



Historical evidence for economic effects of COVID-19

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Abstract

Like wars and socio-politic shifts, contagious diseases have changed the economics and politics of the world throughout history. In 2020, the world faced COVID-19, a globally effective virus leading to mass losses and socio-economic panic. Due to apparent psycho-social conditions, analyzing the potential economic effects of the COVID-19 pandemic was inevitable. Thus, discussing economic effects of previous global and regional epidemics is considered beneficial. This research evaluated most of the known epidemics and their effects on economics and socio-politics by reviewing scientific literature. In addition to the vast literature and observations on the ongoing process, we assessed the potential impacts of COVID-19 and potential ways to overcome these impacts. The most urgent socio-economic measures needed to combat the negative effects of a contagious disease are related to unemployment with its income effects and security of all sectors. To prevent persistent unemployment, service, retail, and even industrial sectors need to be supported. Additionally, we discussed the need for re-organizing the funding and managerial sustainability of healthcare services to be prepared for future.

Keywords COVID-19 · Income · Consumption · Labour market · Healthcare · Budget

JEL Classification B22 · E21 · E24 · H60 · J21

Introduction

The world has witnessed many challenging situations throughout history. These challenges were wars sometimes or revolutions that reshaped the socio-politics completely. Yet, another challenge has been contagious diseases. The world had witnessed many epidemics. The plague of the Medieval and its variations and the great influenza of 1918–1920 were the most devastating ones. Yet, the contagious diseases having global effects had forgotten long time ago even if there appeared some recent encounters in the past 20 years. The closest epidemic records were SARS-COV of 2002–2003, avian influenza (H5N1) of 2004–2006 and MERS-COV of 2012. However, the third decade of the twenty-first century brought epidemics into the agenda once

again. The world had to face with a virus called COVID-19, a new mutation of coronavirus family with the announcement of the first case in Wuhan district of China by the 1st of December 2019.

The differentiating features of COVID-19 or SARS-COV2 from the recent encounters are its geographical dispersion in terms of contagion and its causalities. However, its apparent size and global effects were underestimated at the beginning. It is sound to mention the scope of previous epidemics to differentiate COVID-19. SARS-COV (severe acute respiratory syndrome) had started in China and affected Taiwan, Singapore, USA and Canada. During its influential period, around 8,000 cases were reported and more than 900 people had died with an 11% fatality rate [36]. Avian influenza—H5N1 that spread from poultry to human resulted in 400 deaths as of 2008 [30]. The most recent epidemic of MERS-COV (Middle East respiratory syndrome) mostly affected the Middle East in 2012 with more than 400 deaths. The only out of region case was South Korea, where 150 deaths were reported in 2015. What makes COVID-19 more devastating is its speed of contagion mostly in Europe and the Americas, although it started in the East Asia. By the end of April, number of reported cases and

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deaths were more than 3 million and 200,000 consecutively around the world [3]. With its 7% fatality rate, this global disease was announced as a pandemic by the WHO on 11th of March 2020.

The fatal process has been continuing, while the attempts for vaccination and cure have gained attention. However, considering the endurance of previous epidemics, nobody is sure apparently whether it will be completely controlled soon. Even if the health dimension is controlled soon, it is expected that its economic impacts would be long lasting in the societies. Therefore, it is important to project the possible economic and leading policy level outcomes of this pandemic. Accordingly, it was considered as contributory to evaluate the effects of previous epidemics with a historical perspective, overview the existing situation on the COVID-19 and to provide some policy insights within the scope of this research.

Effects of epidemics throughout history

The plague or with its well-known name the Black Death of the Medieval had changed flow of history, even if it is hard to measure its effects statistically. The Black Death changed the role of the working class, led the refurbishment of capital accumulation structures and welfare distribution [8]. The destructed labour and land resources in the Medieval led to the discovery of a new continent, the Americas. Besides, the change of labour endowments or declining labour supplies even led to the shift from feudalism to centralisation of governments [13]. The production structures shifted from labour to capital based and productive centres shifted from rural to urban during the Medieval, and plague had significant effects on these challenges [32]. Yet, these effects took place within centuries and the exact impact of plague is hard to measure. However, the effects of recent epidemics were more measurable.

