

How The GIG-Economy is Reshaping the World Labor Market

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Article History: Received: 10 November 2020; Revised 12 January 2021 Accepted: 27 January 2021; Published online: 5 April 2021

Abstract

This study is an attempt to analyze the phenomenon of the GIG- Economy, and explain its impact on the Global Labor market and income distribution . specially that the evolving and rising of the GIG economy over the world using the digital platforms that plays an important role in increasing the productivity and employment rate resulting from rising labor force participation and facilitate getting access to lower salaried workers from different nations , leading to more specialization and standardization of work. In GIG market , low wages workers from developing countries can earn more by engaging in similar jobs in a developed country like USA and European countries . through no barriers, and all that is needed is access to mobile/internet connection. However, Governments can deal closely with business and training centers to impart necessary additional skill for the displaced workers. As a result of the spread of gig works there is a need to invest intensively in ICT-related infrastructure such as telecommunication and internet connection.

Keywords: Digital Gig Work, Digital Labor, Unemployment, Gig Workers, Virtual Labor Markets (VLM).

1. Introduction

In the recent years, many economists are analyzing the phenomenon of GiG economy as a digital, service based, on-demand platforms which are characterized by the prevalence of short-term contracts as opposed to permanent jobs (Greenwood et al., 2017). Approximately 35 % of the workers in USA are part of the gig economy. As per the Federal Reserve Report (2017) puts a more conservative estimate, with 31% of the population engaged in gig-work. In a GIG-world, there are two main types of works web-based work platform such as Freelancers and on-demand work, which can be achieved from any location-based work platform through the market-style apps such as Uber and Airbnb¹.

In addition, the Independent contractors use their skills or assets such as houses and cars, to complete tasks or gigs during a defined period of time to earn income.

In this regards ,the major demand for workers in a gig economy arises from Information Technology (IT), IT-enabled services, e-commerce and tart-up, retail, hospitality and fast-moving consumer good sector, wherein sudden and short-duration talents at the lateral level are very much in demand (Asian Development Bank, 2019). The job market portal Upwork ranks job categories which are most in demand. During 2016, some of the on-demand jobs were dealing with internet marketing, blogs, and e-commerce jobs. There were about 26,000 open jobs, paying hourly rates between \$17 to \$23 on average (World Bank, 2015) resulting in a great impact on the pattern of the global labor market and the redistribution of the international trade among the countries .

2. Conceptual Framework

2.1 The GIG Economy

The origin of this Term of GIG Economy is historically due to a slang word for a live musical performance, & recording session (usually paid) engagement of a musician or ensemble.the meaning of GIG economy also can fall under multiple Terms such as "sharing economy" , Collaborative Economy" , "platform economy" & " On-Demand Economy " .

In view of this phenomenon, Many Economic studies recently have been conducted to analyze the impacts of GIG economy on the supply and demand in the Virtual labor market ,such as (Botsman and Rogers 2010; Belk, 2014; Hamari et al. 2015; Dillahunt and Malone, 2015; Goudin 2016) describing The GIG Economy as a transformative and disruptive economic model in which the consumption of physical goods, assets &services is carried out through rental, sharing or exchange of resources using Technology over the world through crowd-based services or

¹ - Boidurjo Rick Mukhopadhyay and Prof. (Dr). Bibhas K Mukhopadhyay,(2020)" What is the Gig Economy" , April 2020 .

intermediates without any permanent transfer of ownership, which is increasing the efficiency and effectiveness of economic activities by reducing transaction costs and information for the consumers by increasing the rate of utilization of goods through recirculation & exchange of services by increasing the rate of sharing of productive assets in the market .In Addition ,it leads to Intensity of competition in the marketplace that allows prices to change as a response to change in demand and supply, reduce the complacency of suppliers and make services that often exist in an informal business through formalization (Goudin 2016; Schor, 2014; Welsum 2016; Hira and Reilly 2017). In the context of the phenomenon of GIG Economy, there are large numbers of labors work for a part-time or temporary Jobs. The costs in GIG economy are lower than in traditional Economy ,moreover the services provided are more efficient , such as Uber or Airbnb, there is a wide range of positions that fall into the category of GIG . For example, The part-time professors are contracted employees as opposed to tenured or tenure-track professors. Colleges and universities can cut costs and match professors to their academic needs by hiring more adjunct and part-time professors².

2.2 The key Features of the GIG Economy are:

- a. A transformative and disruptive nature, as evidenced by the effects of services such as Uber and Airbnb on the transportation and tourism sectors
- b. Consumption and use of goods, services or assets through rental, sharing or exchange of resources, which increases the utilization rate.
- c. A heavy dependence on IT through online platforms. For instance, the relying on IT for identifying relevant individuals or businesses, exchanging and aggregating relevant information (e.g. products, services), booking of services and payment of fees. Technological breakthroughs that have enabled such activities have reduced transaction costs through the Digital economy .
- d. The direct engagement of crowds and/or intermediaries. The GiG economy focuses on consumer markets through crowd-based online services or intermediaries providing consumer-to-consumer (peer-to-peer) or business-to-consumer models. This particular aspect of the GIG economy in which economic activity is carried out through crowd-engagement directly connects to crowdsourcing.
- e. The temporary nature of the engagement rather than any permanent transfer of ownership of goods, distinguishes the sharing economy from e-commerce which is buying and selling of goods and services online.
- f. **Compatibility** is related to complementarity of both demand and supply which should be compatible for a Sharing Economy network to work efficiently .
- g. **Complementarity** means that each product needs to be consumed together with another. The basic example for this are DVD players and DVDs that are essentially complements and do not work one without the other. In Sharing Economy, networks are not associated with products that are complements. Platforms match unfulfilled individual demand with individual supply. In that context , these constitute the complements that characterize networks. Without a (individual) supplier that provides the shared goods or services , the platform and the Sharing Economy is not able to satisfy demand. Vice versa, without demand, the platform cannot conduct the business with the suppliers.

