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Cost Disease of Health Care and no Growth

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Abstract: This study examines whether health care is affected by Baumol's cost disease in a scenario of no growth. Baumol's model implies that stagnant sectors are driven by wage increases in excess of productivity growth. But in a no growth economy the income is constant. It is investigated in two institutional proposals, selective reduction of productivity and reduction of working hours. In both scenarios the cost disease does not affects the health care. However, in the second scenario an important result is found. In this sector, with slow productivity growth, will be necessary a greater number of workers. The relative cost of health care will increase over the years. Therefore, although the cost disease does not affect the health sector in a no growth economy, the relative cost of health should continue to rise.

Keywords: health care costs, Baumol cost disease, no growth

JEL codes: I10, O40, I18

1. Introduction

Over decades OECD countries have seen growing health care expenditure. These rising costs put further pressure on the state budget and have concerned policy makers. The average of total expenditure on health of OECD countries[1] has increased from 3.8% of gross domestic product (GDP) to 10.5% over the past 50 years. According to Baumol (1996) what makes the problem so difficult to deal with is that the costs of stagnant sectors are considerably higher today and will be substantially higher tomorrow. For Baumol, the health is among the stagnant sectors and rising cost is due to the slow productivity growth, so-called cost disease.

[1] Data are available for Austria, Canada, Finland, Iceland, Ireland, Japan, Norway, Spain, Switzerland, United Kingdom and United States from 1960-2011 (0ECD, 2014).

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Baumol (1967) divides the economy in progressive and stagnant sector, in which regular growth in labor productivity can occur only in the progressive sector. Baumol (1996) argues that service industries, like education and health care, have resisted reduction in the amount of labor per unit, consequently they tends to be relatively stagnant. It does not mean that these sectors have never increases in labor productivity, but only that over longer periods they have had sporadic productivity increases. Furthermore, technological change in health care has occurred, but it has been predominantly quality improving rather than labor productivity.

Other industries also suffer from cost disease, including the live performing arts, automotive repair and postal services. In particular, "the services that have been infected by the cost disease are precisely those in which the human touch is crucial, and are thus resistant to labor productivity growth" (Baumol, 1993: 19).

Baumol (1996) points out that wage rates in the stagnant industries tend to increase with higher wage rates in the progressive sector. As example, the author takes the automobile production (progressive) and the performance of Mozart quartets (stagnant). In the former case, the total cost and output both rise by the same percentage, remaining unchanged labor cost per unit. In the latter case, the productivity remains unchanged but the earnings of players increase, as result, the cost per unit must also rise. The wages have to rise in the stagnant sector to match the rise in wages the progressive sector; the higher wage rates are necessary for services industries to attract more workers over time. Therefore, Baumol refers not to price inflation, but affirms that the real price increases.

One of the most important reasons for the slow productivity growth is that the production process in the services sectors are not standardization; it is necessary to analyze each individual case. Moreover, service quality must be correlated with the amount of human labor devoted to their production; in the service sector is difficult to reduce working time without losing quality (Baumol, 1993).

Baumol prospects for the future in relation to the costs of stagnant sectors are pessimistic. He asserts that the costs of health and education will absorb over half of GDP in four decades. However, their analysis takes into account the increase in income in all sectors, that is, economic growth.

Nowadays, it is debated the primacy that rich countries give to policies of economic growth. This question comes up in the context of environmental problems, in addition with interest by low

growth, no growth and degrowth. Such terms are based on feasibility and desirability of continuous economic growth (Victor, 2011).

This study examines whether health care is affected by Baumol's cost disease in a scenario of no growth. More specifically, Baumol's cost disease theory is investigated in two institutional proposals discussed in a no growth context, selective reduction of productivity and reduction of working hours.

The remainder of this paper is organized as follows: section 2 provides a brief summary of studies in relation the cost disease of health care; section 3 introduces the 'no growth' and discusses the Baumol's cost disease in two different scenarios. Finally, section 5 presents the paper's conclusions.

2. Cost Disease of Health Care

Despite health expenditures have grown significantly in recent decades, they still continue to grow throughout the world. In view of this, some explanations are widely accepted for increased expenditure, including new medical technologies, population aging, increases in health insurance coverage, demand growth of defensive medicine, increases in administrative costs, number of physicians and national income growth (Keenan, 2004; Medeiros and Schwierz, 2013). The last relationship has been broadly explored, providing evidence for a positive correlation between health care expenditure and GDP, such as Lago-Peñas et al. (2013), Fedeli (2012), Baltagi and Moscone (2010), Dreger and Reimers (2005), and Gerdtham and Lothgren (2000). In addition, but less discussed, the cost disease also provides explanation of the continuous rise in health expenditures.