The furthest encounter, Spanish Flu was not only seriously fatal but also it had significant effects on politics and economics of the twentieth century as it coincided with the WWI. Spanish Flu took place between 1918 and 1920, resulted in around 39 million deaths in 43 countries and the loss of young and middle-aged group led to a path to the WWII [7]. The relationship of the war and the flu in Italy was portrayed in a population study that 70,000 of total 466,000 flu deaths encountered were of soldiers, meaning the loss of war power [16]. Barro and Ursua [6] focused on the effects of disasters experienced since 1914 on GDP and consumption. They found that the Spanish Flu was the fourth economic shock on income and consumption following WWII, WWI and the great depression. They also indicated that these sorts of disasters led to around 10% per capita income loss. In an earlier attempt to comment on prospective

COVID-19 effects, Barro and his friends estimated growth of national income and consumption expenditures of 42 countries between 1901 and 1929 on human capital loss due to the WWI. The impacts of flu concerning the GDP and consumption loss were around 6% and 8% respectively. Accordingly, they concluded that the great influenza had affected the society and economics seriously as well [7].

The effects of the Spanish flu on earnings, capital returns and poverty were estimated for Sweden between 1858 and 1930 using official datasets [23]. It was understood that the pandemic affected poverty and returns on capital negatively, while effects on earnings and effective income were ambiguous. With a different perspective, natural and man-made disasters like wars were compared for Sweden between 1915 and 1956 [16]. It was understood that female labour replaced male labour during and after the great influenza. In a consumer research based on General Social Survey between 1918 and 2018, it was seen that societal trust loss appeared during and after Spanish flu affected forthcoming generations negatively as well and consumption preferences changed significantly [1].

Due to recent experiences, it can be said that epidemics affect societies within a limited time frame. But there are continuous and cyclical disasters affecting societies. The impact of Spanish flu was compared with spring frosts in Norway. It was understood that the psycho-social impact of the epidemic and loss of middle-aged labour led to an economic breakdown. However, the losses encountered due to frosts were long lasting that they affected the society till the end of 1940s until technological advancements purified the losses [33]. Therefore, it can be noted that morality effect is a major reason in longer recovery after an epidemic and people tend to develop technological solutions for cyclical and natural disasters. Due to changing labour market composition and economic conditions during and after the influenza, both productivity and overall income had declined and savings and investment potential were affected negatively. Influenza contributed to losses of the WWI and was one of the factors changing economics and politics of the world via centralisation of governments until the end of 1950s [9].

While the recent diseases were limited geographically, they affected the economics of disease centres anyway. With changing economic outlay in terms of globalisation and growing services sector, the effects of these diseases were measured in a multidimensional way. Demand-oriented sectors had changed and affected other sectors due to changing income levels and unemployment. The economic impact of SARS-COV was analysed for Hong Kong [36]. Demand-oriented sectors, as tourism and transportation, downsized critically. Consumption demand and foreign trade declined in the short term and the depression in these sectors resulted in unemployment. Yet the productivity in industrial sectors was unaffected and SARS-COV was considered as a demand

shock and the revival did not take much time. Taiwanese tourism was overviewed [39] and it was noted that number of incoming tourists fell from 2.98 million in 2002 to 2.24 million in 2003. Consumption expenditures and GDP fell accordingly and labour demand for tourism and retailing had shrunk between 3 and 6% within a year. Accordingly, it was concluded that the economic impact of the disease was visible even in the short term.

The effects of immediate quarantine enforcements and costs of post-syndrome health care services provided due to SARS-COV were compared for Canada [18]. It was found that if the contagion process is followed up strictly, immediate quarantine would be less costly than health care services provided afterwards. Potential economic effects of SARS were evaluated for China and Hong Kong [25]. The analyses indicated that taking precautions are more efficient and less costly than posterior healthcare services in terms of loss of labour force and foregone income. In a macroeconomic perspective, consumption and services demand and their supplies are directly attached that a fall in overall demand led to declination in the overall supplies. In addition, the declination in demand and supply referred to 15% fall in services income on average. Fan [15] also noted that transparency in data collection and information of the society is essential departing from SARS data. She concluded that getting prepared is much more important than utilisation of post-epidemic health services. This research was a projection and warning for future contagious diseases.

