The Economic Impact of Pandemics: Lessons to Learn from

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SUMMARY

This paper surveys the pandemics’ impact on economies during the last century. Several economies have suffered from sanitary crisis due to the spread of viruses such as the Spanish flu, the H1N1 influenza, and the Ebola outbreak. The impact of pandemics on different industries is discussed along with the estimated costs reported by some countries. Morocco is facing challenging hurdles to overcome the COVID-19 pandemic. On the bright side, some key lessons display the takeaways of facing a pandemic. Of the major recommendations, expanding research and investing in the healthcare system need to be urgently addressed to be better prepared for the future.

Introduction

In light of the global pandemic caused by the outbreak of the coronavirus or COVID-19, every single country, including Morocco, is doing its best to get through the crisis. Ever since its first detected case on March 2nd, Morocco not only put a lot of efforts to increase the awareness towards the risks of the virus, but also developed several measures and initiatives to fight the pandemic and protect Moroccan citizens. The number of infected cases started increasing to reach a total 28 cases on March 15th, where the Moroccan government decided to close sea and air borders. On the same day, a special fund was created by the King Mohammed VI with a starting budget of more than $1 billion (Moroccan Ministry of Economy and Finance, 2020). As additional measures, civilians’ gatherings were banned by the government, including schools, cafes, food-related locations, sports events, and mosques’ prayers (Masbah and Aourraz, 2020). Five days later, Morocco announced the second stage of the pandemic to hedge against the spread of the virus in the kingdom. Besides these measures, Morocco spent $200 million of the special fund’s budget to acquire appropriate medical equipment to host and treat infected and suspected cases. The purchased medical equipment consisted of “1,000
resuscitation beds, 550 respirators, 100,000 sampling kits, 100,000 test kits” and other equipment (Guerraoui, 2020). Moreover, Morocco has undertaken additional approaches to encounter the pandemic. Despite the lockdown, the continuity of education was carried on through online classes and lectures, ensuring the safety of students, faculty, and staff members of universities and schools. Moreover, a general curfew was also implemented (6.00 PM to 6.00 AM) in the entire country and was reinforced by military and police forces. Last but not least, public transportation has been suspended to avoid travels, and thus cross-contamination between cities and regions.

Despite all the measures carried out by the Moroccan government, the number of infected cases is still increasing up to date. The curve of infected cases shows volatile and unstable growth (Figure 1). For instance, in two days, between April 15th and 17th, the number of infected cases increased from 2,024 to 2,564, explaining the steep growth. Such growth dropped after this period (Figure 1).

![Figure 1: Total Coronavirus Cases in Morocco from March 2nd to May 8th
Source: Worldometer, 2020](image)

As of May 9th, the number of infected cases escalated to a total of 5,910 cases, with 186 and 2,461 records of deaths and recovered citizens, respectively (Worldometer, 2020). Because of the lockdown, the country’s economy is suffering to maintain its level of operations due to the shutdown of many industries. Due to its reliance on tourism, the economy is under a critical situation as borders, public places and entertainment businesses are closed. Additionally, the public sector remains informal as there are several professions that are not tied to a pension plan, medical insurance, or social care to protect these workers who mainly belong to the
The shutdown of several jobs and the difficult situation of the Moroccan economy led to an unemployment increase as 700,000 jobs have been lost as of April 1st (Masbah, 2020). Despite the unfortunate conditions, Morocco’s measures and procedures have been qualified as a potential model to European countries thanks to its rapid reactivity to face the pandemic. After the law enforcement of wearing masks, Morocco has been able to produce and deliver a quantity of 2 million masks per day, which could be considered as a remarkable achievement (Maghreb Arab Press, 2020).

This paper examines several past pandemics, throughout history around the world, to discuss the procedures applied under those periods, the difficulties faced, and the lessons learned. A literature review section provides first the past economic conditions experienced under pandemics. The discussion section combines the key points of the previous section to generate potential ideas, common points, and potential lessons to be learned for future purposes.

**Historical Background of Pandemics:**

The world experienced several pandemics throughout the history of mankind. The Spanish flu, also called 1918 pandemic, is a famous example. With a total death of 50 million people worldwide, the influenza death toll rose to 675,000 people in the USA which is higher than the total deaths recorded in the two World Wars, Korean War, and Vietnam War combined. In the United States, Brainerd and Siegler (2002) shade light on the economic impact of the 1918 pandemic. The economic impact was examined through the growth of the real personal income per capita of US citizens in each state during two periods: 1919-1921 and 1930. For each state, the number of influenza deaths per thousand was considered as an independent variable in the study. The study concluded that the 1918 pandemic had a tremendous negative impact on the per capita income during the period of 1919-1921, and the increase in such variable in 1930 was a sort of back to normal level. However, the authors claimed that there was some uncertainty in terms of duration and intensity of business cycles variations, caused by such pandemic.