2.3 Crowdsourcing Replaced Managerial Capitalism

Crowdsourcing is considered to be the IT-mediated engagement of crowds for the purposes of problem-solving, task completion, idea generation and production in which the dispersed knowledge of individuals and groups is leveraged through a combination between a bottom-up innovative crowd-derived processes & inputs with efficient top-down goals set and initiated by an organization.

It is continuously evolving and a variety of forms are emerging, Crowdsourcing initiatives can be carried out by 'propriety crowds' that organizations foster through their own in-house platforms or by using third-party crowdsourcing platforms that provide the required IT infrastructure and 'built-in crowds' as well . this study explains the main generalized Types of crowdsourcing that focus on micro-tasking in Virtual Labor Markets,

² Asongo, S.A. (2017), " Knowledge economy gaps, policy syndromes, and catch-up strategies: Fresh South Korean lessons to Africa" , Journal of the Knowledge Economy, 8(1), 211-253.

through the Crowdsourcing and Open Collaboration with social media and web. These general categorizations are not exclusive, nevertheless they are useful for understanding the general characteristics of different types of sharing economy & crowdsourcing.³

The Sectors of GIG- Economy which include the following :

- Tourism and hospitality
- Mobility and logistics
- Labor and service platforms
- Food and dining
- Financial services

3. Virtual Labor Markets (VLMs)

VLM refers to IT-mediator market where labors can provide online services (Labor Supply) which playing a significant role in the global market force by formulating the platforms & allowing more sophisticated production's tasks to be carried out. therefore, most of these tasks attract low & medium levels of skilled labor and also the repetitive tasks, that means the compensation level for each task is low. that would be carried out anywhere offered by the organizations generally through these micro-tasks, representing the production model of crowdsourcing, in exchange for monetary compensation system.

Currently most of the labors working through VLM websites often work independently and anonymously and cannot form teams or groups using the VLM platforms. On the other hand, The Micro-tasks could be existed at some Websites such as *Amazon's Mechanical Turk* including document translation, transcription, photo and video tagging, editing, sentiment analysis, categorization, data entry, and content moderation. All of these activities could be divided into various stages of tasks (micro-tasks) that can be completed parallelly with using the labor computational power.

4. Advantages of GIG- Economy

1.4 Transferring costs

Networks are depending on high switching costs between different networks. In Sharing Economy firms often are switching costs although they are not as high as in other networks, such as the social networks. For example, the consumer who needs to rent a house for accommodation during his vacation can easily establish a free account at several different platforms that offer this service, for example. In comparison, switching social networks effectively means leaving behind all the connections to other people that have been established in the past. in this context, the Business in Sharing Economy is tending to switching costs involved: Firstly when the consumer incurs training and learning costs. Once he has used to the specific level of one platform, it will take a time to get used to another one. Furthermore, he may incur search costs because he needs to find another platform that would offer the same service. & eventually, the consumer faces the considerable loyalty costs due to the trust mechanism of the new platform the might be dissimilar by the evaluations of past interactions with different suppliers.

4.1 Economies of scale

GIG economy is characterized by economies of scale (Shy, 2001). This also holds for Sharing Economy firms, While there are sunk costs associated with developing the platforms and maybe marketing activities before the first consumption, there are almost no additional costs if more consumers use it once the programming of the platform is achieved. Accordingly, it is considered to be fairly cheap for Sharing Economy firms to reach a large number of consumers as well as suppliers. This can lower the cost of enter the market and eliminating the barriers as well. Consider the taxi market, for example, is competing the current firms, an entrant needs to possess a significant number of cars in order to attract consumers. Matching demand for and supply of private rides via a platform means that this threshold is basically nonexistent because a large number of (individual) suppliers are easily reached. On top

³ Banik, N. 2017, "The Technology Bug that India's Economic Advisory Council Must Tackle", THE WIRE Journal (October 23, 2017).

of this, it does not even cost the platform any money to provide this supply⁴. This is the main reason why in many markets P2P Sharing Economy firms have found this simple to enter into the fierce competition with the current firms

another main characteristic is the aforementioned properties of two-sided platforms are differentiate between different types of users and can cross-subsidize between them . This means that there is a profit-making segment and a subsidized segment. In General, there are different types of pricing possible in this kind of setting Either the demand side or the supply side . A combination between both price discrimination for different types of consumers & suppliers is also conceivable. If consumers or suppliers are charged, the platform finances itself through advertising, the platform can be defined regarding this point as a multi-sided because the advertisers form another side of the platform.

4.2 Flexibility for Labors

flexibility is one of the most prominent characteristic of the GIG economy. Thus, The availability of the various opportunities of employees fingers provide a kind of flexibility to deal with this platforms . therefore, In GIG market it's possible to work from home or another location which eliminate the transportation costs . according to the conducted studies regarding GIG workers of 601 Uber driver-partners, the drivers were asked About their preferences in work and the result was that 73 % of the drivers chose flexibility rather than a traditional job. in addition , GIG Economy is lowering labor market barriers regarding enter & exit the platforms such as Penal , contractual conditions & work permits.

4.3 Various Options in GIG market

With low barriers to entry and endless opportunities for freelance employment literally at their fingertips, employees' biggest hurdles to joining the on-demand workforce is often determining which freelance employment opportunities are the best fit for their lifestyle, skillset, and time. The rising gig economy also offers new inroads to many career paths that were previously limited entry. Employees have new ways to get a foot in the door by freelancing as a way to bootstrap new skill sets , no matter their gender, nationality, or socio-economic status, and can do so in a way that is entirely of their choosing and unique to them⁵.

4.4 Safety Cushions

The Rising of GiG economy can provide a sustainable cushion for the labor force against the uncertainty and economic Crises such as Corona Vairous Pandemic That overthrew many jobs in traditional Economy , in this regards GIG labor market has a various options in order to decrease the employment Gap Globally .

