Effect of Big Data in Promoting Inclusive Development

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Abstract. This essay intends to promote inclusive development by utilizing big data as an alternative to economic growth, under the contexts of the greater social disparities coming along with economic growth. In the first part, the term of inclusive growth or development is introduced as an alternative model to resolve all the existing problems that are plaguing a wide range of societies in both developing and developed countries, particularly for those new emerging economies. In the second part, the model of inclusive development is placed under the microscopic lens of the coming of big data era. A wide range of empirical evidence collected by communication scholars lend support to the argument that the traditional value of economic growth shall be abandoned in favor of inclusive development for more social justice and equality of the societies, where the big data can serve as an indispensable catalyst in all aspects of people’s life.

Calls for Inclusive Development

With the rapid economic growth in the worldwide range, most societies have undergone a major transformation towards more prosperity in their people’s life under the contexts of industrialization and urbanization. Meanwhile, the shortcomings coming along with economic growth has gradually emerged: the most prominent ones include the non-extensive sharing of the growth achievement, the hierarchy and structural disparities in income distribution, the expansion of inequality of non-income welfare, and most importantly, social exclusion and development imbalances [1]. Thus, it is imperative to practice inclusive growth to achieve the sound development of economy in most societies worldwide.

Inclusive growth is the comprehensive and sustainable development of the economy and society by giving the basic rights to all members of society including the most vulnerable and marginalized groups. To be more specific, the marginalized and polarized population is expected to fully participate and live up to their true worth through utilizing the job opportunities afforded by the development process, in which way people are able to benefit from the economic gains they deserve and as a result, the societies can be well on its way towards being more fair in their wealth distribution and having more decent welfare system [2, 3, 4, 5, 6].

Inclusive growth is different from the pro-poor growth, concerning more about the ‘participation’ and ‘sharing’ of all members of society with the ultimate value geared toward the essential and free development of people, which is a people-oriented growth [7, 8, 9]. Inclusive growth mainly includes three essential factors: equal opportunity, productive employment and sustainable development.

Entering into Big Data Era

In recent decades, with the exponential development of the information industry, the vigorous growing the Internet and cloud computing gives rise to the improved 4G network, dramatically transforming the internet way of thinking and social media. In the meantime, e-commerce and information transfer, leading to the exponential growth in amount of data, demonstrates the coming of age of the era of big data and intelligence [10, 11]. McKinsey Global Institute reported in May 2011 with topic “Big data: The next frontier for innovation, competition, and productivity,” that data is the basic means of subsistence and market factors, as its importance is not second to material assets and human capital [12]. More and more problems can be resolved through big data. Going beyond data...
science and technology, big data can bring new ideas and thinking in many aspects and areas including business models, industrial structure, ecological value, education, government departments, as well as different industry and academia, and even personal consumers [13].

Similar to the Internet, big data can not only revolutionize the field of information technology, but also accelerates innovation of enterprises, leading to lead social change on a global scale and triggering the development of a more transparent government. Transforming data to asset, industry vertical integration and pan internet are the three trends in big data era.

Equal Opportunities and Big Data

Equal opportunity means that the well-being of a person is not related to the environment but personal efforts. As a new technology, big data enables people, who live in the same social sphere, accessible to basic equipment or data terminal, to have equal access to information, resources and a variety of opportunities, which is conductive to the elimination of the social divide between urban and rural areas as well as the inequality between different social classes [14], thus promoting social justice. For instance, in China, when new generations of migrant workers are involved in collective actions, they tend to resort to information technology to look for real-time information to remain connected with their coworkers and legal knowledge, and past experiences of their co-workers involved in strikes, and more importantly, seek sympathy, support, and assistance from the outsiders through using big data.

Big data is essential in helping companies recruit new employees as well as conduct internal mining [15]. When recruiting new employees, each interviewee surviving after several rounds of screening will be issued a recording device with big data being used to cooperate with appropriate interviewers, which can help companies to effectively single out the most promising and suitable staff to fill the vacancies. The empirical evidence show that the talents selected in this manner can integrate into the operation of companies faster and the teething problems between old and new employees can thereby be resolved. The inclusive is unparalleled in inclusiveness within which the damage caused by personality of employees to the operation of the company can be reduced to a minimum level.

In addition, as good managers and leaders are indispensable for constantly advancing of an enterprise, how to find not only competent but also excellent managers and leaders is the issue that every enterprise has to face. Big data technology provides an excellent solution to this vexing issue. Enterprises can utilize big data technology to effectively identify those staff with potentials to become excellent managers and leaders and design training programs most suitable for these staff so that they can subtly master proper skills in the daily operation of the enterprise [16]. The big data technology helps tapping the potential of employees and provides a platform for employees to fulfill their self-worth.

In order to build an inclusive e-commerce chain, it is necessary for the government to be concerned about the phenomenon of digital divide and improve the information technology support for inclusive growth in addition to strengthening infrastructure investment so that information technology can become an important means for poverty reduction.