The 1918 pandemic affected not only the United States, but also other countries worldwide. Karlsson and Nilsson (2013) investigated the effects of similar pandemic on the Swedish economy. The Spanish flu had a negative impact on the country as the latter recorded about 38,000 deaths, which represented around 1% of the total population. This impact was taken into consideration on a regional basis of the country and several variables such as earnings, capital returns, interest rates and poverty rates were included in the study. Two hypotheses were developed according to the applied theoretical models. The first hypothesis concerns the impact of the 1918 pandemic on the regional economies, while the second hypothesis compares Sweden’s regions according to the exposure of each region to the pandemic. The effects on the Swedish economy were assessed using the difference-in-differences model. Karlsson and Nilsson (2013) asserted that a considerable increase in poverty rates was associated with the Spanish flu, as results showed that four civilians switched to living in poor houses for each influenza death. Moreover, the pandemic caused capital returns to deteriorate due to the decrease
in the average worker quality and increase mismatch between labor and capital. However, the study claimed that some variables proved insignificant and contradictory to the theoretical perspectives. For instance, the Spanish flu had no impact on the Swedish earnings, thus a result contradicting the previous study conducted by Brainerd and Siegler (2002).

Besides the United States and Sweden, the United Kingdom was also affected by the 1918 pandemic. Smith et al. (2009) assessed the impact of the Spanish flu on the economy of the UK. The study incorporated both the clinical attack rate and the fatality rate to design nine potential scenarios for which the economic impact can be examined. The latter was conducted based on a percentage loss to the baseline GDP of the United Kingdom. In addition, for safety measures against the pandemic, other variables such as the closure of schools and absenteeism from work, were hypothesized to impact as well the economy. A general equilibrium model used to investigate the impact on the economy. Smith et al. (2009) claimed, according to the nine scenarios developed, that the losses of GDP with respect to its baseline increase as the attack rates and fatality rates change from low to extreme. In other words, as attack and fatality rates became extreme, the United Kingdom’s economy was more likely to suffer from additional losses. Moreover, in terms of GDP decrease, the impact of schools’ closure and absence from work was higher than the impact of the disease itself and was positively correlated with the duration of the schools’ shut down.

Similarly, Yoldascan et al. (2010) included likely-wise variables such as work absenteeism to investigate the impact of pandemic influenza in Turkey. Such variable, along with the loss of production, was estimated to have an indirect impact on the economy while the healthcare variables represented the direct cost of the pandemic influenza. The healthcare variables involved in the study consist of vaccination costs, Intensive Care Unit (ICU) costs, non-ICU costs, ventilation costs, and antiviral treatment costs. Compared to Smith et al. (2009), this study focused on three different scenarios and attack rates; and it excluded fatality rates. Several model assumptions were made before testing the variables of interest. Yoldascan et al. (2010) demonstrated that economic losses could be estimated to range from 1.364 to 2.687 billion dollars. This amount omitted speculative calculations such as the potential variation of vaccines or drugs costs. This means that losses can be worse or harmful if other variables were taken into consideration. Additionally, affected workforce or work absenteeism was confirmed to be positively correlated with the estimated losses reported in Turkey.

Several expenses have to be taken into account while facing a pandemic. Gordon et al. (2009) developed a study where they investigated the consequences of international border closure in the United States. The study was carried out based on a state by state analysis to assess the impact or losses incurred concerning international air travel, trade, legal immigration, illegal immigration, and border-crossing sales. The study reported a summary of potential losses that the United States might suffer from a one year borders closure. Losses were estimated to reach a total of $2.36 trillion, which include $2.22 billion reported to be tied to international trade. International air travel was ranked second in terms of losses as it grasped a total of $113
billion. This proves that international trade and air travel are vital to the United States’ economy, and their suspension due to pandemics or serious epidemic situations can be detrimental to the country’s economy.

Besides the Spanish flu, the pandemic influenza, also known as the H1N1 pandemic, is an example of pandemic that hit several countries and regions across the globe. Galante et al. (2012) conducted a study to assess the various effects of such pandemic in terms of costs on healthcare services, work absenteeism, and per patient cost in Spain. The cohort included several confirmed patients, both inpatient and outpatient, starting from a week before their admission to healthcare facilities to the recovery day. A total of 396 patients were gathered, and divided into 172 inpatients and 224 outpatients, with less than 10% aged above 65 years. A multicenter-longitudinal study combined with sensitivity analysis was used to assess the collected data and to estimate the necessary costs. Galante et al. (2012) estimated a mean cost of €6,236 per inpatient with a confidence interval between €1,384 and €14,623. On the other hand, a mean cost of €940 per outpatient was concluded with an estimated range from €66 to €3,064. Moreover, the total estimated cost of confirmed cases with influenza approximated €144,773,577, of which more than 86% were spent on outpatients’ care.