In a comparative research, rising female labour in the job market in accordance with declination in real per capita GDP during and after Spanish flu was notified [8]. This significance of Spanish flu was confirmed later as well [16]. HIV mostly affected underdeveloped African countries with negative supply shifts in production and labour market. Yet, SARS-COV appeared as a services market destroyer. Public policies were suggested for epidemic management to control the losses. Confirming previous research on SARS, Lionello [26] indicated that rising social fear and reduction in social contact resulted in reduced supplies and reduced labour demand specifically in the services sector between 20 and 70%.

Following SARS-COV, avian influenza–H5N1 was also analysed in the scope of poultry sector. The computable general equilibrium (CGE) simulations determined the need for environmental disinfection and promotion of personal hygiene among the workers for Philippines [34]. The disease control was tested for the Taiwanese economy through macro simulations. The findings indicated that if the spread from poultry to human could be avoided, the loss would be kept within the sector and the economic loss would range between 0.1 and 0.4%. Yet, if the human transition cannot be prevented, estimated real GDP loss would be between 4.2 and 5.9% and labour supply would decline by around

4.9–6.4% [11]. In addition, the global GDP was estimated to decline between 0.1 and 0.7% due to downsizing in the poultry sector as a result of H5N1. However, the average downsizing effect of spread over human was estimated to range between 0.7 and 4.8%. It was emphasized once more that precautionary actions are required [10].

Economic vulnerability to epidemics was assessed by Sands and his friends [35]. They indicated that underestimation of epidemic impacts on people and societies have led to underinvestment in epidemic control and management around the world. Therefore, economic structures have become vulnerable to epidemic shocks. To cope with this vulnerability, they have suggested better public management and global support to countries by the WHO. They also noted that private health systems and attached financial organisations are not ready to bear responsibility of the combat with potential results of epidemics. Especially, shrinking services and industries facing lower labour supplies and reducing demand are expected to downsize all economic structures.

Following this historical review of epidemics, it is important to note that some projections have already been made on potential effects of COVID-19. Subsequently, it would be beneficial to consider the recent literature on prospective effects of COVID-19.

COVID-19 and economics

Recent research has focused on evaluating initial effects of the pandemic regarding consumption, services, finance and investments and industries partly. Due to lockdown enforcements and voluntary social distancing, services sector, travel, tourism, catering and leisure, got affected critically. China, where the novel virus showed up first, the foregone tourism revenue was forecasted by luxurious travel agencies as 75% and this would mean almost \$ 95 billion in 2020 referring to 2019 data [20]. Due to IATA's (The International Air Transportation Association) recent projections, the aviation industry's expected passenger revenue loss for 2020 is \$ 113 billion and this counts more than 20% of the overall projected revenue [31].

The change in offline consumption expenditures was evaluated for 214 cities of China [12]. There reported a 32% reduction in expenditures for retailing and services. The estimated rate for Wuhan district was even more than 70%. Therefore, the researchers projected at least 1.2% fall in overall GDP in 2020 due to the fall in consumption. The shock on retail and services sector for India was estimated by Kasare [24]. The findings indicated that loss of hotels, restaurants and aviation would be 20% in 2020, if the lockdown continues for 3 months. These findings referred to declination in national income and rising budget deficit in 2020.

The bank transactions were evaluated to estimate spending and saving attitudes in the USA and results showed that consumer spending for necessities rose by 56% due to stockpiling from the end of February to the mid of March [4]. Besides, expenditures in grocery stores and supermarkets had risen by 39% between the 16th of February and 22nd of March 2020 in the USA, compared to 2019 records [27]. This research also confirmed the rising risk perceptions and social and economic fear everywhere. However, the consumption and purchasing attitudes had changed in the meanwhile. Most of the spending started to take place online after the stockpiling phase and during temporary and permanent lockdowns. Even in countries having moderate and lower income per capita, the internet users started to shift to online shopping and these shopping experiences incorporate some basic industry products like textiles and leisure tools as well as consumer goods [5]. This shifting consumption demand was observed in Japan as well at the beginning of the pandemic [37]. Yet, as most of the consumption spending has already been maintained online in Japan, higher devastation has been awaited for services demand due to COVID-19.

