tax agenda on mobile firms.

Foremost, and evident at this stage, concerns the rapidly changing tools of global tax governance foreseen under the action plan of BEPS project. Certainly, BEPS initiative is not the product of Darwinian insights, least of the “life” in firm premise. For an institutional economist, the focus of BEPS action plan on, for example, challenges of digital economy, harmful tax practices, transfer pricing, mandatory disclosures, country-by-country reporting and other similar aspects, may have intuitive resonance of regulatory responses to the firm behaviour. For a policymaker, on the other hand, the BEPS action plan builds neither on the firm genetics nor Darwinian logic; rather it predominantly mirrors the policy quest of governments to enhance transparency in firm affairs for compute its true incomes and raise fair share of taxes.

Standalone, the emerging policy stance of governments cannot be disputed as to its aims and objectives. In the larger temporal picture perspective, however, some precautionary measures need attention. For instance, it is possible that when a given policy paradigm takes shape over time, the short-term biases of that policy may disproportionately take over the long-term plan. This is particularly relevant when a set of policy considerations fails to fully appreciate the larger picture implications. Under these circumstances, an emerging policy paradigm is likely to suffer from a “lock-in effect”. In the pre-crisis period and much of the

final quarter of the previous century, for example, the supply-side tax agenda, or the “business facilitation” notion, dominated as poster child of the cross-border tax policy.⁶¹ No doubt that the facilitation notion has to be an integral component of a good tax policy. Nevertheless, if the policymaking locks-in unilaterally under the facilitation banner, it may fail to strike an optimal policy balance. It is likely that in the undergrowth of a supply side tax policy lock-in, firm’s behaviour that otherwise is genetically in conflict with tax costs might go largely unimpeded and take its own Darwinian course. The untouchable issues such as financial secrecy, lack of disclosures and reporting, and absence of information sharing framework between governments would reinforce that “natural” Darwinian path. An appreciation to the existence of organismic nature in firms could mitigate the risks for a facilitation-based, single dimension policy lock-in since an understanding of natural response of firms on tax costs may be difficult to put aside altogether. In the absence of Darwinian thought in tax behaviour, the situation might persist (or lock-in) undesirably longer until an entirely changed set of circumstances compel a shift in the pre-existing policy model. Arguably, the contemporary global tax arena is witnessing a rather similar change. The new catchwords increasingly leading the cross-border tax policy of today revolve around “fairness, transparency and anti-avoidance”.⁶²

Under either of the two banners, facilitation or anti-avoidance, policies might look largely consistent with the tax governance imperatives in a narrow perspective at a given point in time. In the setting of changing environments for tax governance, whether the global tax players are mindful of optimal balance to counter the potential “lock-in effect” of the emerging anti-avoidance narrative. If the answer is not in affirmative or uncertain, some pertinent issues demand serious attention. Where are we then heading to? Whether the tax

⁶¹ In the European context, for example, plan to institute a Common Consolidated Corporate Tax Base (CCCTB) remained on agenda for a decade before a draft legislation was first presented in March 2011. The catchphrases of the draft CCCTB legislation were “cost-reduction” and “one-stop-shop” for firms that operate in the European transnational market (EU internal market). The CCCTB proposal has been re-launched in 2015-2016 and in the process the revised approached to the CCCTB plan is now driven by elements of fairness, transparency and anti-avoidance; see Shafi U Khan Niazi (2017), “Re-Launch of the Proposal for a Common Consolidated Corporate Tax Base (CCCTB) in the EU: A Shift in Paradigm”, *Legal Issues of Economic Integration* 44(3): 293–314, at 302, 304–309.

⁶² *Ibid.*

players fully conscious of striking a balance to avoid yet another (albeit different) kind of a one-sided policy lock-in? If uncertainty prevails to that end, whether the new anti-avoidance-driven path would again lead to a destination where only the market forces, for example through inducing another kind of growth-related distress, would apprise us to swing the policy pendulum in a different direction?