Spain certainly suffered a lot from both the 1918 pandemic and the H1N1 influenza, but other regions suffered from considerable losses due to pandemics as well. Rassy and Smith (2012) investigated the economic impact of H1N1 on both tourism and pork sectors that both represent an important part of the Mexican GDP. Several institutions have been reached in order to gather the necessary data. In terms of tourism, the Mexican Ministry of Tourism, the National Institute of Migration, and the National Institute for Statistics Geography and Informatics have been reached in order to include tourists arriving by airplane and their contributions to Mexico, the top five countries from which tourists arrive, and state GDP tourism contributions. The pork production was collected on a monthly basis from 2008 to 2009. Last but not least, data related to the number of H1N1 infected cases was obtained from the Mexican Ministry of Health. Simple linear regressions and confidence intervals were the statistical tools used in this study. Rassy and Smith (2012) concluded that Mexico can lose around $2.8 billion as a result of a loss of nearly a million tourists coming from overseas. Moreover, a loss of $27 million was recorded as a trade deficit in Mexico by late 2009. More importantly, the authors suggested that such emergencies have to be taken into consideration for further and upcoming planning pandemics to mitigate their risks.

Basurto-Davila et al. (2013) studied the effect of school closures upon the 2009 H1N1 pandemic in two cities in Argentina. Questionnaires were used to target the households with children enrolled in those schools. Direct and indirect costs were developed as variables to measure the economic loss households incurred in a 2-week closure period. Of the total sampled households, only 45% completed the questionnaires. Basurto-Davila et al. (2013) claimed that work absenteeism resulted in an income loss for household parents, and was more significant for low-income families. In other words, the economic impact of school closure varies depending on the income of the households. Therefore, the authors suggest that authorities should take such differences into
consideration while shutting down schools during pandemic periods.

A similar study by Borse et al. (2010) was carried out in New York City to test the impact of school closure on households in an attempt to prevent the spread of the 1N1 influenza in 2009. The study included 3,343 households affected by the pandemic, as target, but only 587 agreed to be included in the study and finally 554 were surveyed. These surveys collected data regarding employment, income and in the size of each household. To assess the collected data, regression models and Robust Huber/White standard error calculations were applied using Stata 11.0. Borse et al. (2010) revealed that households with all adults owning a job increases the possibility of losing work time, or being absent, by 25%. On the other hand, a baseline household, with one child at home and at least one adult not working, had a chance of 8% to report work time loss. However, the authors declared that households with more than one child have their probability of work time loss reduced by a range from 3 to 5%. These results by Borse et al. (2010) were published for the sake of providing future help to households and other decision makers for a better estimation of the costs related to school closures during potential threatening epidemics.

Besides the 1918 pandemic and the 2009 H1N1 influenza that clearly caused severe damages to several countries, the last decade witnessed another pandemic that hit some African countries. A research carried out by Poletto et al. (2014) investigated the effects of the reductions in travels on the spread of the 2014 Ebola epidemic in West Africa. The outbreak of the disease originally started in three African countries, Guinea, Liberia, and Sierra Leone, to reach other regions such as Nigeria, Senegal, Spain, and the United States. Data captured from the International Air Transport Association (IATA) and Official Airline Guide (OAG) revealed that several airline companies or countries adopted various measures towards their flights to the first three countries affected by Ebola. Such decisions varied and included banning all flights, banning entry to citizens, suspending the issuance of visa, or closing borders. Simulation models with and without travel restrictions were developed to assess the impact on a short-term basis. Poletto et al. (2014) found that travel bans do not stop the spread of the Ebola pandemic, but it only delayed its spread for a limited time, at most for few weeks. Travel bans might be a solution to reduce the spread of epidemics, however they carry a constraint to the continuity of local economies as they limited/stopped business travels, tourism, or other services which required transportation such as international delivery and trade. On the other hand, unaffected countries had to be prepared ahead of time against such spread by developing their personal capacity to detect newly imported cases, offering them the necessary health system and preventing any further contagion.

