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# HOW ECONOMISTS IGNORED THE SPANISH FLU PANDEMIC IN 1918–20

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# How Economists Ignored the Spanish Flu Pandemic in 1918-20

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Abstract. The current COVID-19 pandemic has attracted significant attention from epidemiologists and economists alike. This differs from the 1918-19 Spanish Influenza pandemic, when academic economists hardly paid attention to its economic features, despite its very high mortality toll. We examine the reasons for that, by contrasting the ways epidemiologists and economists reacted to the Spanish Flu at the time and retrospectively within the next 25 years or so.

Keywords. Spanish Influenza, economists, business cycles, epidemiologists, labour supply

JEL Classification Code. B19, B49, I19

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## Introduction

The COVID-19 pandemic is not only a severe health crisis – as of February 2021, at least 100 million cases have been recorded and more than 2 million people have died globally, according to the data of the [Johns Hopkins Coronavirus Research Centre](#) – but also a major economic shock. The World Bank estimates that the world economy has shrunk by 4.3% in 2020, while government debt levels have increased sharply and extreme poverty is on the rise again (World Bank, 2021).

The scientific community has reacted by investing massively in COVID-19 related research. Several vaccines have been developed and approved in record times, and many more are in the pipeline. Epidemiologists have become media stars in many countries, instructing us to practice social distancing and to wear facemasks, and informing us about the meaning of the  $R_0$  statistic and herd immunity. As soon as it was clear that the coronavirus epidemic had turned into a pandemic and one country after another went into some form of lockdown, economists began examining what would be the immediate and long-term effects of the pandemic. An impressive and fast increasing flow of papers has been the result; in the US, for instance, the National Bureau of Economic Research (NBER) has published more than 350 pandemic-related working papers, and in Europe, the Centre for Economic Policy Research (CEPR) has created the journal *Covid Economics, Vetted and Real-Time Papers* in order to rapidly disseminate the results of COVID-19 related economic research (see Coyle 2020).

One way to get a better understanding of the effects of the current pandemic is to look at previous epidemics, and this is what epidemiologists as well as economists have done. The devastating influenza pandemic of 1918-1919 has been a focal point of attention for both. Economic historians have studied the Spanish Flu since the 1990s; what is new is that

nowadays macroeconomists turn to the data of that period to learn the dynamics of an epidemic and to assess the effects of public health interventions (e.g. Barro, 2020). There seems to be growing awareness that epidemiologists and economists will mutually benefit from enhanced exchange and cooperation, as illustrated by the contributions to the recent symposium on ‘Economics and Epidemiology’ in the *Journal of Economic Perspectives* (Avery et al., 2020; Murray, 2020).

In this paper we also focus on the Spanish Flu pandemic of 1918-1919, but with a somewhat different perspective. Our aim is to explore how economists at the time reacted to the pandemic. In view of the prompt and massive reaction of economists today, our expectation was that something similar must have happened a century ago. As a matter of fact, in terms of mortality the Spanish Flu pandemic was much more severe than the coronavirus pandemic, and therefore the economic shock must have been significant. To our surprise, this was not the case: for all it seems, economists neither paid much attention to the economic effects of the pandemic as it developed, nor discussed it retrospectively in the following decades. Indeed, the Spanish Flu has been regarded as the “forgotten pandemic”, since the only people who studied it at the time and afterwards were actuaries (employed by insurance companies), epidemiologists and medical historians (see Crosby, 2003; Spinney, 2017).

### **A Few Facts about the Spanish Flu Pandemic**

Medical data about the 1918-19 influenza pandemic are not precise, but it is beyond doubt that it was one of the deadliest pandemics ever. It spread in three waves: in March 1918 the first wave began in Midwestern US and spread to Europe, Australia, China and North Africa; the second and more deadly wave started in France in August and quickly diffused around the

world; the last wave was not as strong and hit some countries at the beginning of 1919. Most of the death took place between mid September and mid December, which coincided with the last phase of World War I. According to estimates by Patterson and Pyle (1991), the world death toll was in the range between 24.7 and 39.3 million people. India (between 12 and 20 million) and China (between 4 and 9.5 million) had the highest absolute numbers. About 550,000 died in the US, with a mortality rate of 5.2 deaths per thousand. Numbers for Europe were approximately 2.3 million and 4.8 respectively. The name Spanish Influenza came from the fact that Spanish newspapers – which, unlike countries involved in the War, were not censored – reported the pandemic widely.

