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Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist, Kate Raworth (Random House Business Books, London), 2017; pp 384, £14.99.

The global financial crisis also led to a setback for economics as a subject - in terms of its relevance to the society. Serious limitations of the subject in preventing the crisis and in providing an effective early resolution has necessitated fresh innovative thinking on what economics must teach to stay relevant. '*Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist'* by Kate Raworth, a renowned economist, profound thinker, and prolific writer, is an important contribution in that direction. The book is revolutionary in its approach, and one of its kind in the field of economics. It may restore confidence of the people who lost faith in economics after the global financial crisis, provide credence to the subject itself and give assurance to those who fear that the reputation of this branch of social sciences is at stake. The rebels and dissenters who emerged after the 2008 financial crisis, across the world, can find solace in it.

Raworth has proposed seven path-breaking innovative ways of thinking in her book. In the first chapter, she argues convincingly that pursuing the economic goal of gross domestic product (GDP) growth alone is neither just nor sustainable. We have become so fascinated and addicted to this notion that our only concern is to grow as fast as possible, even beyond the means of our natural resources, hence jeopardising the life supporting system of earth itself. The source of this excessive emphasis on GDP growth lies in the mainstream economic theories – classical economists encouraged more production, economists like Keynes advised consuming more and neoclassical growth economists suggested greater investment. GDP growth was, in fact, considered the panacea for all economic malaise.

According to Raworth, pressure on global climate change, growing inequality, daunting social and economic deprivations, and the unfolding of the 2008 global financial crisis indicate the need to focus on alternative economic goals. Hence, terms like sustainable growth, long-term growth, balanced growth, green growth and smart growth have gained currency. The progress in this direction, however, is not enough and there is an urgent need to reprioritise our goals. Raworth defines this by visualising an American doughnut that has two rings or boundaries. The inner ring represents the 'social and human foundation', *i.e.*, access to the basic, minimum twelve amenities such as health, education, housing, clean water, nutritional food, energy, income, work under social justice, peace, gender equality and political empowerment. Any transgression of this boundary means a shortfall or deprivation of social amenities. The outer ring indicates the ecological ceiling of planetary pressure and any overshooting of this circle would mean excessive air pollution, ozone layer depletion, ocean acidification, biodiversity loss, chemical pollution, and water table depletion. Our aim should be to stay within the area between these two rings, which represents a 'sweet spot' of an appropriate balance of life. The author argues that we have overshot these two circles due to unsustainable growth. Reversion to the 'sweet spot' needs maintaining a 'thriving-dynamic balance' instead of pursuit of growth. This visual representation of the economic goal (to remain within a doughnut) is the main highlight of this book.

In the second chapter, the writer examines the changes, over time, in the role played by institutional agents in shaping society. The 20th century was dominated by neo-liberal principles where market was trusted to be an efficient institutional agent. In a free market environment with least regulations, the business sector played an important role of making innovations and profits. In this scenario, finance was regarded as 'infallible' and trade was considered a 'win-win' activity for all. The role of the state was of lesser significance and it was supposed to not interfere in the functioning of market. The other agents such as the household, the commons, the society, and the earth did not get much attention during this period.

Raworth suggests a change in the priority of various agents in the 21st century and claims that the main protagonist should be the mother earth, which deserves the most respect. The second most important role is for the society, which is 'foundational' and needs to be nurtured. The third could be assigned to economy which needs to be supported by other agents. The value of the contribution made by households, which had an insignificant role in the earlier framework, should be accounted for now. It is important to regulate market, which is a powerful agent, so that the externality could be internalised. According to the author, the commons are 'creative' and their true potential could be realised if they are 'governed by clearly defined communities with

collectively active rules and punitive sanctions'. The state can take 'centre stage' by getting a mechanism to fix accountability as markets and commons fail. The role of finance should be to 'serve the society' and not to 'dominate' it. There is a need to define the purpose of the business sector while trade needs to be fair. In this section, the book advocates to shift away from a 'market-contained' economy to an 'embedded' one.

The author discusses the limitations of the rationality assumption, which is the basic tenet of a large chunk of modern literature in economics. This assumption has made human behaviour excessively self-centred, which has led to outcomes that are often not consistent with social goals even though they may appear to facilitate the achievement of individual goals. Raworth, therefore, urges a change in perception from 'I' to 'We' and recommends a transition from a rational man to a 'social adaptable man'. In this context, there is a need to assign a greater role to normative economics rather than depend on positive economics which is bereft of value judgement. The tendency of shying away from judging what is good and bad seems to be a hurdle in the path of creating a just society.