Travel bans during epidemic situations are usually a temporary solution to reduce the spread of a given disease, but it came with several negative impacts. Tourists usually travel by air or sea to visit other regions or places. Kongoley (2015) investigated the impact of the Ebola outbreak on the tourism industry in Sierra Leone. Before the Ebola outbreak, the country was able to attract more tourists and therefore created more jobs and generated higher revenues. However, the Ebola onset in 2014 forced the country to close several hotels,
restaurants, and airlines, which resulted in job losses and income reduction. In order to assess such impact, a survey was developed to target four regions of the country to generate a sample of 200 respondents, of which 130 were employees in different sectors within tourism, 50 employees were working for government agencies, and 20 individuals were either suppliers, guests, or local citizens. A combination of questionnaires, focus groups, and surveys were used to collect the necessary information, and processed via a social sciences statistical analysis. Kongoley (2015) reported that the Ebola outbreak caused about 80% of job losses to employees working in various sectors in the tourism industry. Moreover, recovery plans and safety budgets were highly recommended to be developed by businesses within the tourism sector to hedge any potential threat which might affect the industry.

The Ebola outbreak created several losses for not only African countries, but also for Spain and the United States. Ippolito, et al. (2015) reported the losses caused by Ebola in West Africa, with 99.8% of them were recorded, in Liberia, Sierra Leone, and Guinea, where the diseases originated in 2014. The outbreak made the GDP growth estimates, developed by analysts, unreliable. In Liberia for instance, the GDP growth was estimated to increase by 2.2%, compared to 5.9% before Ebola. Similarly, an increase of 4% and 0.5% in the GDP in Sierra Leone and Guinea, respectively, was adjusted to the crisis with prior values of 11.3% and 4.5% in the same regions. Additionally, investment of a combined value of more than $2 billion, more than $250 million for Liberia, around $1.3 billion for Sierra Leone, and approximately $800 million for Guinea, was lost as investors’ aversion rose during the crisis. Moreover, the latter reported an evaluation of a two-year financial impact within these regions ranging from $3.8 billion, as a low impact, to $32.6 billion. However, several funds, with a total of $4.3 billion, were collected in order to fight such epidemic by investing into resilient health systems with the ability to provide efficient healthcare services.

Besides their negative impacts, there are some good lessons which can be retrieved from pandemics. In their study, Elmahdawy et al. (2017) discussed several types of lessons learned amid the Ebola virus in West African countries and provided some recommendations for upcoming difficult situations. The main lesson to be drawn from such disease was that countries ought to strengthen their healthcare systems with the necessary treatments and medical equipment to ensure safety, efficacy, and meet regulation standards. Moreover, investments or funds should be invested to encourage research and development efforts towards efficient means to detect and prevent from future epidemics. Furthermore, Elmahdawy et al. (2017) recommended the collaboration and support development between business partners and policy makers to support vulnerable economies which might not be able to stand severe epidemic situations on their own.

In another study, Paek et al. (2008) assessed the public support for actions taken by governments during a pandemic and draw some conclusions. A telephone survey was conducted with 1,602 adults to determine how many citizens trust and support government actions during tough moments such as the H5N1 influenza pandemic in the United States. Of the government actions taken, border closure to infected regions,
imposed quarantine period for affected individuals, and provision of medicines to infected cases at a specific public location were supported by 81.7%, 80.9%, and 80.5% respectively. Moreover, Paek et al. (2008) revealed that the interviewed individuals were in favor of other potential government actions such as engaging police and army to lower citizens’ movement between cities and states. On the other hand, most of the interviewed public, 60.4%, was highly opposed to the suggestion of the government to offer vaccines that are not fully approved to treat infected civilians.

Discussion
Besides their death risks, pandemics have generally countless negative impacts on the affected countries and come up with losses on many levels. Leaders ought to react rapidly to limit the contamination and the spread of a virus. The study conducted by Gordon et al. (2009) reported the estimated losses the United States could suffer from due to the closure of borders and suspension of its international trade for a year. Relying on a national economy to survive in pandemics with disruption in international trade is not easy as many opportunities can be lost, thus generating opportunity costs or missed sales.

Borders closures do not affect only air travel and international trade, but also other industries. Even if the impact might be lower, the losses that can be incurred are still important to be taken into consideration. As reported by Kongoley (2015), the outbreak of Ebola caused the tourism industry in Sierra Leone to shut down 80% of tourism-related job positions, including restaurants. Jobs losses increased unemployment that requires measures to be taken by governments, either by offering jobs to citizens or providing them with sufficient subsidies for living. Tourism was also hit with a $2.8 billion loss in Mexico amid the H1N1 influenza as reported by Rassy and Smith (2012). Suspending air travels, borders closure on tourists, and the risks of infection are detrimental to the economic growth of the tourism industry in areas of virus spread.