The argument certainly does not dispute the ongoing global anti-avoidance initiatives, least the BEPS action plan. Rather, it seeks to capture the long-term holistic temporal picture. The argument in analysis does not question, for example, the disclosures and transparency-related reporting requirements over the past taboos in the name of secrecy or privacy in firm affairs.⁶³ Instead, the point in emphasis is that the economic Darwinian ethology and the tax cost thesis that is integral to the firm DNA deserves some consideration behind the policy rationale. Even within the highest grade of firm-friendly transnational policies, an understanding that builds on firm's innate behaviour is less likely to lose sight of the fact that Darwin is at work behind the scene. If a policy does not take this vital firm trait into account, the outcomes could be likely akin to the offshore tax scandals on "hidden treasures" of wealth being exposed in recent times. And, perhaps more yet to be revealed.

On the same rationale, if a policy pendulum oscillates in any singular direction solely at the mercy of one-dimensional push and persists (locks-in), the outcomes again might not be optimal for global economy as a whole. A growing amount of focus on avoidance (tax trait in profit genes), and the possibility of its prolonged lock-in effect, may encroach upon some of the "time and space" of policy efforts otherwise needed to nurture the profit-generation process (non-tax traits in profit genes) for an efficient and sustainable global growth.

Another dimension that brings the argument of Darwinian and profit gene approach in tax regime at the fore concerns the dearth of tax policy harmonization worldwide. In spite of the growing emphasis on increased coordination and better legal tools for cross-border

⁶³ For example, the idea of country-by-country reporting and documentation of transfer pricing foreseen under the BEPS action plan that is in the process of transposition in many counties when first presented in 2003 by Professor Richard Murphy was considered an untouchable notion; see *International Tax Review* (2017), No. 9: *Richard Murphy*, 7 December, at <http://www.internationaltaxreview.com/Article/3773353/Global-Tax-50-2017-Richard-Murphy.html> (last visited 8 December 2017).

information exchange foreseen under the BEPS and similar initiatives,⁶⁴ lack of harmonization in key areas remains hallmark of the global tax domain. Some of the non-coordinated areas, for example the tax rate, have virtually attained the status of taboo in the international tax arena. In the absence of a degree of coordination on tax rates, drastic variations in tax rates across national borders is inevitable in the global tax structure. Against that backdrop, Darwin's presence in the tax behaviour of the firm has to stay in the global economy regardless of achieving a triumph in the anti-avoidance regime. Thus, to minimize harmful effects of the segment of profit genes meant to express tax costs behaviour, policies that persuades transparency in national tax regimes is also equally desirable alongside policies on tax transparency in firms. The does not mean that the argument in question calls for adoption of utopic unified tax rules or single tax rate worldwide⁶⁵ as healthy Darwinian competition is otherwise integral to the capitalistic market economy. Rather the analysis at hand seeks to capture broader picture of the underlying issue that besides firm's scrutiny also highlights a need for political will for substantial tax cooperation among nations, part of which is already in the international focus since the late 1990s.⁶⁶

Thus, in order to mitigate harmful effects including erosions of tax bases and offshore profit shifting that run in firm genes, firm transparency could achieve only a part of the goal; the remainder would be attained by fair tax policies of governments. The political will of nations is therefore equally crucial. An international consensus on, for instance, the definition of tax haven jurisdictions would be fundamental for a transparent world economy. Likewise, no doubt issues such as tax rate are deeply seated in the fiscal sovereignty of nation states, the EU Parliament, however, based on a recent report of the committee probing the Panama Papers scandal, recommended a minimum tax rate for Europe to remedy problems like

⁶⁴ See the OECD work cited in *supra* notes 52, 53. Along the same lines, the European Union has initiated a number of initiatives on automatic exchange of information between the EU member states.

⁶⁵ The literature on unified rules/system of firm taxation is not uncommon; see, eg, Henry Ordower (2013), "Utopian Vision Towards a Grand Unified Global Income Tax" *Florida Tax Review* 14(9): 361–418; Susan C Morse (2010), "Revisiting Global Formulary Apportionment", *Virginia Tax Review* 29(4): 593–644.

⁶⁶ OECD, *supra* note 44; European Parliament, *supra* note 45.

offshore profit shifting.⁶⁷ The inclusive growth notion based on free firm mobility and globalization would remain elusive unless discussions on limits and thresholds to tax rates also finds some locus in the global tax agenda. While the short term individualistic thoughts undermine the nature of these problems, an appreciation of universal approaches to the global market as, for example, the Darwinian understanding in firms could mitigate the protectionist attitudes worldwide.