Chapter four is devoted to discussion on growing bias of economics literature towards the approach followed by mathematicians and scientists. By turning the theories into maths, economists have ended up with models that are based on equilibrium, with little capacity to predict and respond to real world booms and busts. Raworth points out that because of the distance from real world problems, no one 'saw the crash coming'. It is, therefore, time to 'ditch the Physics envy and embrace the economic complexity with its spiralling feedbacks, emerging trends and surprised tipping points instead of simple mechanical equilibrium'. All the important economic events like the Great Depression, hyperinflation after the second World War, fall of the Berlin wall, and the sub-prime crisis were not sudden events. They had been gradually in the making and could have been foreseen. There are no 'external' or 'exogenous' shocks to the system – all the shocks are inherently internal and 'endogenous' and 'One can listen to what the system tells us'.

The author debates the widely accepted notion of growth and inequality trade-off, which states that a country has to endure the pain of inequality at the beginning of its economic journey, if it wants to become rich. Economists like Simon Kuznets thought that there exists an inverted U curve relationship between inequality and GDP growth. But the evidence of growth of East Asian economies and Japan indicates that it is possible to achieve 'rapid economic growth with low inequality'. In this book, the author asserts that rising inequality is a 'policy choice' rather than an unwanted outcome which cannot be controlled. The objective can be achieved more effectively through appropriate distribution of 'sources of income' such as land, enterprise, technology and knowledge rather than focussing on redistribution of income itself. Our laws, rules and regulation should be 'distributive by design'. Drawing reference to the financial crisis of 2008, the author states that the major cause of the crisis was an uneven distribution of credit in the economy. Furthermore, the bailout process could have been more effective, had the central banks channelled new money directly through community-based renewable energy systems.

According to Raworth, our industrial design is 'degenerative'. We take resources from the system, use them and lose them. This cycle contrasts with the natural systems of earth where life support comes from recycling of carbon, nitrogen, oxygen, phosphorous and water. If the current hazardous practice continues, the end of the world may not be very far. There is a need to move from degenerative to regenerative design of industries where we can reuse and recycle resources so that the total resources of the earth do not decrease. The focus should be on inventing industries which can 'inhale' carbon dioxide instead of 'exhaling' it; designing cities where rooftops generate energy from the sun, grow food and shelter wild life; and construct buildings which sequester carbon dioxide, cleanse the air, treat their own sewage and convert them into soil enriching nutrients. The progress in this direction so far is slow. However, a few good developments have taken place in this direction-for instance, a company in California captures methane from dairy farms and converts them into bio plastic and makes products like bottles and office chairs, and firms in South Australia use sea water to grow tomatoes. In fact, Bangladesh, might become the 'first solar-powered nation'.

Underlining the need for adopting a balanced approach, Raworth suggests that we should neither be too obsessed about growth nor completely discard it. It is not possible to eradicate human deprivation without achieving a threshold level of economic growth. The author's approach towards growth is to be 'agnostic' – one should design an economy that 'promotes human prosperity, no matter whether growth is going up, down or steady'. In this book, Raworth advises that GDP growth should be considered along with

resource use growth, and not separately. If GDP grows faster than the 'resource use' then it is known as relative decoupling; a path suggested by the author for low income countries. For high income countries, she prescribes absolute decoupling; where GDP growth is not only faster than 'resource use' but also accompanies 'absolute' fall in 'resource use'. Germany's GDP during 2000 to 2013 grew by 16 per cent while its 'consumption based carbon dioxide fell by 12 per cent' and similar are the situations in case of UK and USA. It shows that despite absolute decoupling, these countries' emission levels are not falling fast enough. Some scientists have calculated that the falling rate of emission should be between 7 per cent to 8 per cent whereas in reality it is 1 per cent to 2 per cent. Hence, the author advocates for 'sufficient absolute decoupling' in growth which means a growth that is on a sufficient scale to get back the economy to doughnut.

The ideas and concepts explained in the book could prove to be game changers in the field of economics. Raworth's original work is to visualise economic goal in terms of a doughnut and identify; a sweet spot where every economy must try to reach. She believes that pictures are more influential than text. One of the most important diagrams that we study in macroeconomics is 'circular flow of income' where national income flows between four sectors of the economy. She considers this diagram to be one of the most misleading diagrams in economics, which is also incomplete as it does not include earth's resource-use cycle. No doubt income flows from one sector to the other, but what about the flow of energy and resources? There is no channel to refill the resources obtained from earth. Therefore, the diagram needs to be redrawn which would help to understand the economic system more realistically. Though there is a vast literature available on sustainable development and the failure of markets to provide public goods, this book offers a fresh analytical description of the problem and a way ahead. All these ingenious ideas and brilliant framings suggested by Kate Raworth are highly motivating and have the potential to transform our thought process, but their practical applicability is debatable. If only some of these ideas could be implemented, the world would be a much better place.

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