### **How Epidemiologists and Statisticians Reacted to the Pandemic**

Epidemics of influenza were nothing new in the beginning of the 20<sup>th</sup> century. In the 19<sup>th</sup> century alone “four great pandemics of influenza” had occurred, the last one around 1890 (Oliver, 1918: 356). The new pandemic was widely discussed in both medical journals (such as *The Lancet* and the *British Medical Journal*) and general science journals (such as *Science* and *Scientific American*). Among the topics of debate were the severity of the pandemic in comparison to previous ones (e.g., Soper, 1918) and the origin of the disease, with some suspecting a virus rather than Pfeiffer’s bacillus was the cause (e.g., Oliver, 1919).

By the beginning of 1919 epidemiologists were alarmed by the scale and the seriousness of the pandemic. “The pandemic of influenza which swept over the world in 1918 was the most severe outbreak of this disease which has ever been known, and it takes an unpleasantly high rank in the roster of epidemics generally.” (Pearl, 1919: 1743) With these words Raymond Pearl, the biostatistician, opened the first instalment of his ‘Influenza Studies’, published in August 1919. For Pearl this was an urgent call for scientific research:

“If every epidemiologist does not take advantage of the present opportunity to investigate with all possible thoroughness epidemic influenza, to the end of making a better defense next time, he will have been derelict in his plain duty.” (Pearl, 1919: 1744) Following his own advice, he studied influenza mortality in forty major cities in the US. Using data on excess mortality, he constructed five “epidemicity indices” measuring “the force of the epidemic explosion in any particular place” (Pearl, 1919: 1767). He then proceeded to a multiple correlation analysis in which he explored the connections between one of these indices, which he called the “peak-time ratio”, and variables such as population density, geographical location and age distribution of the population. Since not much came out of the analysis, he considered mortality rates just prior to the pandemic. In this case he found significantly positive correlations between the peak-time ratio on the one hand, and mortality from pulmonary tuberculosis, heart diseases and kidney failures on the other. In the second, third and fourth instalments of his ‘Influenza Studies’ (Pearl, 1921) he further refined the analysis, partly in response to criticism he had received. A survey of the results obtained by Pearl and others can be found in the monograph by Warren T. Vaughan (1921).

Among those who were critical of Pearl’s approach were Wade Hampton Frost and Edgar Sydenstricker, respectively surgeon and statistician at the United States Public Health Service. Their primary concern was to get good data. Aware of the fact that the available influenza statistics were of poor quality (Sydenstricker, 1918), they organized special surveys in order to obtain more accurate data. In March 1919 they reported preliminary results from surveys made in Maryland (Frost and Sydenstricker, 1919a), and in June they reviewed the evidence from other countries (Frost and Sydenstricker, 1919b). Later that year Frost used the data of their surveys to compare the 1918 pandemic to previous epidemics of influenza and pneumonia, and arrived at the conclusion: “In general, this epidemic has been quite similar to that of 1889-1890 in its early development, first in mild, scattered outbreaks, later in a severe

world-wide epidemic; in the rapidity of its spread, and in its high case incidence. It has been notably different in a much higher frequency of pneumonia and consequently much higher mortality, especially among young adults.” (Frost, 1919: 318) Frost concluded his research on influenza by publishing a summary of the main results of the surveys (Frost, 1920), while Sydenstricker used the data to estimate the trend of case fatality during the epidemic (Sydenstricker, 1921).

After that, both Frost and Sydenstricker moved on to other topics. Remarkably, ten years later Sydenstricker revisited the data they had collected to examine whether there was any truth in the popular belief that “the flu hit the rich and the poor alike” (Sydenstricker, 1931: 154). By means of a meticulous analysis he arrived at the conclusion that this was not entirely correct. The empirical evidence pointed in the direction of a clear social gradient, with incidence and mortality higher among the poorer classes of society, even after correcting for differences in age, sex and “color”. This paper stands out as an early example of a careful study of socioeconomic inequality of health.