4.5 Network externalities

Networks are further characterized by externalities (Shy, 2001). Network externalities mean that the number of participants or consumers using a platform is positively correlated with the value they get from their use of this platform (Shapiro/Varian, 1999). The more subscribers a telephone company has, the more value is created for each user since the number of possible calls is increased (Shy, 2001). For the Sharing Economy, the network effects are indirect ones. Usually, in P2P platforms the extra value does not stem from the other consumers directly. Instead, if a lot of consumers use a platform, their demand is better met and hence, the value of their use of the platform increases. Take a P2P accommodation platform, for example: A high demand for this type of accommodation results in many suppliers of private accommodation participating and consequently increases coverage and possibly demand. The number of users on one side of the platform thus attracts more users on the other side (Haucap/Heimeshoff, 2013).

⁴ Casilli, A. (2016), "Is there a global digital labor culture? Marginalization of work, global inequalities, and coloniality". Communication at the 2nd symposium of the Project for Advanced Research in Global Communication (PARGC). Apr 2016, Philadelphia, United States.

⁵ Mark Graham, I. Hjorth, Vili Lehdonvirta(2017) , " Digital labour and development: impacts of global digital labour platforms and the gig economy on worker livelihoods" , Journal of economics & political Sciences .

Indirect network externalities or network effects, often on both sides, are a major property of two-sided markets (Peitz, 2006). Hence, P2P Sharing Economy businesses constitute typical two-sided platforms. The indirect network effects occur on both sides.

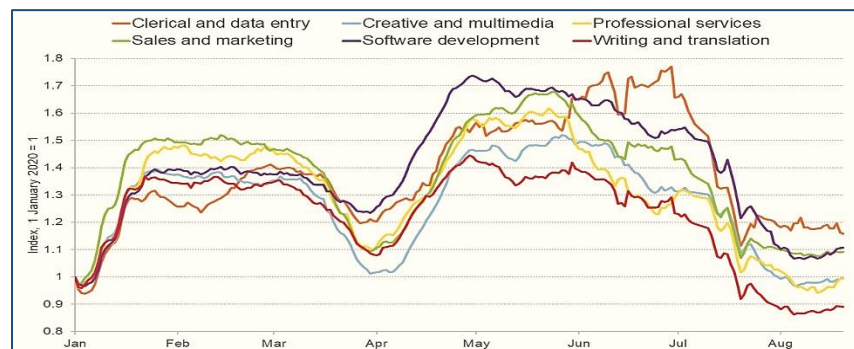
Challenges & Risks

- **Inconsistent Income** There's also the ever-present possibility of an app going out of business in response to litigation or funding issues, or a sudden lack of demand caused by new competitors in the market or other economic factors.
- **Fewer Protections** Contract work typically means that most of the safeguards available to W-2 employees are absent in the on-demand dynamic. Severance pay, disability leave, PTO, sick days, and workers comp are just a few of the protections and benefits afforded to full- and part-time employees but not contractors. It's also far easier for employers to terminate a relationship with GIG workers as opposed to a full- or part-time workers .
- **Unrecognized value** – the sharing economy brings with it a rise in unrecorded value. Because it is unrecorded, it is not reflected in GDP.
- **Better use of resources** – because the sharing economy allows for existing resources to be taken advantage of without providing/constructing new ones, it has a negative impact on GDP. For example, why build a new hotel if there are available rooms available via Airbnb.
- **Improved personal well-being** – when someone rents out their dwelling or is paid to teach another a new skill, this is reflected in GDP. But the sharing economy threatens this by not converting all resources to a monetary equivalent, thereby reducing GDP.
- **Increased costs of alternatives** – a person is willing to use an alternative (e.g. public good or service) if it is more profitable for them than acquiring the exclusive right to use it. For example, someone refuses to buy a car and uses public transport or calls for an Uber. This means a rise in the cost of the alternatives, but no new purchases, thereby reducing GDP.

The impact of Covid-19 Pandemic on GIG

In our last [labor blog post](#) we looked at the response of online Labor markets to the COVID-19 pandemic and realised that the *downscaling effect* might be dominating over the *distancing effect*: Demand for online work diminished , as firms are facing declining revenues and reduce non-essential spending, including external contractors⁶ .The global demand for online freelance work is strongly influenced by demand from the United States, as the US represents approximately half of all the demand for online Labor measured by the Online Labor Index. However, the United States was not the first economy to be impacted by the pandemic and its countermeasures. Our data allows us to assess how online Labor demand has changed in early 2020 across different countries. The study examines three important regional economies with different COVID-19 trajectories and responses: United States, Germany, and South Korea.

Figure 2: The evolving of GIG Economy during Covid-19 Pandemic,2020



⁶ Marta Cecchinato & others , "The Gig Economy in Times of COVID-19: Designing for Gig Workers' Needs" , Microsoft Research Symposium on The New Future of Work, August 05–07, 2020.

SOURCE: Source: I-Labour Project. Data available at <https://ilabour.oii.ox.ac.uk/online-labour-index/>, January 2020

The figure above shows a cross-country comparison of GIG Labor demand from *United States, Germany, and South Korea*. Each country shows a different pattern dealing with the pandemic.

South Korea was one of the first economies that faced the consequences of COVID-19 early in 2020. The Aggregate Demand from South Korea fell from mid-February to mid-March, but bounced back rapidly in late March. Furthermore, the Demand from **Germany** similarly fell from February to March, and experienced a more modest rebound in April. Also, The Demand from the United States started falling roughly two weeks later than the demand from South Korea and Germany and by mid-April was showing only a small uptick. These patterns are consistent with the idea that the pandemic reached the United States later than it reached South Korea and Germany, and that South Korea in particular has already been able to roll back some of its countermeasures, or adjust to the new normal of GiG labor market.

The Impacts of Gig Economy On The developing countries

As was illustrated in the previous section, developing countries often fall behind in terms of GDP, levels of productivity, innovation, governance and political freedoms and have higher rates of poverty, income equality and dependence on external flows of cash. Given the nuanced differences within each country group, a one-size-fits-all approach to the adoption of GIG economy in developing countries is not feasible. Below the study focus on some of the relevant challenges facing different types of developing countries, with a particular focus on the governance and regulatory aspects.

