Case of a “heavy” tax on carbon emissions using the theory of political economy

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1. Introduction

In today's world in which post-materialist values are becoming increasingly important, climate change is one of the most discussed problems on the political and economic agenda of countries around the world. The reason behind this is the evident increase in concentrated carbon dioxide in the atmosphere, which is generating a rise in global warming that endangers the future well-being of the planet. This paper is going to focus on one of the solutions proposed to fight climate change, taxes on carbon emissions, providing arguments for and against this measure within the framework of the theory of political economy.

According to the United Nations (2021), they find this definition about climate change:

“Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas. Examples of greenhouse gas emissions that are causing climate change include carbon dioxide and methane. ” (United Nations, 2021).

Therefore, the growing concern about climate change is making environmental issues to be in the current spotlight and, consequently, the taking of solutions is being demanded. Among some of the measures that are being proposed and implemented so as to cut down on carbon emissions are the taxes on these emissions.

2. Taxes on carbon emissions

"A carbon tax is a fee that a government imposes on any company that burns fossil fuels" (Amadeo, 2020). Taxing the emissions means that the government collects the taxes on fossil fuels in proportion to the amount of carbon dioxide they produce.

Following the study of Symons, Proops & Gay (1994), which simulated a model that implemented taxes on carbon emissions on the UK, a framework that explains how the fossil fuels are used in an economy is a key requirement. This concrete study makes a distinction between the **'direct consumption demand'** for fossil fuels (petrol, heating oil, gas…) and the **'indirect consumption demand'**, that would include the goods that had required the use of fossil fuels to be manufactured.

3. The effects of the taxes on the national economy

As a clarification, this paper will focus on the effects of carbon emissions' taxes at the **national level**, treating the State, companies and consumers of a country as the main actors. But before going deeper into the impact of taxing carbon emissions, some generalizations about the role of taxes on a country's economy will be discussed.

On the one hand, one of the effects that the taxes have on the economy is that of collecting resources from the system so as to **finance the public expenditure**. On the other hand, taxes make a big impact on the economic actors, given that it affects the **demand for goods and services**, causing a consequent **variation in prices**.

These statements led me to analyze more deeply the effects that taxes on carbon emissions would have on the economy of a country following the theory of supply and demand. A tax on carbon emissions would be directly reflected in an **increase in its production costs,** which would eventually affect the **price of carbon products for consumers**, making them purchase less carbon-based fuels, consequently bringing the emissions down. Here it can be

clearly seen the negative correlation between the two variables, where **an increase of carbon pricing will result in less carbon emissions**. As a disclaimer, I think that it is worth mentioning that the goods that are being treated in this term paper are known to have quite an **inelastic demand**, meaning that the demand of these goods would not vary so much with the changes in prices, given that people really need them in their daily lives (fuels, for example). Nevertheless, I would assume that people will try to look for alternatives to carbon-based fuels, so the implementation of the tax will actually be successful in reducing emissions.

It is also taken for granted that the size of the tax will be fixed in the long run, and that it is added to the changing price of fuels (that fluctuate according to the market forces). Therefore, analyzing the situation in the supply and demand graph, there can be observed a **shift to the left in the supply curve, increasing the price of carbon but reducing the quantity demanded thereof.**

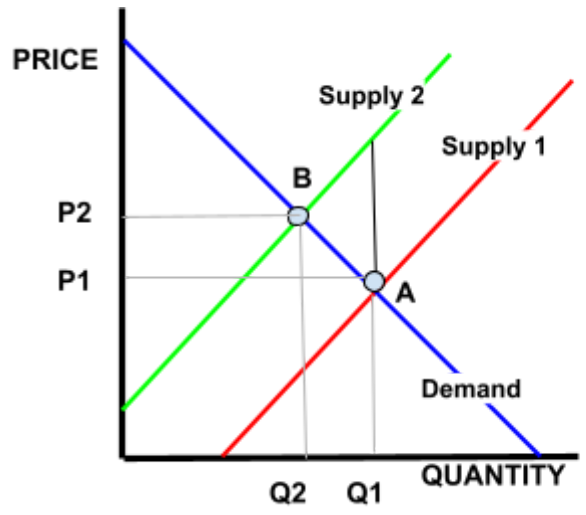

Figure 1. Supply and demand of carbon-based products. Source: self-made graph.

In this graph, Point A represents the quantity demanded and the price of carbon products before the implementation of the tax. Once the tax is working, the consumers will have to pay more to get the same good (P2), causing the shift to Point B. To bear this increase in prices,

households and firms will reduce their demand for these products and therefore, the carbon emissions (Q2).