Baumol (1996) shows that the annual rate of increase in the price of a physician's services was above 5.5% per year, while the average annual of overall inflation increase less than 4% per year between 1948 and 1995 in the United States. It means that the price of a doctor's services has increased more than 100 per cent in terms of constant dollars. In another example, over the same period the price of hospital room rose at an average annual rate of 8.6%, that is, an increase of 800% in terms of constant dollar.

Nordhaus (2006) explores industrial data for the period from 1948 to 2001 to investigate Baumol's disease. The study examines six variants of Baumol diseases. Nordhaus concludes as

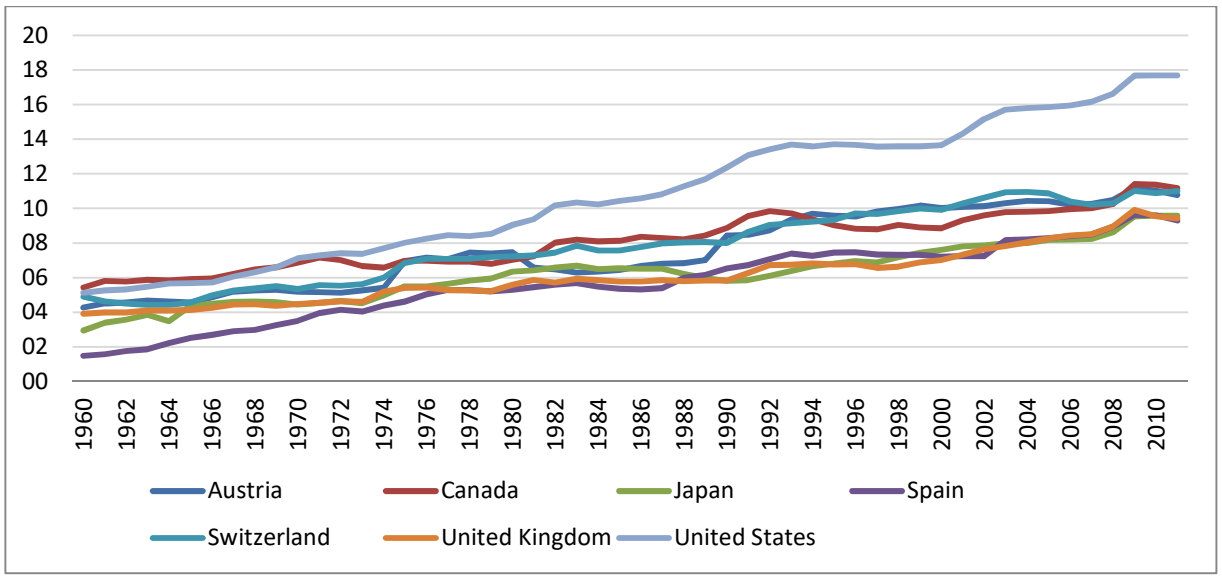
follows. *i)* Sectors with relatively lower productivity growth have higher growth in relative prices. *ii)* Stagnant sectors have shown slower growth in real output than have shown the progressive sectors. *iii)* Sectors with slow productivity tend to have declining nominal output shares. *iv)* Progressive sectors tend to displace labor and show lower growth of hours and employment (except manufacturing); estimates indicate that the technological change of sectors is the main factor driving differential employment growth. *v)* Economic gains lead to higher wage and profit, but most of the productivity gains (95%) is passed on to consumers in lower prices. *vi)* The results suggest that the economy suffered from Baumol's growth disease during the period analyzed. Overall, it affirms that technologically stagnant sectors have higher growth in relative prices and slower growth in relative real outputs than do the technologically progressive sectors.

Empirical studies provide evidence in favor of Baumol's theory. Hartwig (2008a) estimates a pooled cross-section and time-series data for 19 OECD countries and finds robust evidence that health care expenditure is driven by wage increases in excess of productivity growth. Bates and Santerre (2013) investigate the Baumol's cost disease in the United States. They use a panel data of 50 states for the period from 1980 to 2009 and finds that the U.S. health care sector suffers from cost disease. Colombier (2012) also finds evidence for cost disease, he uses the sample of 20 OECD countries for the period from 1965 to 2007.