Table 1 : Characteristics of different types of developing Countries

	poverty	Income Inequality	Productivity	Innovation	GDP	Political Freedom	Governance
Type 1 : High poverty rate countries with largely traditional economies : Sierra Leone; Ethiopia; Rwanda; Haiti; Bangladesh; Pakistan,India	highest	Moderate	Lowest	Lowest	Lowest	Very low	poor
Type 2 : Natural resource dependent countries with little political freedom Vietnam; Tajikistan; Yemen; Cameroon;	high	Low	Low	Low	Low	Low	Poor

Angola; Chad; Congo							
Type C3 : External flow dependent countries with high inequality (Bolivia; Indonesia; Thailand; Peru; Colombia; Ukraine; Sri Lanka; Kenya).	Moderate	High	Moderate	Moderate	Moderate	High	High
Type 4 Economically egalitarian emerging economies with serious challenges of environmental sustainability and limited political freedoms : Iraq; Egypt; China; Jordan; Azerbaijan; Venezuela	Moderate /Low	Lowest	High	High	High	Lowest	Poor
Type 5 : Unequal emerging economies with low dependence on external finance, Turkey; Brazil; Mexico; Argentina; South Africa; Malaysia	lowest	High	Highest	Highest	Highest	Highest	Highest

the most important requirement for setting up and successfully operating GIG economy platforms in the first instance is access to communication networks for activities such as the exchange of information, currency and transactions among the participants (e.g. consumers with suppliers or workers with tasks from employers). According to the study of Vázquez and Sumner's (2015) classification, which was elaborated in the previous Table 1, Type **1 and 2** countries with the worst development indicators (i.e. higher levels of poverty and lower levels of Labor productivity and innovation capacity) are dealing with poverty problems and have more difficulty in implementing such technologies to begin with. World Bank indicators on the diffusion of mobile phones by country groupings, mobile cellular subscriptions per 100 people, and individuals and households with access to internet suggest this is indeed the case. Furthermore, Type 1 and 2 countries have higher levels of contribution from the agricultural sectors and larger portions of the population that have difficulty in using online platforms for carrying out more sophisticated tasks online such as participating in VLMs and TC that require higher capacity and access to computers rather than mobile phones that facilitate local (mobile) sharing economy activities (relative to their counterparts in Type 3 to Type 5, which have higher levels of urban population)⁷.

The study advocates that developed countries disproportionately hire more individuals from GiG economy platforms than developing countries to conduct online and local tasks. Aside from issues relating to discrimination between individuals (discussed in the next subsection), here again the transfer of higher skilled and higher paying jobs within developing countries is not equal. Type 4 and 5 countries that generally have higher levels of productivity and innovation are more likely to get the better paying jobs such as programming and engage in specialized forms of IT-mediated technology such as TC. On the other hand, C1 to C3 countries attract low to medium skilled work. In this case, Type 1 and to some extent Type 2 countries are at a disadvantage as it is more likely that individuals in these countries may not have the ability to provide information as a part of joining a platform that might bar them from participating in Digital platforms as well as having more difficulty in transferring funds online⁸.

Therefore, although a specific level of GIG economy from developed countries to developing countries is existed, the economies that have transformed from traditional agriculture and are more advanced will get more benefits, which could increase the gap between Type 4 and Type 5 countries and their Type 1 to Type 3 counterparts that have more traditional economies. On the other hand, some of Developing countries are often suffering from inefficiency in terms of the delivery of vital public services, inefficient revenue systems, poor transparency and the inappropriate allocation of resources, which often manifest themselves regarding problems in sectors such as healthcare. In Addition According to the study of Ozimek (2014), poor governance and a lack of effective regulatory systems in developing countries with weak property rights make attracting the investment required for building large firms with high reputational capital difficult.

The study argued that in the absence of good governance practices, decentralized crowd-based rating systems lower the existence of an effective services industry and bypass the need for regulation, as users in these countries will trust peer-based feedback systems that can inform them about quality of goods/services more than government endorsed firms and will help them in avoiding fraud and wrongdoing. However, the study of (Aloisi, 2015) mentioned that there are ranking systems and approval ratings transfer the traditional role of management to the users of the platforms, highlighting that with this transfer the recipients of such reviews in the platforms are less protected from external manipulation and agendas. Furthermore, given that most of crowdsourcing and sharing economy firms are commercial and seek profits (with the exception of some OC crowdsourcing platforms and non-commercial peer-to-peer sharing networks) Ozimek's views about potential of IT platforms seem rather optimistic.

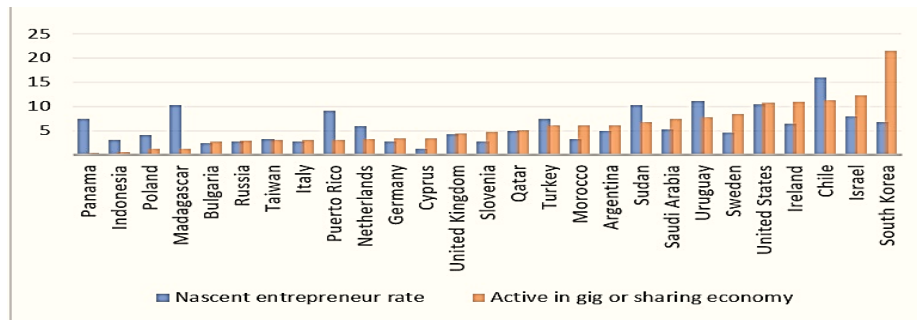
According to the study of (Codagnone, Abadie and Biagi, 2017) stated instances of litigation in the US in regard to crowdsourcing and the sharing economy concerning employee benefits, cost reimbursements, violation of Labor standards, incorrect classification as contractors, and minimum wage and overtime payments. The fierce price wars between firms can also affect workers, employees and contractors. Stiff competition can result in price reductions by firms seeking to attract more consumers and an increasing volume of business but this can also result in contracting drivers being undermined, affecting the industry and ultimately consumers as a whole. when such issues are surfacing so quickly with the adoption of GIG economy practices in developed countries such as the US and Singapore, which

⁷ Chandy, L. 2017. The Future of Work in the Developing World. Brookings Blum Roundtable 2016 Post-Conference Report. Brookings Institution, Washington, DC.