In that vein, discussions on some reasonable lower threshold of tax rate might emerge on global tax agenda sometimes in (distant?) future. If an attribute that is innate to the firm species and is detrimental at the same time (eg avoidance, evasions), the optimal ways to deal with the issue in increasingly integrating economies lie in the multilateralism. Enforcement of coordinated rules of the (tax) game is the most efficient available option. The Multilateral Instrument foreseen under that BEPS plan is, for example, a pertinent development in the right direction.⁶⁸ At the same time, one might also argue that multilateral approaches seeking to institute transparency and anti-avoidance in the global tax culture could also ponder the Darwinian premise, integral to firm behaviour, at the hind of international policymaking. Until now, this dimension has failed to attract an express attention, both at the academic as well as policy levels.

As noted earlier, it is established in economics (and biology) that firms (and living creature), in their struggle for survival, would occupy the least costly markets (and niches) as long as the latter exist. The quest is generally fundamental to growth and evolutionary processes both in economic and biological spheres. In a naturalist Darwinian world where genes rule, firm species would be indifferent to whether the cost reduction originates from taxes or other sources. To that end, market seeking may be virtuous for the growth of firm species in either case. For human species or the societal growth, it may be different: the firm mobility to win markets with, for example, less costly factor inputs may be beneficial both for human and firm species. On the other hand, the mobility of a firm to occupy markets may be detrimental

⁶⁷ European Parliament (2017), *Draft Report to the Council and the Commission*, 30 November, paras 35, 38, at http://www.europarl.europa.eu/cmsdata/134367/Draft_Recomendation_B8_660_2017.pdf (last visited 8 December 2017).

⁶⁸ OECD (2015), *supra* note 52, Action plan 15.

in that a tax-benefited firm may oust another firm even if the latter can yield better produce for human society.⁶⁹

Nation states could not, and perhaps should not, fully put the international tax realm in order without attaining a level of consensus on creating optimal rules of the game to abolish certain policies in their respective markets (taxing jurisdictions). An inherent contradiction would exist if countries stick to their tax autonomy in the old classical paradigms and, simultaneously, seek to attain optimal benefits of market globalization. Thus, a need for nations-wide transparent tax policies is equally desirable alongside the increasing transparency measures in tax affairs of firms under the anti-avoidance policy drive worldwide. It is a matter of conventional wisdom that one cannot eat the cake and have it at the same time. In that setting, international tax policies drawing on the understanding of the profit genetics and Darwinian nature of firms could sustain longer and deliver efficiently.

A number of other emerging tax issues could be brought into the ambit of the Darwinian approach to tax issues developed in the study. One recent tax-related issue, for example, is the rising concerns on robotic use by certain firms.⁷⁰ The issue applies both to local and multinational firms. Fundamentally, the use of robots, in Darwinian framework, relates to the mitigation of labour costs to optimize profits and enhance fitness. Since robotic use replaces human workforce, alongside job losses and unemployment, labour taxes are also integral to the debate.

It is conceivable that immediate outcomes of robots replacing human labour in firms is, at least in the short term, likely to create problems of social and economic nature; for example, increasing job losses and declining labour taxes worth trillions of dollars for governments.⁷¹

⁶⁹ Filip Palda (2001), *Tax Evasion and Firm Survival in Competitive Markets* (Cheltenham: Edward Elgar Publishing), Chapters 2, 3 analysing that tax evader and tax subsidy recipient firms with poor produce may oust efficient and good producer firms that do not have access to equal tax benefits.

⁷⁰ See, eg, Martin Ford, *Rise of the robots: technology and the threat of jobless future* (New York: Basic Books, 2015); David Freedman (2012), "The Rise of Robotic Workforce", *Inc* 34(8): 76–83; Neely Young (2016), "A World Without Work?" *Georgia Trend* 32(1): 10; CBS News (2017), *Which industries use the most robots?*, 17 August, at <https://www.cbsnews.com/news/robots-automation-industries-us/> (last visited 20 November 2017).