Hartwig (2008b) investigates whether health capital formation has cured Baumol's cost disease. The study uses a panel of 21 OECD countries. But no evidence was found that capital formation fosters economic growth in OECD countries. In contrast, it founds that the cost disease has not been cured

Recent data indicate that the problem persists. Figure 1 shows the explosion of health expenditure of seven OECD countries in the last 50 years.

Figure 1. Total expenditure on health, % of GDP

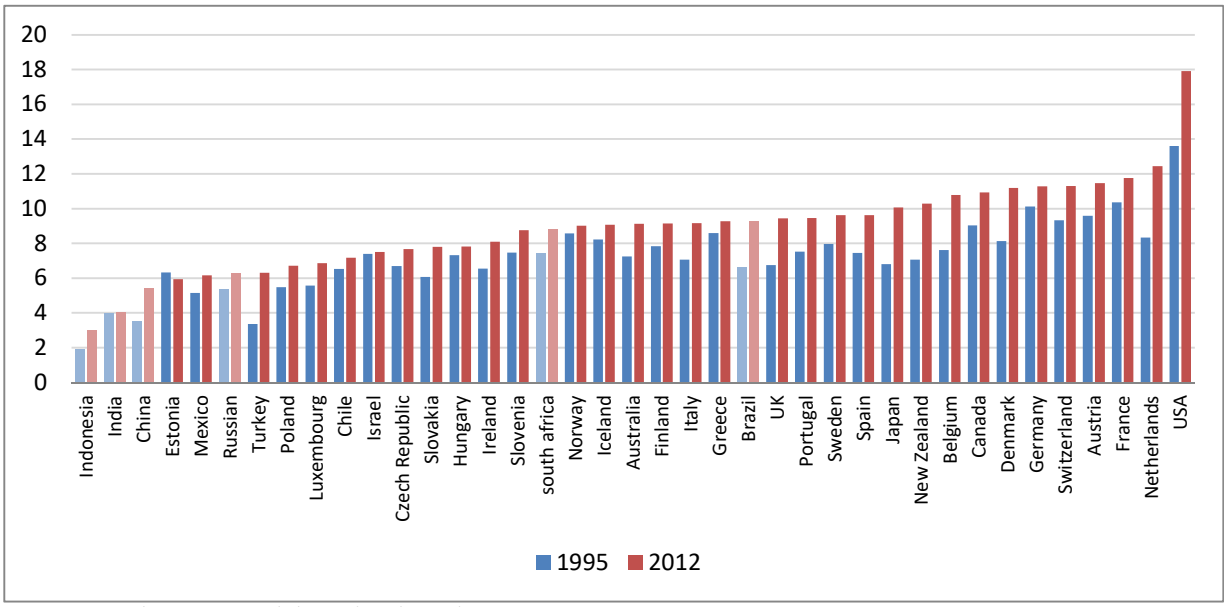


Source: Author's own elaboration based on: OECD, 2014.

Based on more complete data, all OECD countries[2] showed growth in total health expenditure in the period from 1995 to 2012, with the exception of Estonia. As illustrated in Figure 2, the cost of health care in the United States is considerably higher than in the most other countries, accounting for 17.91% of GDP in 2012. On the other hand, the highest growth in the period was the Indonesian, followed by Turkey.

[2] Current membership and partners.

Figure 2. Total expenditure on health, % of GDP



Source: Author's own elaboration based on: WHO, 2014.

3. No growth

Much has been discussed about the increasing global environmental problems. In recent decades climate destabilization and biodiversity loss has intensified. The global ecological footprint has double what it was in 1966, it is at 18 billion hectares of bio-productive land and water area. The sustainable capacity of the Earth is exceeded by at least 50 percent (Knight et al., 2012; Ewing et al., 2010).

In this way, environmental researchers have focused your efforts to answer whether it is possible to achieve important policy objectives in a modern economy without relying on economic growth (Victor, 2008). Especially, the question is whether it is plausible a scenario of full employment, without social inequality and low environmental pressure with no growth. If this is possible, GDP growth will not be necessary or sufficient condition for progress.