4. Advantages and disadvantages of carbon pricing

As a continuation of this term paper, the advantages and disadvantages of implementing a carbon emissions tax will be analyzed from an economic perspective.

Advantages

Among the arguments in favour of a tax on carbon-based fuels we can find the most evident one: the **reduction of carbon dioxide emissions**. By increasing the cost of these products we are encouraging firms to search for more eco-friendly alternatives, such as renewable energies like solar, wind, or hydro-energies. This rising price of carbon will also affect consumers, who will have to pay more for gasoline or electricity, and will therefore look for more affordable alternatives. We also need to take into account that taxes come in the form of **government revenue**, so this measure could contribute to the economic growth of the countries. The government could use this income to reduce other taxes or channel them to create other environmental programs (Kerr, 2010). In this context, one can experience what is known as the **multiplier effect**, according to Keynes, since this increase in public spending on environmental measures will benefit consumers to a greater extent.

Disadvantages

Among the disadvantages, we can label the carbon tax as what is known as a **regressive tax.** This means that it has a **harder impact on the people with low resources.** These low-income households will see themselves paying higher prices for basic necessities like electricity and gasoline, but not being able to switch to more ecological alternatives.

5. Empirical example: France

In this term paper, some empirical data reflecting the positive effects of the implementation of a carbon tax will be presented. More concretely, it will be studied the impact of the tax on carbon-based fuels in France. In September 2019, the French government established the Law on Energy and Climate so as to follow the guidelines to achieve the objective of Carbon Neutrality by 2050. To do so, France imposed a carbon tax on fossil fuel consumption, that now amounts to 45 euros per tonne, in place since 2014. Several studies have seemed to demonstrate the causal effect of the carbon tax on the aggregate manufacturing sector since its introduction in 2014 (Dussaux, 2020).

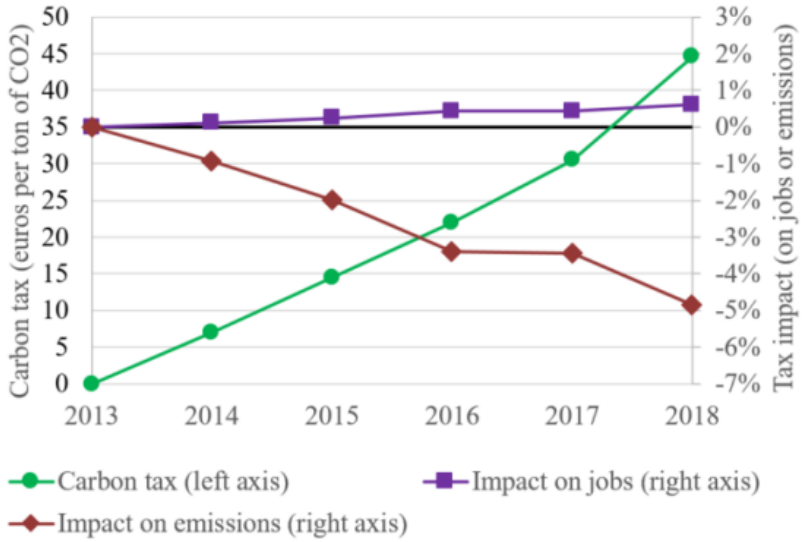

Figure 2: Impact of the French carbon tax on jobs and CO2 emissions. Source: Dussaux (2020)

In this graph, the carbon tax is represented by the green line, together with the impact thereof on the manufacturing sector's jobs in purple, and the impact of the carbon pricing on the emissions in red. By analyzing the graph, in five years from 2013 to 2018, the emissions have been reduced by 5% due to the implementation of the tax. The effects on the jobs have been slightly positive but little noticeable. Overall, it can be said that the tax policy implemented in France reached its goals of cutting down on carbon emissions.

6. Conclusions

Today, environmental concerns occupy a large part of the public agendas of States, leading them to take effective measures against climate change. One of them, taxes on carbon emissions, generates certain controversies regarding its implementation, so in this paper an analysis of its advantages and disadvantages has been carried out in order to reach a conclusion. Following the theory of political economy, taxes on carbon emissions would be quite effective in reducing pollution, since by increasing the prices of these products, both consumers and companies would look for more economical and ecological alternatives. In addition, as its own definition indicates, taxes are collected in the form of public spending, which the government could also use to combat carbon dioxide emissions. However, we must also take into account the economic inequality that taxes can generate, punishing those households with lower income, so the tax must always be proportional to the income of consumers. That is why, as a conclusion of this paper, the advantages of implementing a carbon tax outweigh the disadvantages, in a theoretical framework of political economy.

7. References

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