⁷¹ Ryan Abott and Bret N Bogenschneider (forthcoming), "Should Robots Pay Taxes? Tax Policy in the Age of Automation", *Harvard Law and Policy Review*, at 6, available at

While people like Bill Gates have come up with the idea of a robot tax for firms so as to replace labour taxes for the governments to invest in job creation,⁷² the proponents of increased use of robots claim that these issues would be rather better taken care of by the ensuing growth.⁷³ The debate on robotic tax and its pros and cons is gaining currency in academic circles. In fact, robot-related labour tax issue has emerged as the second most powerful subject impacting the tax world in a ranking of global top 50 during the year 2017.⁷⁴

While a conclusive debate on robot tax in firms has still a long way to go, some pertinent points merit academic consideration. First, if the robotic use is the product of transaction cost economics that aligns with the profit genes approach, a gradual rise in using robots and other similar automation is inevitable. Second, in biological mode, if firm species follow its innate behaviour and replace human workforce with robots, what could be an optimal public intervention so that not only the firm genome is expressed in a natural manner but also the damaging aspect of that gene expression could be kept to a minimum level. Third, in terms of economics, whether the firm should make use of robots without any restriction and we then let the growth-led market forces to decide the labour balance. Or, whether we need a degree

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2932483 (last visited 20 November 2017); Robert Schiller (2017), “Why robots should be taxed if they take people’s jobs?”, *The Guardian*, 22 March, at <https://www.theguardian.com/business/2017/mar/22/robots-tax-bill-gates-income-inequality> (last visited 20 November 2017).

⁷² Kevin Delaney (2017), “The robot that takes your job should pay taxes, says Bill Gates”, *The Guardian*, 17 February, at <https://qz.com/911968/bill-gates-the-robot-that-takes-your-job-should-pay-taxes/> (last visited 20 November 2017); Gaby Hinsliff (2017), “The robots are coming – and the Labour is right to tax them”, *The Guardian*, 29 September, at <https://www.theguardian.com/commentisfree/2017/sep/29/robots-labour-tax-jobs> (last visited 20 November 2017).

⁷³ The Economist (2017), *Why taxing robots is not a good idea*, 25 February, at <https://www.economist.com/news/finance-and-economics/21717374-bill-gatess-proposal-revealing-about-challenge-automation-poses-why-taxing> (last visited 20 November 2017); Matthew Rendall (2017), “Industrial robots will replace manufacturing jobs – and that’s good thing” *Crunch Network*, 9 October, at <https://techcrunch.com/2016/10/09/industrial-robots-will-replace-manufacturing-jobs-and-thats-a-good-thing/> (last visited 20 November 2017).

⁷⁴ International Tax Review (2017), *Global Tax 50 2017*, 7 December, at <http://www.internationaltaxreview.com/Article/3773447/Global-Tax-50-2017.html> (last visited 8 December 2017).

of tax policy intervention, for example, through extra levy or disallowing robot depreciations to regulate and channelize the unbridled elements of market forces towards the good of *Homo sapiens* society. To follow a naturalist yet balanced course, a rationale that draws on organismic, genetic and Darwinian nature in firms could, and perhaps should, contribute optimally in addressing issues of automation and robot taxation in firms.

6. Conclusion

The study attempted to explore the organismic nature and tax behaviour of firms in a Darwinian world, positing that profit maximization is a trait that runs in firm genes. Based on that approach, the study developed a notion tracing existence of “profit genes” in firms, expressed phenotypically in the income-generation trait including flip side of profits reflected in adoption of least costly methods or cost benefit behaviour.

In that framework, the quest to reduce and/or avert tax costs are also phenotypes attributed to firm genetics and this trait, in search of low or no taxation in international markets, intersects cross-border tax regimes. The study argued that the innate propensity in firm behaviour to mitigate tax costs impacts the global tax governance in several ways indicated by growing amount of issues concerning aggressive tax planning, avoidance, offshore profit shifting, tax havens and tax competition among nations. The governmental policies worldwide, for example those foreseen under the BEPS project, seem to be mindful of the problem in that transparency and anti-avoidance is increasingly taking lead of the global tax drive. Nevertheless, the genetic Darwinian nature of firms does not integrate into the rationale behind policy considerations. The study concedes that integrating biological approaches to the nature of firm into the future agenda of transnational tax research may sound radical at this point in time. It however argues that an appreciation of the fact on growing needs to deepen the existing understanding on the nature of firm is likely to give greater explanatory and predictive power to theory and practice dealing with the innate tax behaviour of firm species.