The basis of the discussion is that with finite resources it is impossible for an economy to grow infinitely. In this context, studies have proposed policies and institutional changes that may be compatible with sustainable development. In particular, a new concept has been pointed out in the discussion of growth versus the environment, named degrowth. "Sustainable degrowth can be defined from an ecological–economic perspective as a socially sustainable and equitable reduction

(and eventually stabilisation) of society's throughput" (Kallis, 2011: 874). Degrowth implies a process of downshifting material throughput (Knight et al., 2012).

In this view, the resources are limited and the growth of economy unsustainable, so degrowth is inevitable. However, degrowth should not be seen as a form of economic recession, but as a transition from a society based on less production and less consumption. This means a fundamental change in political, economic and institutional levels of norms and values towards sustainability (Wächter, 2013; Schneider et al., 2010).

In this way, a policy package is suggested in the debates regarding the environmental problems of our time, including policies for a basic income, effective climate agreement of the countries, creation of flexible labor market that allows for part-time work contracts, regulation of commercial advertisement, reduction or limitation types of environmentally relevant consumption and technology-specific policies (van den Bergh, 2011b; Kallis, 2011).

Victor (2008) uses a simulation model of the Canadian economy and analyzes the outcomes in different scenarios. Policy changes are performed, such as reduction of the average work week and greenhouse gas (GHG) emissions. He demonstrates that no growth can be disastrous if implemented incorrectly, but that slow growth (with stabilization in 25 years) can be consistent with social and environmental outcomes.

Although many institutional proposals are discussed in a no growth scenario, taking into account the cost disease, two are analyzed in this study, these being selective reduction of productivity and reduction of working hours. Here, analyzes are focused on a no growth model, that means that income remains constant over time.

3.1. Selective reduction of productivity

In the 'selective degrowth', differential growth rates are applied to parts of the economy according to their environmental damages. To reach this purpose, environmental taxes could be a way increase the cost of many activities and reduce its growth. According to Kallis (2011) many current industries would have never exist if they had to pay for their externalities, like plastics, heavy metals and big oil.

Environmental taxes are efficient and effective policies to mitigate negative external effects (De Mooij et al., 2012). Accordingly, for effective environmental policies, with taxes, levies or tradable permits, an international agreement is crucial (van den Bergh, 2011a). But it depends on

international cooperation and a collective effort by the most important emitters of greenhouse gases. This is difficult to achieve because cooperators involve many actors at an international level.

Gsottbauer and van den Bergh (2013) affirm that a climate agreement may include reputational benefits to foster cooperation. Even with financial incentives, it is also necessary transparency in the negotiations. For this, an international agreement must offer clear and well-established net benefits to all participating countries. Barrett and Stavins (2003) argue that counties will be more inclined to participate of a global climate change with a credible and cost-effective treaty. For example, Kyoto Protocol is incapable of inducing significant participation with its lack of incentives for participation and compliance.

In a scenario of no growth with environmental policies, environmentally degrading industries reduce their productivity while other industries of the economy continue to have increasing rates of productivity. So the GDP remains constant over the years, that is, wages do not increase. Therefore, there is no pressure on the wage rate and costs in the stagnant sectors. Within this framework, the health care sector should not be affected by Baumol's cost disease.

3.2. Reduction of working hours

Reduction of working hours is a proposal that have emerged in degrowth debates. Improvements in education, skills, labor specialization and technological progress have increased the productivity of labor. However, van den Bergh (2011b) argues that productivity gains do not reflect in shorter working weeks, more holidays or earlier retirement, this gain in productivity has been transformed into increased production and consume.

In this case, less work hours will limit the environmental pressures. A shorter average working week means to restrict production capacity, spending power and consumption. Moreover, the reduction of working hours may increase welfare. It represents more time available for leisure, family and friends, more happiness, and less work stress. Kasser and Sheldon (2009), after controlling for material affluence, find empirical evidence from four studies that the experience of time affluence is positively related to subjective well-being. Other studies show that longer working hours are associated with lower happiness (Pouwels et al., 2008). Furthermore, Alesina et al. (2005) shows that hours worked have fallen in continental European countries since 1960. It has been characterized by strong unions, extensive welfare, high taxation, and prevalence of social democratic governments; these factors have reduced inequality. Additionally, in a scenario of no

growth, a redistribution of work and reduction of working hours are necessary in order to avoid unemployment (Kallis, 2013).