A utilitarian welfare maximization approach was used to forecast the trade of between death toll, life expectancy and consumption differences [19] using mortality rate estimates taken from an earlier study conducted in the Imperial College of London [17]. If the mortality rate appears as 0.8%, around 37% of consumption's share in national income will be lost in 2020. If the average rate reduces to 0.3%, the expected loss of consumption will be 18%. On the other hand, the loss in public resilience and rising security concerns are and will be the major distractors of demand—oriented industries even after the pandemic.

While people focused on their daily consumption, manufacturing industries got affected negatively even in these few months. Demand loss accompanied by excess supply led to lower prices as an instance in household appliances, all sort of vehicles, textiles, etc. Most of the manufacturing industries, like car manufacturing in Europe, those purchase intermediaries are in loss apparently as well and tendency to save in exchange for spending has been rising all over the world [14]. Therefore, as awaited, the lockdown enforcements and declining demand are apparently leading to downsizing in all these industries. So, reducing prices are expected to lead stagnation and reduce the economic worth everywhere. In accordance, declining prices, including the global oil prices which fell down \$ 30 per barrel, will not mean more industrial gains. Yet due to shrank services demand, incorporating retailing, tourism, aviation and leisure, unemployment came into agenda mainly in services dependent economies irrespective of governmental or municipal supports. Unfortunately, the cyclical impact of rising unemployment seems to reduce all interior and international trade opportunities

due to falling income and negatively shifting demand for most products [5, 28].

Finally, the macroeconomic effects should be considered shortly. McKibbin and Fernando [29] ran different scenarios regarding mortality and contagion of the disease to estimate the potential income effects of COVID-19. They inferred that the global income will reduce by 6.7% in 2020 based on 2019 figures. Besides, social welfare spending, which is a must, seems to affect fiscal balances and national budgets. The programmes announced to support by many countries referred to 5% of national budgets on average [38].

Besides, some projections made by international organisations are overwhelming as well. ILO (International Labour Organisation) estimated a 10.5% job deterioration for the second quarter of 2020 due to COVID-19, meaning loss of 309 million full-time jobs. The previous quarterly estimate was 195 million and the estimated unemployment rose by almost 60% by the mid of April 2020 [21]. Besides, it was noted that 81% of employers and 66% of self-employed enterprises got affected by the lockdown measures. The IMF (International Monetary Fund) projected a 3% reduction in global output for 2020 in January. Yet, in the mid of April 2020, the expected negative growth rate shrank to -6.3% , which is a huge declination in a quite short time period [22]. In the same report, per capita income is expected to downsize by 4.2% on average, with the most severe declination in the advanced economies by 6.5%. Accordingly, many economic policies should be developed in a short time and should be incorporated against the crash induced by COVID-19.

Conclusions and implications

The ongoing COVID-19 pandemic, will most likely have many devastating global effects. Besides, even if the mortality rate seems lower, thousands of lives were lost already at the time of this research. Recent research on COVID-19 confirmed previous findings that precautionary actions might be much less costly than recovery expenses. Besides, the effects of immediate lockdown for 2 weeks were perceived as much less harming than prolonging the control process [2]. Many restrictions have been imposed on mobility and economic activities, especially in Europe and the USA.

The economic impact is bi-directional for COVID-19. It has both supply and demand effects. With regards to consumption, we have been facing changing consumer attitudes and marketing channels. At the beginning of the COVID-19 process, rising consumption demand has been encountered attached to stockpiling. But, both the demand dynamics and consumption and purchasing attitudes have changed. Web-based online shopping tools have long been used all over the world. However, due to the quarantine enforcements

and voluntary social distancing, there is a tendency to leave physical retail channels and shift to online shopping became visible. Therefore, much of the consumption started to take place online and mostly restricted to consumables. While demand for necessities grows, aggregate demand has been falling. This rising online retailing tendency may induce growth in delivery sectors. But it also means unemployment in medium and large scale retail outlets. Accordingly, the excess labour supply of retailing is a matter of fact to be considered.