⁸ Donald Freudenstein and Becca Duane, "The Rise of the Gig Economy and its Impact on the Australian Workforce", Actuaries Institute, Green Paper 2020.

have strong governance and regulatory regimes, as well as effective enforcement mechanisms relative to developing countries, the argument that given the governance and regulatory deficits in developing countries a stronger and stricter enforcement and oversight of these platforms is needed. In developed countries, in response to some of these legal challenges, firms such as TaskRabbit, Uber and Lyft have made adjustments to their business models. However, without adequate regulation being applied, Type 1, 2 and 4 countries are susceptible to firms entering their markets and dominating them while the risks to workers, contractors and consumers (e.g. not having strict regulations for mandating third-party insurance in ride-sharing platforms or protecting privacy and financial information in both commercial GIG economy platforms that carry out currency exchanges) and then dealing with any litigation afterwards, perhaps after a long period in which they took advantage of the situation. This is further exacerbated because these countries (particularly Type 1 and Type 2 types) are less capable of monitoring the activities of the platforms and ensuring the correct collection of records and sufficient tax payments to the state.

Figure 3 : Comparison between nascent entrepreneur rates and participation in GIG Economy , 2019



Source : Global entrepreneurship monitor Report (2020), "The GIG ECONOMY: A Role to play in early entrepreneurship.

Many of the suggested remedies are challenging to implement and are yet to be addressed in developed countries, which further increases concerns in regard to developing countries. Most of the developing countries can benefit from improving their governance and regulatory capacity and capability relative to developed countries. This in turn will facilitate addressing the aforementioned issues. As highlighted in Table above, Group 1, 2 and 4 countries have the highest levels of governance deficit, which demonstrates the challenges in addressing the issues raised by Codagnone, Abadie and Biagi (2016) and Aloisi (2015). Moreover, it is worth pointing out that the compounding effects of corruption and restrictions on political freedom in these countries further exacerbate these problems, as such workers in these countries will be more vulnerable relative to their Group 3 and 5 counterparts. Highly publicised concerns about Uber, for instance, due to excessive charges from the surge-pricing algorithm and drivers being accused of assault, resulted in blanket bans in some cities, as unlike the traditional taxi industry Uber was initially not subject to strict regulations for pricing and licensing. However, the findings of the study by van den Broek (2015) suggest that, although firms such as Airbnb and Uber try to hold on to their generic business models as much as possible, in the face of regulatory constraints (mainly relating to drivers in the case of Uber and hosts in the case of Airbnb) these firms have adapted their business models and have found ways to operate legally within the set framework⁹.

As such, the active participation of governments in developing countries and more effective regulation of the affected sectors is paramount for gaining the benefits of IT-mediated platforms highlighted earlier (e.g. even addressing shortcomings in provision of goods/services), and avoiding negative consequences such as labor law violations, discrimination, infringements on privacy, etc. Group 3 and 5 countries, with higher governance capacities, are more likely to be able to work with firms, or impose restrictions on them to encourage the adoption of positive practices. Additionally, given the higher level of productivity in Group 4 and 5 countries, they can utilise pull mechanisms to direct innovation in IT-mediated technology and provide funding and support to firms that follow best practices. Research by Sadoi (2008) suggests that focusing on developing local technological capabilities within a country is more successful than the provision of incentives to firms for technology transfer to developing countries as successful transitions depend on countries developing their own innovation hubs. As such, Group 1 to 3 countries should not just

⁹ ILO (International Labor Organization. 2019. ILOSTAT. Available at: <http://www.ilo.org/ilostat>.

open markets to external corporations but should exert some control and focus on improving levels of productivity and innovation and perhaps given the complexity of the issues at hand and the severity of constraints they face set stricter control mechanisms relative to their 4 and 5 counterparts, or even focus on direct provision of services. It is worth mentioning that some forms of crowdsourcing platform, particularly OC crowdsourcing, rather than receiving support, might be strictly limited in some of the developing countries with lower levels of political freedom (Group 4, 1 and 2) or actively used for reducing political freedom, as new empirical research by Asmolov (2015) demonstrates that, using volunteers from crowdsourcing platforms, it is possible to prevent collective action.

The Impacts of Gig-Economy on Employment

From an economic perspective, the evolving of the gig economy is likely to increase overall productivity as a result of increasing in labor force participation and getting access to lower wage workers from cross borders, leading to more specialization and standardization of work. High skilled workers from a different nations get involved. Over the last two decades, Europe, for example, is suffering from a fall in Labor productivity resulting from a fall in birth rate, ageing population, and a strong anti-immigration policy. The spread of gig work is playing a great role in increasing productivity through increasing the labor force participation and technological innovation (digital platform).

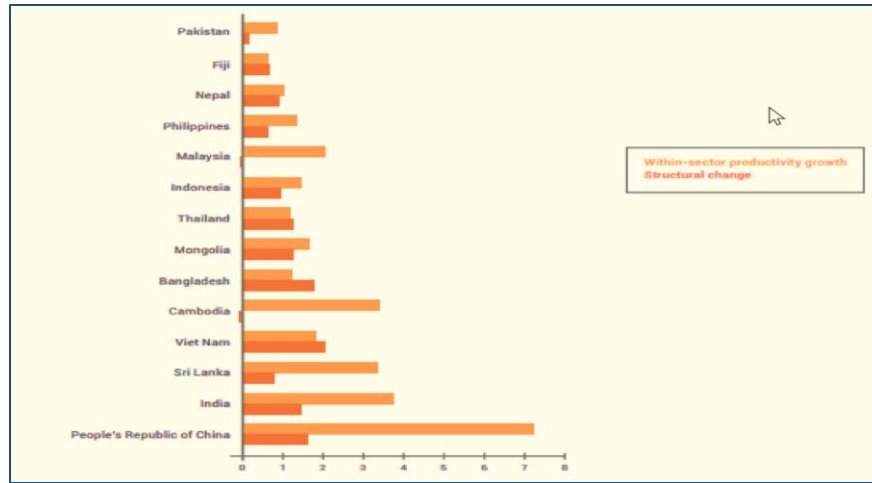
According to Adam Smith's theory of specialization and Division of labor, many firms over the world is turning toward designating a separate tasks through a global value chains to various freelancers specialized in that area rather than hiring one generalist to complete all tasks. Workers are also more accountable as performance standards dictate future income. Higher productivity growth creates a rational exuberance where consumers and producers are reaping benefits, and by investing more in these sharing platforms, therefore greater number of jobs have been created through Connecting world Labor market to rise in economic productivity even in countries in Europe, facing shortage in supply of skilled Labor¹⁰.