Epidemiologists did not know what caused the Spanish Flu and, therefore, did not know how to treat it properly. As pointed out by Tognotti (2003), over-confidence and the Pasteur’s revolution idea that every infectious disease was caused by a bacterium, led the international scientific community to mistakenly accept the German bacteriologist R. Pfeiffer’s 1892 claim that he had identified the pathogenic influenza agent in a bacterium. It took some time for scientists to admit that the Spanish Flu originated from a virus, not a microbe. The collapse of the “Pfeiffer doctrine” was accompanied by a crisis suffered by bacteriology in the autumn of 1918, around the same time the disease raged worldwide.



## Economists' Silence

In contrast to epidemiologists and statisticians, economists remained virtually silent. None of the major economics journals published an article on the pandemic in the period 1918-1921. A striking example of the lack of attention by economists to the flu pandemic is provided by the American Economic Association and its journal, the *American Economic Review*. From the 31st Annual Meeting (held in December 1918) to the 34<sup>th</sup> Annual Meeting (held in December 1921) not a single paper was devoted to the pandemic or to health issues, according to the programmes in the 'Papers and Proceedings' supplements of the *American Economic Review* published in the month of March of the following year. In that period only one article of the *American Economic Review* referred to the flu pandemic – even so, only metaphorically. The context was the taxation of war profits. Carl C. Plehn noted that the practice of taxing war profits had spread rapidly to many countries after it had been introduced in Denmark and Sweden in 1915: "Like the Spanish influenza it speedily infected all the belligerent countries on both sides of the fighting lines and also most neutral countries." (Plehn, 1920: 285)

A similar pattern can be observed in the *Journal of Political Economy*. The pandemic is mentioned, but only sporadically and incidentally; there is no in-depth analysis of the immediate impact of the shock and its effects. In a section on 'Health and sanitation' of an article on the shipbuilding industry it is reported that "Epidemics of smallpox and typhoid fever were successfully handled in seven localities, and vaccine and typhus serums were supplied to all yards when needed. Special aid was rendered during the influenza epidemic, and, where the scourge threatened serious curtailment of shipbuilding, temporary hospitals were erected." (Douglas and Wolfe, 1919: 380) Likewise, in an article on industrial training in the war period the discrepancy between the actual and planned numbers of trained men "is attributed largely to a shortage of men in October [1918], and to delays occasioned by the

epidemic of influenza” (Wolfe, 1919: 741). There is one further brief mention of the epidemic in an article on the street-railway system in Seattle (Douglas, 1921: 461). In the *Review of Economics and Statistics* the situation is more or less the same. The influenza epidemic is listed as a factor that influenced the supply of labour in the gold mining industries in South Africa and Rhodesia (Berridge, 1920: 185, 188). It was also seen as one of the forces determining the size of the population of Italy at the end of the war: “The physical capacity for production in Italy has not been seriously damaged by the war. The population (...) is still about 36 millions; war losses, a declining birth rate, and the epidemic of influenza having been balanced by Italians returning from abroad and by cessation of usual emigration.” (Kahn, 1921: 89)

In American journals with a less narrow economic focus, such as the thematic issues of the *Annals of the American Academy of Political and Social Science*, one finds a few passing references to the pandemic and its deadly effects. In a fierce attack on communism, Thomas R. Marshall (1919: 199-200) warned: “Bolshevism may come the world over, but it will be like the influenza – it may kill its millions, but sooner or later it will pass away.” B. Preston Clark (1919: 46) mentioned the fight against typhus and influenza as examples of fruitful cooperation between Americans and Mexicans, in contrast to the “legend” that Mexicans were worthless. In the same issue of the journal, John J. Kerr Caskie (1919: 189) praised the work that had been done in the city of Philadelphia in order to stop the influenza epidemic, “that dreadful scourge”. L.W. Wallace (1921: 41-42) drew attention to the substantial economic loss (“industrial waste”) entailed by “subnormal standards of health and vigor”, with influenza being one of the prominent causes. Wilhelm Winkler (1921: 5) presented detailed calculations of the effect of the influenza pandemic on the civilian population of Austria, noting that “The influenza epidemic in 1918 had easy play with the population which had been weakened through lack of proper nourishment. Half of the

inhabitants of the Austrian Republic were attacked by the disease and 20,458 persons succumbed to it.”