In addition to changing consumption and purchasing behaviours, there have been devastating effects on the services sector, which is also demand driven. Specifically, the service sectors were shut down almost in every place where the disease has spread. The lack of operation in leisure, tourism, transportation and related services means reducing national income and unemployment of masses. Unemployment would cyclically lead to reduced income, declining demand and a further reduction in all productive fields. Also, having affected from the process is inevitable for agriculture and food industries as they are both attached to the services sector demand as well as direct consumption. In other words, agro-food demand of hotels or restaurants has shrunk due to lockdowns. Therefore, excess food and agriculture supplies are expected to lead to declining prices. The downsizing of the services sector, when health care was left aside, seems to continue. Besides, it seems that outdoor services demand will not recover soon checking by psychological effects of past epidemics. Consequently, even maintaining agricultural labour and productivity seems to be problematic.

There are endowment-related problems in term of industries. As mentioned above, consumption demand is almost restricted to non-durables. Demand for durables and technology-endowed products have shrunk as well. Besides, lockdown and reduced participation of employees to industrial production led to operational revenue loss in most countries, while closed borders meant the inability to reach inputs, energy and technological intermediaries. However, it is not definite when the pandemic ends or whether a second wave is on the way. If the process prolongs, the loss in industrial fields would also mean huge unemployment and income loss. If more and more people get unemployed in every sector, how can countries maintain rising consumption demand?

The economies of many countries will derogate for sure and there will be global effects, some of which are already visible. The labour market contractions are very overwhelming. Existing disequilibria in labour markets can get worsened within the process and it should be seriously taken care. This can be achieved by supporting employers rather than providing compensation payments to employees. The retailing outlets and market chains have faced with a challenge. The stores can utilise online channels, but declining

offline shopping will still destroy labour market dynamics. Accordingly, either employment in the retail sector needs to be secured or alternative ways should be applied. For under-qualified labour, most of the countries need to arrange the attachment between agriculture and food industries and the retail sector. This also refers to an opportunity for developed courier services. In addition, SMEs involved in industrial production needs to be supported to prevent employee lay-outs and closures and interventions need to be timely checking out labour market estimates.

When the services sector is considered, we cannot set health services apart this time. Almost in all of the developed world, private health services and public investment calls to healthcare are being discussed. Even though there have been warnings on contagious diseases, it was understood that precautionary acts were neglected. It is not possible to offer full expropriation of health care services. However, coordination between the public and private sector seems to be an obligation for future residing in this experience. How it could be achieved is another question. What should be avoided? The dilemma for most governments lays between the decision on fiscal deficits or health losses accompanied by economic and social devastation.

In a macroeconomic perspective, fiscal and monetary actions need to be considered jointly. We have noted earlier that many countries allocated 5% of their budgets to fund early relief measures. Some countries also have imposed different sorts of monetary expansion to keep macroeconomic indicators stable. Simultaneous monetary and fiscal expansion or double deficit would most possibly lead to rising inflation and further poverty. However, again there we face another question. Should we focus on the sustainability of the existing economic system or should we focus on maintenance of income levels not to distract economic activities? Besides, many countries persuaded their banking systems to offer cheaper credits for urgent needs of households and SMEs. But these credits can be achievable only if the banking sector trusts in the financial system. Therefore, the decision between lower interest rates and higher inflation, which might deteriorate macroeconomic indicators in the close future, is an additional dilemma specifically for developing countries.

Regarding this general overview, we can conclude that governments and financial management authorities should focus on three issues in the short term. In terms of economics, controlling labour market impurities and backward support to industries and services sector by financial tools are essential. Morality assistance to individuals and societies is also required for economic and social trust. Without trust, none of the sectoral impositions will be effective in economic recovery both with demand and supply aspects. Besides, the COVID-19 experience showed the need for reorganisation of health care services in a collaboratively.

It is not hard to say that COVID-19 experience will change many economic and social dynamics. Relieving the pain needs proper time management and financial planning, and we learned the urge to get prepared for the future.

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