In specific, the link between working hours and environmental impact has been found in recent empirical studies. Nässén et al. (2009) examine how a change in work time affects the energy use of households in Sweden. They find an increase or decrease in work time by 10% gives a change in energy consumption and greenhouse gas emissions by about 8%. Schor (2005) argues that technological innovation will be insufficient to achieve sustainable consumption. The study uses a linear multiple regression of the national ecological footprint for the 18 OECD countries. It shows a positive correlation between hours reductions and ecological footprint. Furthermore, Knight et al. (2012) use a cross-national panel of 29 high- income OECD countries for the period from 1970 to 2007. They find that reduction in hours of work reduces ecological footprints, carbon footprints and carbon emissions.

Here, the role of government is essential to a different work time norm, since people are accustomed to fierce competition in the labor market and long working hours. The reduction of working hours must occur gradually, with the growth in labor productivity. In this case, the productivity gain is offset by the reduction of working hours, as a result, total income would not change.

Nonetheless, in stagnant sectors, an increase in the numbers of health workers should occur over the years. With slow productivity growth will be necessary a greater number of health workers to maintain health services with the same quality and efficiency, once that health care is inevitably highly labor intensive in nature.

In this way, with reduction of working hours and steady income, wage/hour will rise. In stagnant sectors rising wages is not offset by productivity gains, therefore, health care costs are expected to increase over the years. New health workers are employed. Consequently, relative costs of health care will increase. This means that sectors with rising productivity will reduce costs and service sectors will increase costs, however, in the end, the purchasing power will be maintained.

Thus, some quantity of the inputs used to produce goods in progressive sectors is transferred into the production of the stagnant sectors. The society will change the proportions of its income that it allocates to each product (Baumol, 1993). This is possible because most of the productivity gains are passed on to consumers in lower prices (Nordhaus, 2006). But the problem is, even with

no growth and cured of the Baumol's cost disease, people will have to live with the relative increase in the costs of health sector over the years.

4. Conclusion

Baumol's cost disease affects the sectors characterized by slow productivity growth and high labor intensity, named stagnant. The cost of these sectors rises with higher wage rates in the sectors with continuous productivity growth. Thus, Baumol's model implies that stagnant sectors are driven by wage increases in excess of productivity growth.

Health care is among the services that have been labeled stagnant. There are two main reasons that affect the persistent productivity growth in the health care. First, non-standardization of the production process; for accurate diagnosis, each case must be evaluated. Second, in this service the quality is correlated with the amount of labor expended on their production; doctors who spends less time in the examination of their patients are subject to large error.

In this way, Baumol affirms that the costs of the stagnant services are condemned to rise persistently with growth in productivity in the progressive sectors. However, this study examines whether the health sector continue suffering from the Baumol's cost disease in a no growth economy, where income is constant over the years. Baumol's cost disease theory is investigated in two scenarios discussed in a no growth context, selective reduction of productivity and reduction of working hours.

In both scenarios the cost disease does not affects the health care. Without income growth, the wages of sectors with slow productivity growth will not be pressured by other sectors. However, in the second scenario, reduction of working hours, an important result is found. The relative cost of health care will increase over the years. The health care is labor intensive, reducing work hours will not be fully offset by productivity gains in the sector, compared to the economy as a whole. To maintain the quality of services, the number of health workers will have to increase. Finally, although the cost disease does not affect the health sector in a no growth economy, the relative cost of health should continue to rise.

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Choroba kosztów opieki zdrowotnej i braku wzrostu

Streszczenie

W niniejszym artykule zbadano, czy opieka zdrowotna znajduje się pod wpływem choroby kosztów Baumola w scenariuszu zerowego wzrostu. Według modelu Baumola na sektory znajdujące się w stagnacji oddziałuje wzrost płac wywołany wzrostem produktywności. Jednak w gospodarce o wzroście zerowym dochód jest stały. Przebadano to w dwóch przypadkach instytucjonalnych, selektywnej redukcji produktywności oraz redukcji godzin pracy. W obu przypadkach choroba kosztów nie wpłynęła na opiekę zdrowotną. Jednak drugi scenariusz dostarczył bardzo istotnych wyników. W analizowanym sektorze, przy powolnym wzroście produktywności, niezbędna będzie większa liczba pracowników. W przeciągu następnych lat relatywny koszt opieki zdrowotnej wzrośnie. Z tego względu, mimo że choroba kosztów nie dotyczy sektora zdrowotnego, relatywny koszt opieki zdrowotnej będzie nadal rósł.

***Słowa kluczowe**:* koszt opieki zdrowotnej, choroba kosztów Baumola, brak wzrostu.