In European economics journals the situation was largely similar. The *Revue d'économie politique* reported on Jean Bourdon's research on the population of France in 1918, which highlighted the brutal increase of the mortality rate in the second half of the year as a result of the “grippe” epidemic. According to Bourdon, mortality was higher than it had ever been in the forty years before (‘Nouvelles et notices’, 1919b: 815-816). The journal also noted that the epidemic had put a heavy burden on the population of Germany (‘Nouvelles et notices’, 1919a: 127). In the *Jahrbücher für Nationalökonomie und Statistik* Ludwig Elster looked more deeply into the available statistics on the evolution of the German population during the war period. He observed that the high death toll of the epidemic in the second half of 1918 among the civilian population had been largely disregarded, and that it could be attributed to a certain extent to the weakened health of the population as a result of food deficiencies, brought about by the blockade during the war (Elster, 1919: 155-156). Using data for the city of Berlin, Hans Guradze (1921: 531) found that women were hit harder than men by the food deficiencies and economic difficulties, which explained why they were more susceptible to get influenza and tuberculosis and died more often. In another article, H. Fehlinger (1921: 534) saw influenza as the main cause for South Africa's exceptionally high mortality rate in 1918. Still in the same journal, E. Mittermuller (1921: 7) pointed out that the increased mortality and morbidity due to the war and the influenza epidemic had unfavourable effects on the German life insurance sector.

The connection between the influenza epidemic and insurance issues was also made in British actuarial journals. Arthur Hunter (1919: 264) drew attention to the exceptionally high mortality rates in the USA in the last three months of 1918. As far as Britain was concerned, while Lewis P. Orr (1921-1924: 53-54) acknowledged that the mortality rate had been high in

1918, he observed it had been much lower in 1919 and 1920; therefore, it seemed that the secular decline of mortality rates continued. Actuaries Frankel and Dublin (1919a,b) discussed in detail the impact of the flu pandemic on workers' mortality rates and the American insurance business. The periodical *Economic World* also featured an article about the flu pandemic and the insurance market (Marsh, 1918).

It was not that economists were not generally aware of the Spanish Flu pandemic. However, it was regarded as something outside the field of economics properly. The prominent American economist Irving Fisher provides a perfect illustration of that. Fisher had been concerned with health issues and campaigns for health conditions improvement for a long time. He criticized economists for focusing on “physical phenomena” and overlooking that the “true ‘wealth of nations’ is the health of its individuals” (quoted from Nordhaus, 2005: 368). Shortly before the most acute phase of the pandemic, Fisher (1918) wrote an article about “Health and War”. His main contribution to the study of health improvement was his 1915 book jointly written with Dr Eugene Fisk, which stressed rules of individual hygiene and life style. The 1919 edition included a section on “Cause and treatment of Spanish Influenza” (Fisher and Fisk, 1919: 375-376). Nevertheless, Fisher did not discuss the economic dimension and implications of the pandemic in his economic articles and books.

If we extend our scope beyond economics journals, the picture remains unchanged. In the period 1918-1921 no economist published a book dealing with the pandemic, or mentioned the topic prominently as part of economic books. Startling as it may seem, influenza is not even mentioned in John Maynard Keynes's *The Economic Consequences of the Peace* (1919). Keynes (1919: 250, n. 1) did, however, refer to fragile health conditions caused by malnutrition and the spread of tuberculosis in Central Europe during the war, which was part of his argument about the inability of Germany, Austria and other countries to pay for war reparations.