Besides impacts on tourism, lock downs force countries to close public institutions and schools. School closures often put enormous pressure on households and parents who are required to take some days off to take care of their children. Such work absenteeism can subsequently result in a reduction of labor productivity. Therefore, the chain of consequences might impact industries where households are working due to the reduction of hours worked. At the same time, households suffer from income reductions due to such decisions which ends up with less spending.

Despite these kinds of losses that can be incurred, countries spend huge amounts of money on healthcare and medical equipment to cure infected citizens and reduce the risk of infections or deaths. Meltzer et al. (1999) conducted a research where they estimated the economic impact of influenza in the United States. The research emphasized that the economic impact can be estimated to be between $71.3 and $166.5 billion. This amount includes only expenditure on medical equipment and healthcare facilities, overlooking the losses industries, commerce, and society can incur. Thus, another type of expenses countries should account for during pandemics.

On the other hand, some of the pandemics’ effects can be perceived to be positively affecting economies and
shaping relationships. Even though economic impacts can be harsh, there are some lessons which can be learned from such experiences. The collaboration between business partners and economies is a key positive note which was stressed out by Elmahdawy et al. (2017). The acquisition of performant and adequate healthcare systems is necessary during difficult times; and the help offered to emerging economies, by well-developed countries, is a sign of a support which can strengthen political and economic relationships between countries. Moreover, the study conducted by Paek et al. (2008) revealed that the collaboration and support of citizens to their government’s actions during pandemics can be helpful into increasing awareness towards diseases and potentially reduced affected civilians.

As far as it concerns Morocco, the country can benefit from these historical situations to perform better during pandemics. The situation of coronavirus remains an actual dilemma which the kingdom of Morocco is still struggling to overcome. As many industries are shut down, the country should estimate the potential losses it might incur in each industry, especially tourism sector which is a significant contributor to the Moroccan economy. The duration of the COVID-19 pandemic is still uncertain, and continuous losses are still incurred under the policy of the lockdown and restricted movement. A forecast of losses can be a starting point to figure out alternative solutions to enter a new stage of economy resurrection.

Even though several industries are affected in the Moroccan context, the healthcare sector remains the most to require a solid consideration. The recent acquisition of medical equipment to run more tests and host additional infected individuals is a proof that the Moroccan healthcare system was not prepared to face an epidemic of this magnitude. In a short period of 2 months, the country realized its lack of equipment and had to invest about $200 million from the special fund. The healthcare system of Morocco is dysfunctional in several aspects such as the geographical imbalance and irregularity of the provided services (Errami and Cargnello, 2016). The access to hospitals and medical equipment should be available to citizens in all regions of Morocco especially to civilians living in rural areas. Such decision process might involve additional costs and investment, but it will be definitely for the benefit of both the citizens and the country itself.

**Conclusion**

Pandemic situations are a struggle to infected countries as they thrive to reduce the disease and save their economies. This paper discusses several pandemics in some countries throughout the world’s history and how their economies were affected. Currently, the world is experiencing a new pandemic, the COVID-19 or coronavirus that first appeared in late 2019 in China, but rapidly spread all over the world. As mentioned before, pandemics might come up with advantages or positive effects, which is somehow the case for COVID-19. Due to the restrictions on transportation to keep people in quarantine, business activities are reduced as civilians started working from home. In China, such decision caused a significant reduction in air pollution (BBC News, 2020). Similar decisions in Europe have been instituted amid the beginning of the spread of the coronavirus, and the European Space Agency (ESA) recorded strong reductions of nitrogen dioxide in the environment (Bartels, 2020). Pollution Reduction helps
healing the environment. Indeed, due to recent and unusual atmospheric conditions, the Ozone layer’s largest atmospheric hole above the arctic, has reached an end as the Ozone heals itself to finally close the hole (Kuanal, 2020). Even though the coronavirus have caused several deaths and forced economies to shrink, these environmental advantages are very important to take into consideration. Most of these reductions in pollution would not have occurred if the virus was stopped at its early stage. The lessons drawn from this pandemic join the results obtained by Paek et al. (2008). The support of government actions and abidance by the quarantine rules and regulations might be harsh at first glance, but they are certainly imposed on civilians for their own good and safety. A country such as Morocco which sacrifices its economy and focuses on its citizen’s wellbeing should be considered as a role model. In addition, the contributions of citizens, public and private institutions, and agencies to the special fund to fight the virus showed the willingness of the Moroccan citizens to support and contribute their country and economy during this difficult crisis. An emphasis should be put on the healthcare system of the country, as it needs multiple updates to better serve equally and adequately all citizens living in various regions of the country.

Conflict of Interest

No conflict of interest

References

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