the gig economy represents factor price equalization outcome in a Heckscher-Ohlin-Samuelson (HOS) model. When trade happens between countries with differential factor proportions, the Labor-abundant country specializes in exporting Labor-intensive goods, and the capital abundant economy specializes in exporting capital-intensive goods. As the Labor-abundant economy is exporting Labor-intensive goods, the price of Labor-intensive goods goes up. Under perfect competitive assumption (with H-O model)¹¹, this would increase the price of Labor (wages) in the Labor-abundant economy. Similar is the case with the relatively capital-abundant economy where return to capital will increase. Trade is expected to equalize return to factor incomes across countries. In Gig-Economy, low-Wage workers from developing countries such as India can earn more by engaging in similar jobs in a developed country like USA and countries within the European Union easily without any entry barriers, using the Digital platforms through internet connection without logistic costs as in traditional Economy. figure 2 shows how this structural change in the Digital/Vertual labor market using the technological innovation have led to gain in productivity by shifting employment from lower to higher productivity sector. IT sectors have created millions of employment over the world. OECD (2019) estimated about 5.74% employment in information and communications technologies (ICT) space. For the G20 member countries, the range of employment in the ICT sector is between 4.66% and 6.45%. For emerging economies such as Brazil and India, the ICT sector has employed over 1.3 million and 3.5 million people, respectively, by 2014.

¹⁰ - Atkinson, D. R. (2018), "How to Reform Worker-Training and Adjustment Policies for an Era of Technological Change", Information Technology Innovation Foundation Report (February 2018).

¹¹ Zhao, Y. 1999. "Labor Migration and Earnings Differences: The Case of Rural China," Economic Development and Cultural Change, vol. 47, no. 4.

Figure 4 : Source of Labor Productivity Growth (%)



Source: Adopted from Asian Development Bank Report (2019)

The gig jobs have spill-over effect on other sectors as well. A World Bank study (2017) estimates digital jobs generate between two and four times more employment for other sectors in the economy. The lower price of service associated with gig economy has generated consumer surplus which can be spent on other sectors, with a multiplier effect on income and employment generation. For example, after introduction of taxi service by Uber in India and Egypt, taxi fares were reduced in major cities in India. This additional money saved from lower commuting cost is an addition to the disposable income, which can be used for buying other goods and services. Interestingly, gig economy has other social benefits such as Taxi service providers such as Uber are allowing people to experience the benefit of share ride, leading to lesser traffic congestion and other motor vehicle accidents.

8.1 The Gig Economy and Income Distribution

In presence of technological innovation, knowledge-based workers are likely to gain more than the manual laborer. However, as Atkinson (2018) argues, much part of the job loss will be mitigated through the spread of gig economy, although at the cost of growing income inequality between high-skilled and lower-skilled workers, worldwide. An International Labor Organization report suggests gig workers in some developed countries are making less than the government-mandated minimum wage rate. About two-thirds of the US workers using the "Amazon" platform made less than the federal minimum wage rate of \$7.25 an hour and only 7% of Germans on the "Clickworkers" platform made the statutory minimum wage of 8.84 Euros (\$10.40) an hour (Bershidsky, 2018). Some Economists also argue the virtual businesses which are created by unregulated platforms with no minimum wage rates. The workers are suffering a deprivation of some rights such as health insurance, sick leaves, working hours, continuation of contracts, and settlement of disputes. In fact, services such as Uber and Airbnb are coming under increasing pressure to adhere to the rules that are applicable to traditional service providers in those fields. The city of Seattle has passed a law permitting Uber and Lyft drivers to unionize.

The ability to take advantage of the benefits arising from spread of technology is likely to vary across individuals. Workers with higher level of skills are likely to benefit, whereas the ones protected through Labor unions and until now enjoying the benefit of higher wage rates because of spatial/geographical segregation, are likely to lose out. Their jobs are more likely to be shipped over to other emerging economies such as India and Philippines with a better access and adoptability to ICT, and an English-speaking workforce. New flexible ways of working could benefit groups that were traditionally marginalized such as women, young people, and disabled.

8.2 The governmental Policy

In a gig Economy, policy interventions require facilitating spread of digital economy and at the same time ensuring an environment which will guarantee the welfare objective of the state is met, that is, the workers are not over-exploited. Some of the most important policies are the following :