## **Business Cycle Research**

While the Spanish Flu pandemic was by and large ignored by economists, surely it cannot be that those who were monitoring business cycles did not notice the impact it had on the economy? As the pandemic unfolded, contemporary reports from agencies such as the Federal Reserve Banks drew attention to its adverse effects. Especially the November 1918 reports of the twelve Federal Reserve districts highlighted the economic turmoil caused by the pandemic. In the district of Boston “[t]he epidemic of influenza which has prevailed during the past month has seriously interfered with business” (‘General Business Conditions’, 1918: 1126). Likewise, in the districts of New York, Philadelphia, Richmond, Alabama, St. Louis and Dallas the pandemic significantly troubled business and trade, while in the districts of Cleveland and Atlanta the pandemic was just “a slight disturbing element” (ibid.: 1131). The main effect was “labour shortage”, caused by the fact that the Spanish Flu affected mainly men and women aged 15-44, resulting in a **W**-shaped mortality distribution, rather than the customary **U**-shape (Velde, 2020: 4). Therefore, it represented a significant negative labour supply shock. However, by the end of the year, the district reports referred to the resumption of “normality” in both health and economic conditions, combined with the armistice in November that year.

Hence, the pandemic-induced recession was sharp but short-lived. It could only be captured by high-frequency data, not by annual statistics (Velde, 2020; Beach, Clay and Saavedra, 2021). As a result, business cycle experts did not refer to the economic effects of the flu. Indeed, Wesley C. Mitchell (1927) did not mention the October 1918 recession of the pandemic in his detailed narrative of economic fluctuations in the US and European countries. In his later book with Arthur F. Burns, there is mention of the “contraction of

1918-19”, but, in view of its “exceptional brevity and moderate amplitude”, its “failure to register in annual summaries is not surprising” (Burns and Mitchell, 1946: 109). Shortly after the flu pandemic, Warren Persons (1923: 72) provided a rare mention by a business cycle theorist of the fact that “trade was adversely affected in the autumn of 1918 by a severe influenza epidemic.” However, Persons mentioned that as an example of “numerous irregular fluctuations” not captured by his index of trade, but explainable by exogenous “contemporaneous events” that did not belong to the theory or measurement of business cycles.

One might say that the pandemic lurks in the background of the pathbreaking study on the social effects of business cycles published by William F. Ogburn and Dorothy S. Thomas in 1922. Using data for the US they found that 1918 was a bit of an outlier; for instance, the mortality rate of that year was exceptionally high. They attributed this to “the extraordinary conditions of war time” (Ogburn and Thomas, 1922: 331), and decided to calculate coefficients of correlation both with and without the year 1918. They did not mention influenza in their paper, but admitted that “climate, health education campaigns, developments of preventive medicine, and epidemics” (Ogburn and Thomas, 1922: 338) could affect the relation between mortality and the business cycle. The study was included in the book published a few years later by Thomas (1927), and is now considered as a seminal contribution to the literature on “economic epidemiology” (Tapia Granados, 2015: 1488).

### **Concluding Remarks**

Academic economists qua economists did not pay attention to the Spanish Influenza 1918 outbreak and its economic impact. Because of censorship and timing, the episode was poorly covered by newspapers, especially in the Great Britain and other European countries involved

in World War I, which contributed to the fact that the Spanish Influenza was “largely forgotten” (*The Economist*, 2020). The decision by governments to “bury the human toil of the disease in the collective memory of World War I” was another contributing factor (ibid.). This is well illustrated by the Carnegie Endowment 208 volumes on the *Economic and Social History of the World War*, published in the mid 1920s, which devoted only a few pages to the “grippe” and then primarily as a medical or statistical phenomenon. The Spanish Flu existed as little more than a footnote to World War I, as put by Spinney (2017). More generally, in a period of relatively high mortality rates when deadly infectious diseases were part of life, economists were less inclined to focus on health issues than they are today. For epidemiologists, by contrast, the Spanish Flu served as a call to arms, and it was in the aftermath of the Flu pandemic that Kermack and McKendrick (1927) put forward the SIR epidemiological model, extensively deployed by economists and other professionals in the current COVID-19 pandemic. Even though the relation between economists and epidemiologists remains “testy” (*The Economist*, 2020b), it is clear that nowadays studying the effects of a pandemic has become a priority for both.

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