Productive Employment and Big Data

Productive employment refers to employment with high labor productivity rather than extensive employment with intensive labor or intensive natural resources [17]. According to the System of National Accounts (SNA), the traditional way to promote economic growth is expanding domestic demand and investing and exporting [18], as effects of economic growth depend on the level of resource utilization. However, in the big data era, the economic development mechanism is completely different from the traditional way, as the effects of economic development depend on the data quality and level of data utilization. The mechanism of big data is that the data produces information, and then information improves decision-making, thereby increasing productivity.

As an important strategic asset, big data has penetrated into all industries and fields. The broad
penetration and deep application of information and data helps improving production efficiency and level of social productive forces, thereby promoting productive employment. McKinsey research showed that, in the medicine, retail and manufacturing industries, big data can improve labor productivity from 0.5 to 1 percentage point per year [12]. Gartner institute points out that the market size based on analyzing products and service by utilizing big data would reach $3.7 trillion and generate 4.4 million new jobs, and within the future four years, information economy would promote to produce 6 million jobs in the United States [19]. Big data has created a new economic dimension of transforming information or data to income, accelerating the global economic development and creating job opportunities.

The big data technology can also transcend the limitations of time and space for productive activities, so that the time and space scope of human activities have been extended, forming an innovative driving force of economic growth and improving the level of technological innovation and productivity development. For instance, retailers can grasp the market dynamics respond quickly to the market through real-time analysis of massive data and increase revenues through precision marketing [20]; in the manufacturing industry, concurrent engineering can be realized by integrating data from research, engineering and manufacturing sectors, significantly shortening the time-to-market and improving quality of products [21]; in marketing, big data can help consumers find more suitable products at more reasonable price range to meet their needs [22]. The most prominent manifestation is the expansion of e-commerce in big data era that the e-commerce ecosystem with plateau effects has become a new trading tool and played a positive spillover in the regional development in many societies.

**Sustainable Development and Big Data**

Sustainable development is the environment-friendly economic growth with reasonable structure and resource-saving [23]. The world economic growth is facing serious constraints of recourses, energy and the environment. The economic growth must not be given precedence to at the expense of destroying the environment. The sustainable development emphasizes a win-win between economic development and environmental protection [24]. To establish a relatively balanced relationship between the economic development and environmental protection, it is necessary to break away from the traditional pattern of extensive industrial structure based on the consumption of natural resources.

Digitalization and intelligentialization enables human beings to precisely control the production process to maximize input-output ratio as well as minimize environmental pollution [25]. Promoting and accelerating the application of informational and digital technology in the production, usage and diffusion of knowledge have practical significance in reversing the dynamic mechanism of economic growth, reducing resource consumption, reducing environmental stress in order to establish a resource-saving and environment-friendly society as well as make adjustments to the entire economic structure.

The academia and industry experts expect to realize the information management in the energy sector through collecting, developing and utilizing the big data in order to achieve the purpose of energy saving [26]. Oil, coal and electricity are the most important energy in industrial production and social life, which are also important factors in air pollution. Therefore, the effective management of these three energy industries has a positive effect on solving the environmental problems such as haze, acid rain and air pollution [27]. With the advent of the big data era, the detailed and thorough informational management can be realized.

Taking the electric power industry as an example, with the introduction of smart grid technology (smart meters and sensors), the real-time monitoring and underestimation of the power consumption of users can be conducted [28], providing a perfect example for the oil and coal industries to follow.

In the near future, the mining of big data could be applied not only to the energy industry but also to the areas of weather, river and ocean to provide more accurate prediction with multi-dimensions on the atmospheric environment and water health [29]. Through collecting comprehensive data about the atmosphere and the environment and deep analysis and modeling of the data, we can discover various unknown relevance in area of environmental protection and foresee some meteorological trends of
the environment, thus developing environmental strategies targeted accordingly to prevent new acts of environmental destruction at an earlier date.

Conclusion

A congenital defect of the traditional value of economic growth is that it only concerns about how to enhance the speed and expand the scale of economic growth but overlooks such issues related to ultimate value of ‘why to grow’ and ‘what kind of growth is needed by human beings.’

The right growth outlook should take into account the common development of economic, social, cultural, ecological and other factors with pursuit of harmonization and unification of the diversity and heterogeneity of values. The proposing of inclusive growth heralds a new development value. On one hand, the formation of the new development value comes from the reflection of the equality and harmony between man and man, man and nature in the original value of economic growth. On the other hand, the new development value provides lubricant for conflicts and contradictions between man and man, man and nature. The function and mission of inclusive development is to try to turn the various contradictions and conflicts in the economic operation process into a manageable or affordable range, so that the orderly operation of economy could become normality.

In the background of the reduction of traditional industries with overcapacity and criticism on the traditional way of economic growth, the intelligence and informatization based on big data provides another dynamic mechanism for the economic growth.

The big data technology can help achieving inclusive development of society in many aspects including social equality in employment, transformation of economic structure, enhancement of productivity, prediction and monitoring of environment, all of which play an increasingly essential role in promoting the entire society to step into steady development with harmony between man and man, man and nature.

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