- **Human Capital:** From the supply-side the should government undertakes policy which will create additional number of skilled Labor force. Building schools and investing in quality education . For instance, during 2018, no Indian university was in the top 200 of the Times Higher Education World University Ranking 6 & This comes as a nasty surprise to those who believed in the process of India's scientific, technological and managerial manpower. The truth is that the curriculum taught in most Indian universities is stuck in the past, with little relevance to modern industry. Hence, fewer jobs are getting created, with less graduates having the ability to execute. If corporates figure out that potential candidates do not have the power to execute or deliver, then the demand for hiring will be less. In India, during 2015 and 2016¹², employment generation in the organized sector fell to less than two lakh jobs a year, which is less than 25% of the annual employment generated before 2011.7 Daily, less than 2% of Indians who apply for jobs get them.⁸ There is a need to facilitate stronger linkages between universities and the private sectors. The United Kingdom government is promoting robotics, 5G wireless internet and smart technologies while asking private sectors to sponsor 300 master students and 200 doctoral students in artificial intelligence every year¹³.
- **Ease of Business in a Digital World:** The government should be an enabler enabling policy and regulatory environment so that entrepreneurship and innovation associated with digital technology expand. As much of the growth is supported through the ICT, government should undertake investment in telecommunications, cybersecurity, internet, and ensure wide spread access. Investing in complementary infrastructure such as electricity connection, lowering logistic cost for setting up business, and enforcing contracts will help. For example, referring to the Ease of Doing Business Report 2019, the World Bank has placed India in the 77th position, which is a marked improvement from its 134th position out of a sample of 190 countries¹⁴, five years back in 2014. The rise in composite ranking however hides certain sectoral 'unease' effects such as higher logistic costs and delay in enforcing contracts. The logistics cost in India, at 14% of GDP, is among one of the highest in the world. India's logistics sector is quite complex with more than 20 government agencies, 40 partnering government agencies, 37 export promotion councils, 200 shipping agencies, 36 logistics service, and 168 container freight stations. Further coordination between 81 authorities and 500 certifications are required to trade across borders. 10 The Indian Government is currently planning to bring down the logistics cost to 10% of GDP by 2022. For that to happen there is a need to improve the last mile connectivity by enhancing capacity in port-related infrastructure and deployment of multimodal hubs to augment trade while reducing logistics cost.
- **Convenience for Commercial Payment:** It is necessary that small and medium enterprises in a digital-world get proper policy support in terms of access to credit and necessary demand creation wherein the government bodies commit to some amount of captive service generated in the digital start-up eco space. To facilitate growth of digital business there is a need for ensuring access to electronic payment systems. Online payment systems are required for the workers to get paid for their works. At the same time the central bank and other regulatory bodies should ensure that these payment systems are secure and in compliance to global standards. For example, in recent times, Facebook has announced an ambitious plan to launch their own digital currency – Libra (something like cryptocurrency Bitcoin) – within next 6 to 12 months.¹² Libra, which will be pegged to the US dollar, can be used by the online Facebook user to send money across borders. Digital currency, such as Libra, will be beneficial for those who does not have bank account and can act as a great way for financial inclusion. However, it can be a cause of concern for the central bankers, as digital currency such as Libra can used for money-laundering activities and evading tax
- **Welfare State in the wake of Disruptive Technology:** A concern with the gig workers is that they do not adhere to laws involving (i) fair Labor standards governing the minimum wage and work hour overtime, (ii) occupational, health and safety hazard covering the work related insurance, (iii) medical and sick leave

¹² Beerepoot, N., & Lambregts, B. (2015). Competition in online job marketplaces: towards a global Labor market for outsourcing services? *Global networks*, 15(2).

¹³ McKinsey Global Institute. 2018, " Solving the Productivity Puzzle: The Role of Demand and the Promise of Digitalization" , McKinsey Global Institute, February.

¹⁴ Fuchs, C., & Seignani, S. (2013). What is digital Labor ? What is digital work? What's their difference? And why do these questions matter for understanding social media? *TripleC: Communication, Capitalism & Critique*. Open Access Journal for a Global Sustainable Information Society 11(2).

allowance, (iv) pensions and annual leave/holidays, and (v) job discrimination relating to gender, caste, and creed.¹³ There is a need for the government to take this up with the gig firms so that some of these benefits can be passed on to the concerned parties. Typically, in a gig setup, the government loses money because of lack in tax collection. There is a problem in tracking how much gig workers are earning (from abroad) as some of the money transfer platforms are not integrated with the income tax portal in respective specific countries. Also, the big firms such as Facebook, NETFLIX, Google, etc., and the so-called UNICORN, have no social obligation and continue to pour money for growth of their respective company, with the objective to please their shareholders. ¹⁴ Seldom there is an effort by these firms to reach out to individual governments for taking up any social clause. Individual governments can clamp down on tax evasion by making it mandatory, and use the money raised to invest in public services that counteract the growing inequality that is a policy challenge for many economies.

- **Targeted Assistance Program and Jobless Growth:** There is also a requirement that government address the challenges associated with some workers getting displaced from technological disruption. There is a need to find ways to absorb these Labor ers for alternative employment. For understanding which one of the sectors these displaced workers' skill and experience are better suited, the policymakers can make use of big data and AI. Governments can work closely with business and training centres to impart necessary additional skill for the displaced workers. One policy that government can undertake to offset rising income inequality and fears that jobs that are made redundant will not be replaced by new ones in other areas is to start giving universal basic income. Many current welfare programs take away benefits when recipients find work, sometimes leaving them financially worse off than before they were employed. UBI is for all adults, regardless of employment status, so recipients are free to seek additional income, which most everyone does.
- **Hypothesis Testing**

In this section the study examines the hypotheses " Does the growth of gig Economy have a significant impact on the employment? "

During the time of recession laid-off workers find it difficult to get a jobs , & unemployment rate is going up , In this case GIG economy could help in diminishing unemployment rate as the workers at the time of recession adopt more flexible type lower paid jobs rather than working in traditional Labor market, therefore ,most workers will prefer to work in a more flexible work environment (for instance, work from home or without any binding on work hours). The GIG economy provides a cushion wherein labors can find alternative employment without government intervention. Therefore, the study expects that the number of professional workers in the traditional Labor market will fall during the time of recession, and with the spread of a GIG economy.

• DATA

Data analysis based on data for 6 countries in the Asian region covering the period between 2000 and 2019. Three of these countries namely, *Japan, Republic of Korea, and Singapore* are categorized as high-income countries. And another three countries namely, *Bangladesh, India, and Philippines*, which fall under middle-income category countries.

While these countries belong to different level of development, one thing is common among these six countries: they all have a relatively open economy and getting ready to get involved in the operations of GIG economy . for example, Gig workers in India hold a 24% share of the global online gig economy.

