

COVID-19 AND THE PAST FLU VIRUS OUTBREAKS: AN EPIDEMIOLOGICAL AND ECONOMIC COMPARISON

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While drawing parallels between different pandemics that humankind has seen has never been easy and accurate it always provide a guide to judge the severity and assess the efficacy of public policy responses to such outbreaks. Corona virus, declared a pandemic by the world health organization on March 11, 2020, has its precursors in SARS (severe acute respiratory syndrome) outbreak of 2003, MERS (Middle East Respiratory syndrome coronavirus) outbreak of 2012 and SPANISH FLU of 1918-19: all involving some related strains of influenza viruses that cause death due to Pneumonia. While all of these outbreaks brought significant catastrophes in terms of losses to life and economy, none of them except the Spanish Flu of 1918 was truly a pandemic of the scale and severity of COVID-19. This article, therefore, draws some parallels between the epidemiology and economic impacts of these two pandemics in order to better understand the severity of COVID-19 and informs policy response based on the lessons from the past. I attempt to draw heavily from the literature review of past pandemics, mainly the Spanish flu, and use the current data regarding COVID-19 cases from various data sources like that of John Hopkins University database , European Center of Disease prevention and control (ECDC) and World Health Organization (WHO) to analyze the patterns, make some inferences and reach some conclusions regarding epidemiological severity and short term economic impacts of COVID-19 as the disease now has speeded to 202 countries with 719758 confirmed cases and 33673 deaths as on March 31, 2020 (WHO).

The Flu virus of 1918, commonly called the Spanish Flu, that killed around one third of the population, is still a rich subject of research in terms of its extent of spread and long term impacts upon those born decades after. The viral flu, reported for the first time by a Spanish newspaper, spread exponentially as World War I soldiers returned back to their homes and soon became a global pandemic involving more than 72 countries globally. Researchers continue to grapple with the rich data of 1918 that is now available to understand the factors that influenced mortality of such a

scale (Taubenberger & Morens, 2006). Despite so much data, researchers’ understanding of the emergence of a pandemic due to a strain of a flu virus is still far from perfect (Colvin, McLaughlin 2020). Though having a closest parallel in Spanish Flu of 1918, the spread of a disease like COVID-19 is unprecedented in the modern world.

The Pandemic of 1918 (and also other epidemics involving closely related viral strains like SARS of 2003 and MERS of 2012) has many lesson to be learnt and epidemiological parallels with COVID-19 can be drawn given the exponential growth of the latter in a similar manner. Such inferences, however, may not predict the actual trajectory of the disease owing to the fact that data of infected patients may be highly underreported (Fetzer et al, 2020).Figure 1 shows the number of deaths due to 1918 flu that peaked in just 3 months with a death rate of nearly 2%: Figure 2 and 3 present the picture of the reported cases and number of deaths from COVID-19.

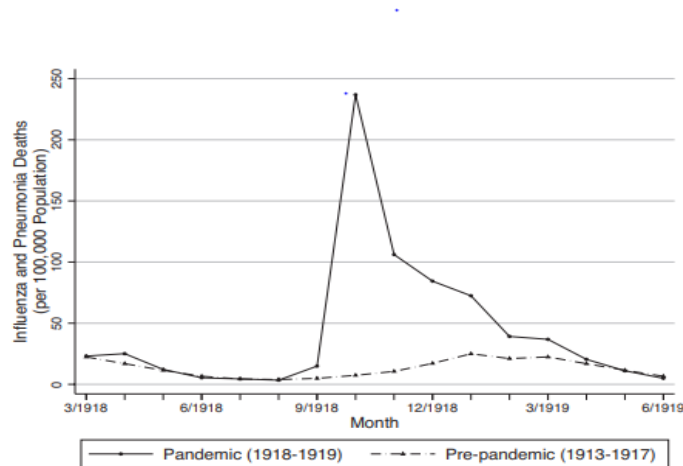


Figure 1: Influenza and Pneumonia Death Rates, March 1918- June 1919

Source: Clay, Lewis Severnini “The Journal of Economic History”, Vol. 78, No. 4 (Dec. 2018)

