Financial incentives to doctors and the high rates of caesarean births

*Doctors increasingly resort to caesarean operations (C-sections) to deliver babies. C-section rates vary widely from place to place. **Hanifa Pilvar** and **Kowsar Yousefi** study a health care reform undertaken in Iran to control the rising use of C-sections. They find that financial incentives play a key role in physicians' choice between a caesarean and a vaginal delivery.*

Caesarean births (C-sections) have become increasingly common in the world in the past few decades. The rates vary a lot from place to place, even within a certain country. For example, the C-section rate at Chelsea and Westminster trust is more than double that in Nottingham trust. But why is there such variation even in a country with strict medical guidelines? Does the variation in the health status of women justify this variation? Are there other players on the ground? In this paper, we focus on the role of the financial incentives of health care providers to explain the rise in C-section rates in a country with the highest percentage of caesareans in the world: Iran.

A considerable portion of medical practice lies in the grey areas of medical guidelines, where the incentives of health care providers play a crucial role in the type of treatment the patient receives. Different procedures for childbirth are a classic example of grey areas in medicine. Apart from extreme emergency cases where a C-section is inevitably lifesaving, many infants can be born either by vaginal delivery or C-section. However, it is not always crystal-clear which procedure should be chosen and usually the doctor is responsible for deciding about alternative options. Doctors may have different priorities and incentives in different areas. That is why there is a large variation in the C-section rate across doctors, hospitals, regions, and countries.

The incentives of health care providers vary from leisure incentives to financial incentives. From the point of view of a doctor, vaginal delivery is usually less reimbursed, is time-consuming, imposes high stress levels, is unpredictable, and has more cases of judicial problems. For these reasons gynaecologists prefer C-sections in marginal cases. For example, in a seminal paper, Gruber and Owings (1994) show that American gynaecologists compensated the income shock resulting from the decline in fertility by substituting the highly reimbursed C-sections for vaginal deliveries. However, from the point of view of the patient, the C-section, like any other surgery, has its own risks. The recovery period from a C-section is much longer than that of vaginal deliveries. There are also some risks to the newborn, especially if the C-section is planned unnecessarily earlier than the due date. Therefore, many medical guidelines try to control caesarean births by targeting some form of ideal C-section rate in the country.

In our paper we study a large-scale health care reform undertaken in Iran to control the rising use of C-sections, since the country had one of the highest rates of the procedure in the world. In 2014, 55% of Iranian births were delivered by C-section. Compare this to the World Health Organization (WHO) recommended rate of 10%-15%, the average rate in OECD countries (27%) or in the MENA region (29%). This high rate is partly due to medical guidelines that give higher freedom to doctors to induce the demand for a certain type of procedure in line with their own interests.

The Iranian reform programme started on 5 May 2014 in all public hospitals. The C-section rate in public hospitals was lower than the national average, although it could still reach as high as 47%. Following the programme, vaginal deliveries became free of charge, with the performing doctors receiving bonus payments. They were also subject to an annual maximum number of caesarean deliveries. If the doctor's annual C-section rate exceeded 45%, she would not get paid for the extra procedure performed. In our paper, we show that the programme was effective in reducing the C-section rate especially among first-time mothers, who have fewer pregnancy risk factors. Their rate dropped from 48% to 35% in less than six months. We show that doctors' financial incentives played a crucial role in the effectiveness of the programme. Those doctors who had a very high C-section rate responded sharply to the incentives and they were the driving force of the reform.

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In terms of health outcomes, apart from a slight increase in the gestation age and infant birth weight, we could not observe any other significant effect. After the reform, fewer births were planned early term, i.e., at the 38th week of the gestational age, hence, we observed an effect on birth weight. However, we failed to identify any effect on mortality rate, hospitalisation, and other health measures of the infants. The programme was not harmful in terms of immediate health outcomes, although it had some unintended effects such as shifting high skilled doctors out of public hospitals.

The programme will have long-run effects which are not captured by our short-run analysis. First, caesareans are a persistent procedure; in many medical guidelines, elective repeated C-sections should be discussed with mothers who had a previous caesarean. So, we expect more reductions in the C-section rate of second births and beyond. Second, C-sections have a negative effect on the subsequent chances of contraception (Halla et al., 2016). Therefore, the programme might have long-run effects on the fertility rate and women's labour market decisions.

This policy evaluation can be used by other countries that have similar problems in their health care sector and intend to control their C-section rates. To name a few, Mexico, Turkey, and Korea have C-section rates above 45%. In addition, our paper tries to contribute to the well-studied concept of physician-induced demand and its consequences for patients. Medical guidelines should provide the basis for an optimal treatment while compensating doctors with fair pay.

Notes:

- *This blog post is based on Changing physicians' incentives to control the C-section rate: Evidence from a major health care reform in Iran, Journal of Health Economics*
- *The post represents the views of its author(s), not the position of LSE Business Review or the London School of Economics.*
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