The source of the Data regarding the number of professional workers in each country is the International Labor Organization (ILO), from their publication ILOSTAT which contains statistics from national sources on employment, also disaggregated by gender, available using both aggregate and detailed categories of occupation. ILO also estimates of employment by occupation are presented only using broad categories of occupation: skill level 1 (low), skill level 2 (medium) and skill levels 3 and 4 (high). Professionals are put in the highest skilled category, level-4. The data on number of mobile subscriptions per 100 people, and services as percentage of GDP are sourced from World Development Indicators, World Bank (WB).

This study also uses three types of dummy variables, the First one is the country dummy captured through variable *D* in equation 1. The Second one is the recession dummy which takes value 1 between 2008 and 2013, and zero otherwise. The recession dummy is to control for the US financial crisis, which impacted economic activities worldwide. The third dummy is the gig dummy. Going by the literature we take the year 2011 as the advent of the gig

economy. The word gig economy was coined in 2009. As we have considered the middle-income countries, we took 2011, as a more conservative estimate to give some space for the spread of gig economies, worldwide. Accordingly, the gig dummy takes value 1 between 2011 and 2018, and zero, otherwise.

• ESTIMATION

The study uses the following Model:

$$F_{it} = \alpha_1 + \alpha_2 S_{it} + \alpha_3 M_{it} + \alpha_4 GD + e_{it}$$

F_{it} is the number of professional workers in country i for the time period t . The unit of measurement for F_{it} is percentage of total work force. S_{it} captures contribution of service sector in percentage to national income (GDP) for country i during time period t . M_{it} relates to mobile subscription per 100 population in country i during time period t . GD stands for gig_dummy. Subscript i stands for countries whereas the superscript t stands for time-period.

If e_{it} is observed for all countries, then the entire model can be treated as an ordinary linear model and fit by least squares. For estimating in a panel framework, we consider fixed effect model. If e_{it} contains only a constant term, then the ordinary least squares estimation provides consistent and efficient estimates of the common intercept terms and the slope vectors. This is a classic pool model (also known in the literature as least square dummy variable model).

The regressions are run for the high income countries and later for the middle-income countries in order to check the robustness of the results. The expected signs for α_2 and α_3 are assumed to be positive. Also, study expects the signs for α_4 and α_5 to be negative – the professional workers in the organized labor market will tend to fall during the time of recession, and with the spread and advancement of gig economy.

As the study considers panel framework, the term e_{it} captures both country-specific (cross sectional) and temporal effects at time t . A general expression for e_{it} is: $e_{it} = \gamma + \beta_i + \mu_t + \eta_{it}$ where, $\gamma + \beta_{i-1}$ can be thought of country-specific intercept; μ_t capture time effect and η_{it} the over all purely random disturbance term. The combined, time and country-specific fixed effect terms, eliminates omitted variables bias arising both from unobserved variables that are constant over time and from unobserved variables that are constant across countries. Then, If $\gamma + \beta_{j-1}$ is observed for all countries, then the entire model can be treated as an ordinary linear model and fit by least squares.

RESULTS

Table 1: Panel Results from High-Income Countries – Japan, South Korea, and Singapore

Variables	Coefficients	Standard	Error t Stat	P-value	Lower 95%	Upper 95%
Intercept	14.27	3.79	3.77	0.00	6.67	21.87
Service as %GDP	0.04	0.08	0.50	0.62	-0.12	0.20
Mobile per 100 Popn.	0.06	0.01	8.92	0.00	0.05	0.07
Gig Dummy	-1.18	0.43	-2.74	0.01	-2.04	-0.31
Number of observations: 57						
Adjusted R-Square: 0.90						
Time Period: 2001 – 2019						

Table 2: Panel Results from Middle-Income Countries - Bangladesh, India, and Philippines

Variables	Coefficients	Standard	Error t Stat	P-value	Lower 95%	Upper 95%
Intercept	-1.32	0.57	-2.31	0.02	-2.46	-0.17
Service as %GDP	0.09	0.01	8.08	0.00	0.07	0.12

Mobile per 100 Popn.	0.02	0.00	23.72	0.00	0.02	0.03
Gig Dummy	-0.20	0.09	-2.28	0.03	-0.37	-0.02
Number of observations: 57						
Adjusted R-Square: 0.98						
Time Period: 2001 – 2019						

The results from the regression analysis are consistent with the hypothesis that the study tested. A negative sign on GIG dummy for the middle-income country indicates GIG types employment opportunity will lower the supply of professionals in the traditional labor market. Similarly, during recession, there will be a lesser number of professionals in the traditional Labor market. In addition, The recession dummy is, not statistically significant for the high-income countries. This may be resulted of the high-income countries are governed by a strong trade unions, making it difficult to capture supply of professional Labor in the labor market.

The results also indicate a strong positive relationship between the number of professional workers with the spread of the service economy and mobile subscription. The spread of the services sector is generating more demand for high skilled professional workers. Furthermore, for sustaining and facilitating growth of the GIG economy and support professional workers involved in GIG market, the Government should invest in the Infrastructure sector to boost ICT and it's related economic activities, such as mobile and data connection, Telecommunication and networking.

Conclusion

This study is an attempt to understand the nature of the GIG- Economy, and to analyze its impact on the Labor market and income distribution, however the rise of the GIG economy is likely to increase overall productivity which arises from an increase in labor force participation and getting access to lower salaried workers from cross borders, leading to more specialization and standardization of work. In a gig-world, low wages workers from developing countries can now earn more by engaging in similar job profiles in a developed country like USA and countries in European Union. There are no entry barriers, and all that is needed is access to mobile/internet connection. However, there are a few concerns. Full time employment in gig type set up may lead to lower income and economic vulnerability of workers in developed countries. Governments should also address the challenges associated with some workers getting displaced from technological disruption. There is a need to find ways to absorb these Labor ers for alternative employment. For understanding which one of the sectors these displaced workers' skill and experience are better suited the policymakers can make use of big data and AI. Governments can work closely with business and training centers to impart necessary additional skill for the displaced workers. At the same time, for the spread of gig works there is a need to invest in ICT-related infrastructure such as telecommunication and internet connection.

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