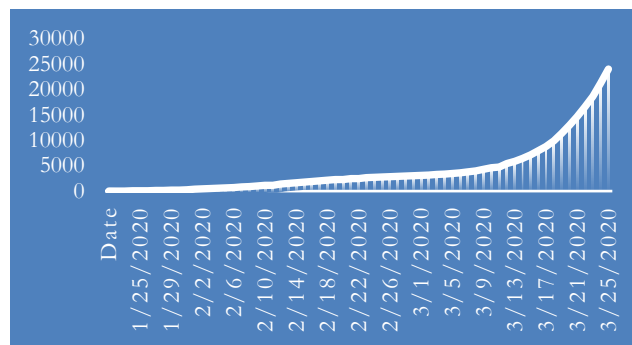


Figure 2: COVID-19 Deaths, January 25th to March 25th, 2020

Source: Author’s calculation using John Hopkins University CSSE database

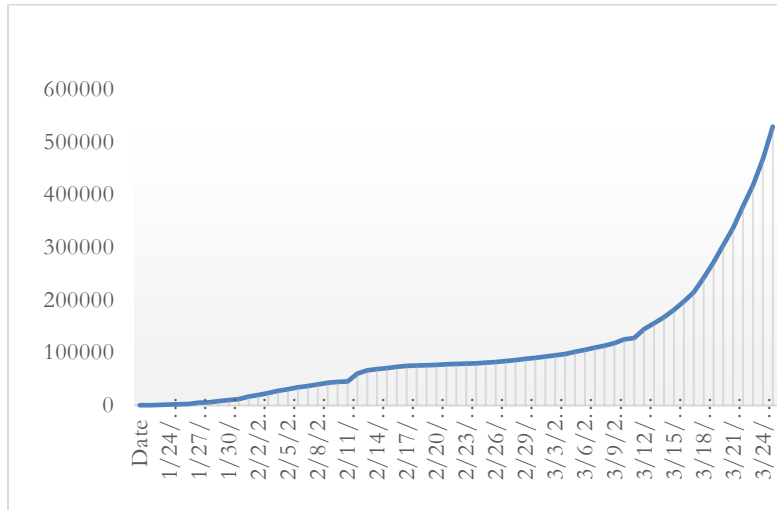


Figure 3: COVID -19 Confirmed Cases, January 25th to March 25th, 2020
 Source: Author’s calculation using John Hopkins University CSSE database

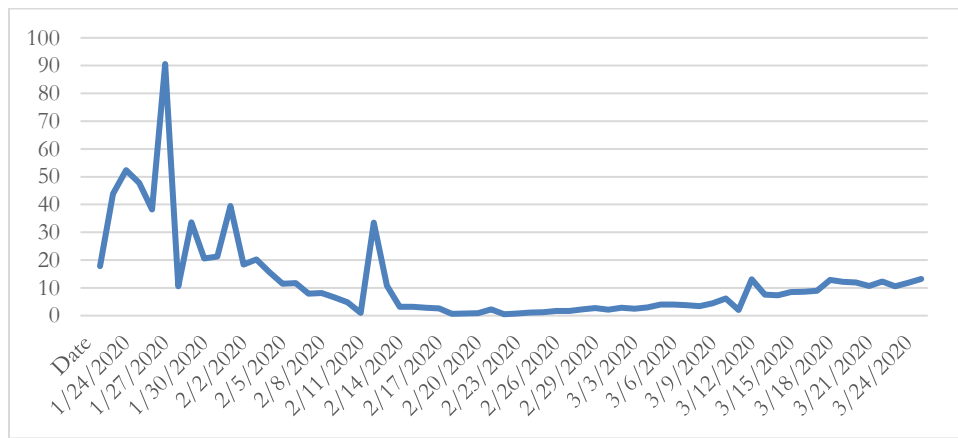


Figure 4: Rate of Increase of New Corona Infected Cases
 Source: Author’s calculation using John Hopkins University CSSE database

The COVID 19 that was first reported in December 2019 in Wuhan district of China’s Hubei province has so far infected nearly 719758 persons (as on March 31st, 2020) people killing nearly 33673 of those infected with a global death rate close to that of 1918 pandemic. Data gathered by John Hopkins university of the global spread of the virus and resultant deaths showed that the spread of the virus (a phenomenon called virulence) of COVID-19 is much more explosive than any of the earlier influenza outbreaks (Fig 3 & 4).

The sharp peak in the death rates (the peak occurring in September 1918; Fig 1) from the Spanish Flu can be attributed to lack of early containment of the disease owing to the return of the soldiers

from war carrying the disease. Deaths by Corona virus, in contrast, are spread over time (Figure 2) but are at a much higher level. As researchers of past epidemics have warned that a virus, similar to the one that caused the 1918 pandemic, can even with the available antibacterial and antiviral drugs and all the modern preventive measures may result in deaths of around 100million people (Taubenberger and Morens 2006, Fan, Janison 2016). One of the clear lessons from past pandemics and epidemics is, therefore, that early containment of viral spread is the key to prevent deaths at such a scale. The aim is to lower the infection rate (and resultantly the death rate) in a manner that the infection is not peaked but spread over time and health care system is available so that a large number of people do not fall sick at the same time (WHO 2020).

