



Viewing Healthcare Through the Lens of Economics

A multidisciplinary group of experts share their insights into health economics.

Health and economics are linked in more ways than just health insurance. When we look past the obvious, research shows us how brain scans, the gig economy or even hospital queues are all part of the expanding domain of health economics.

Recently, professors and researchers from the **Sorbonne University Alliance**, including INSEAD, came together to share their work on the relationship between health costs and sustainability. They also discussed a host of other topics related to health economics across disciplines.

Poor health and the working poor

The vagaries of health and employment inequality were central to the researchers' main conversation.

Mark Stabile, Professor of Economics and Academic Director of the Stone Centre for the Study of Wealth Inequality at INSEAD, spoke about his past work on the effect of mental health on educational attainment and his recent work on the gig economy.

His new research is focused on how working in temporary or gig economy jobs affects the mental health of workers. Because workers sort themselves into different jobs depending on their preferences (some may value independence, others may value stability), the research uses both aggregate levels of

self and temporary employment as well as internet searches for gig economy firms such as Uber or Airbnb to measure the demand for these types of workers.

Stabile's preliminary results have shown that, contrary to initial predictions, gig economy and self-employed workers have higher levels of mental health than other workers. Importantly, the research does not consider the unemployed. These findings are quite different from those that examine the effects of mental health on education where he finds a clearly negative effect of mental health on maths and reading scores, grade repetition, and college attendance.

In order to solve a problem, it must first be well defined. INSEAD Assistant Professor of Economics **Alexandra Roulet** discussed the need for policymakers to understand the relationship between job loss and ill health. If ill health is the cause – and not the consequence – of job loss, then prevention in the workplace is key. Indeed, if work stress leads to poor mental health and increased workforce turnover, policymakers could encourage businesses to consider wellness schemes or re-evaluate facets of their human relations department, for example. The link between labour and health is at the centre of Roulet's **work**.

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Roulet has found that the interaction between unemployment and health is country-specific, as healthcare, labour market institutions and policies vary greatly from nation to nation. She discussed the effect of job loss on health in **Denmark**. Her research shows that Danes who were let go when their firm shut down did not have worse health than workers who didn't experience a business closure. This was perhaps due to their ample safety net combined with a lack of feeling of personal failure when their unsuccessful firms were wound down.

The cost of treatment

Two researchers from the Sorbonne presented their work concerning specific diseases – hepatitis C and rheumatoid arthritis – and the costs borne by governments.

Léa Duchesne, PhD student at iPLESP, studied **hepatitis C diagnosis costs** in Cameroon, Senegal and Ivory Coast. An anti-viral treatment is available, but more than 85 percent of the 70 million people infected worldwide are unaware that they even have the virus. One of the main problems has been that proper diagnosis required two separate tests. New tests (including a single test) are now available, but they are costly. While the **World Health Organization** has set a worldwide diagnosis target of 30 percent by 2020, Duchesne's research found this goal to be unaffordable amongst the countries she studied, especially in Cameroon which has a large population of hepatitis C infected citizens.

A medical doctor and researcher, Dr **Bruno Fautrel** shared his **work** on the costs associated with tapering off medication for rheumatoid arthritis rather than stopping treatment suddenly. Rather than willingness to pay, Fautrel and his team looked at patients' willingness to accept the situation, which involved physical pain and poor health. Evaluating randomised controlled trials, they found that reducing the treatment over time was only 20 percent successful, while discontinuing it was successful in 40 percent of cases..

Duchesne and Fautrel consider the sustainability of treatment from an economic point of view, which influences their traditional scientific lens.

Uncovering the brain

Hilke Plassmann, the INSEAD Chaired Professor of Decision Neuroscience and an INSEAD Associate Professor of Marketing, spoke about her research on why consumers make bad decisions.

Taking a concept from behavioural economics about short-term vs. long-term rewards, she and her co-authors explored how differences in **brain**

structure may explain why some people are less able to resist the taste of chocolate cake and others choose the fruit salad instead. In a cohort of 123 lean participants, Plassmann and her co-authors could find two brain regions whose grey matter volume predicted whether participants had good self-control, out of sample and across tasks.

Structures of health and economics

Guillaume Roels, the Timken Chair in Global Technology and Innovation and an associate professor of Technology and Operations Management at INSEAD, shared his **work** on pooling queues in hospital emergency/casualty departments. In many emergency departments, patients have to wait a long time before seeing a doctor, which could lead to medical complications or the spread of infectious diseases. Motivated by a recent study in a Kaiser Permanente emergency department, Roels and his co-authors drew on operations management research about queuing systems to examine how to improve operational efficiency.

Theoretically, a pooled queuing system, i.e. a single queue that leads to multiple servers, should be most efficient, but in practice leads to long waits for patients. A dedicated queuing system, one that assigned a patient to a particular doctor upon arrival, led to a 39-minute reduction in time spent in the emergency department. Why? Roels and his co-authors identified two factors. First, there was greater interdependency among doctors in the pooled configuration, because patients/customers belonged to everyone this gave rise to free riding amongst the doctors. Second, and more significantly, there were lower interdependencies between patients and doctors in the pooled system. With the dedicated queueing system, doctors had a higher sense of patient ownership; one personalised this relationship with a reference to "my patients", not the hospital's patients. Roels and his co-authors concluded that the design of operations (in this case, the choice of queue configuration) could help transform the organisational culture of a healthcare provider by making it more patient-centric.

Another non-traditional look at health economics came from Associate Professor of Marketing **Maria Ana Vitorino** of INSEAD. In 2004, high-speed trains were introduced in South Korea. Her joint research examined hospital competition after the game-changing arrival of this high-speed train network. South Korea has universal health coverage and patients are free to choose their hospital. Researchers compared the health of patients before and after the establishment of the train network, looking at the effect of increasing hospital competition on the quality of care. The work is still in progress, but some of the initial results are not

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promising for competition. As Roels had mentioned, there are often difficulties when a healthcare system is overstretched. In the case of Vitorino's work, one factor may be that patients who are very sick (and more likely to die) choose a hospital with an outstanding reputation, increasing the strain on that hospital and eventually leading to poorer outcomes.

Diversity of thought

Health economics is an expanding topic, not only across the disciplines mentioned here but also globally. Gilles Hejblum, who coordinates the transversal activity on health economics at **the Pierre Louis Institute of Epidemiology and Public Health**, showed that the relative volume of publications on this topic in PubMed increased substantially from 1989 to 2016.

Medical journals aside, the connections between health and economics, especially with regards to inequality, are complex, concluded Professor **Nathalie Drach-Temam**, the vice dean for Research, Innovation and Open Science at Sorbonne Université. Big data, she said, might be a game changer in the field. As economists use different data sets than medical researchers, hopefully this type of research exchange can make the right data available for future innovations.

Interdisciplinary research is at the heart of the Sorbonne Alliance's research mission. We need to continue asking questions together to see all the angles of thorny, important problems. This is how we will enrich our research community and provide impactful knowledge.

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