Two other areas where epidemiological comparisons between COVID-19 and other similar outbreaks can be informative are “Viral Velocity” (the speed of spread) and Case Fatality Rate. Data shows that although the case fatality rate for COVID 19 is much lower than both SARS (10%) and MERS (35%), the speed of spread of the Corona virus is nearly 20 times more than that of MERS and 3 times more than of SARS.

Table 1: Case Fatality Rates’ Comparison of the Global Flu Outbreaks

OUTBREAK	YEAR	NO OF REPORTED CASES	NO OF DEATHS	FATALITY RATE
Spanish FLU	1918	500 million	39million	2%
SARS	2003	8098	774	10%
MERS	2012	2494	858	35%
COVID 19	2020	800,000 (till March 31, 2020)	35000(till March 31, 2020)	2.2%

COMPARISON OF THE ECONOMIC IMPACTS:

What were the economic lessons from the past epidemics like SARS & MERS and pandemic like Spanish Flu? A broad literature confirms that these outbreaks resulted in slow down of demand, disruption of supply chains, shortages of labor and drop in wages. Though in case of SARS of 2003 the demand re bounced with great vengeance once the spread of the virus is controlled. In case of COVID-19, the same could happen later this year as soon as the viral spread is under control (Emerson, 2020). However, some analysts consider it too early to predict the economic consequences of the COVID-19 as the data is too noisy and sample size very limited (Larson 2020). According to Kally, forecast analyst at the JP Morgan chase, the flow of data on employment, retails

and sales and output is unreliable to tell what will happen next. In this situation drawing careful comparisons from the past become more relevant to have an idea of the short term and long term economic consequences as the disease pattern unfolds.

Researchers have found that more people died in the past FLU outbreaks in the polluted urban areas (Colvin, 2020; Clay & Lewis ,2018) a trend that can be seen in COVID-19 as more and more deaths in China, Italy, the US, the UK and Spain are reported from urban areas. Immediate socioeconomic impacts were labor shortages and sharp decline in wages and also impairment in the cognitive abilities among those born out of FLU-effected cohorts (Colvin, Mclaughlin 2020).

From the macro perspective the great influenza pandemic resulted in a cumulative decline in per capita GDP to a disastrous level of 10% (Baro, Ursua, 2008) however it is difficult to disentangle the overall impact of war ravages from the pure effect of the 1918 Pandemic upon the decline in GDP.

As the macroeconomic data regarding the impacts of COVID-19 and the consequent lockdown of the economic activity pours in, economists around the world hold back to make any predictions about the level of impact it will have on global economic indicators. However, some indicators are clear enough to predict an economic downturn, though not a recession of 2008, in the days to come. Table 2 suggests that GDP has fallen considerably, though not to degree of financial crisis of 2008-9, all major stock markets are down and unemployment is rising sharply.

Table 2: Impact of Covid-19 Upon Major Economic Indicators

Economic indicators	Current Estimates, March 2020
Loss to major economies in percent value of their GDP	2.4
Percent change in GDP growth rate of China	-0.7
Revised global GDP growth forecast	2.2
Trade deficit	-\$48.8bn
Industrial production	-0.3%
Average change in value of 7 major stock markets*	-17.5
Projected no of unemployed **	\$5.3 million
Estimated income loss due to unemployment**	\$860 bn - \$3.3 trillions

Source: different sources

* Stock markets of China, NASDAQ, Hong Kong, Singapore, South Korea, Japan& Europe

** ILO figures

Though the novel COVID 19 Corona virus does not seem to be as deadly as that of SARS and MERS, it has now truly become a Pandemic with more virulence and mortality than that of the Pandemic of 1918 Spanish FLU. How much the disease will spread before its curve flattens is anybody's guess right now. As with all other pandemics the disease will no doubt result in global decline in economic growth, widespread unemployment, potential economic wars and absolutely unforeseen and unpredictable long term Socio Economic and Political consequences. The drop in global oil prices due to a slowdown in demand from China has already fueled tension between the US and Saudi Arabia that may lead to an open price war. Researchers believe that PrSesident Wilson's (one of the effected persons of Spanish FLU virus in 1918) impairment due to the virus had impacted negatively the negotiations of the Treaty of Versailles resulting in harsher conditions imposed on Germany that latter become one of the main reasons of the world war II. Though such horrific consequences of the Corona Pandemic seems remote and hard to be predicted, these are the historical lessons that need to be considered.