

Contextualising of Organised Labour's Position on Carbon Tax in South Africa Using a Qualitative System Dynamics Model

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Abstract

The South African government planned to introduce a carbon tax from 2013 as part of its efforts to reduce pollution levels emanating from domestic economic activities. The position of organised labour has, however, ranged from outright rejection to requests for a delay in implementation of the policy until employment safe-guards are put in place. Organised labour felt strongly that a carbon tax would have a negative impact on local employment. This paper examines the validity of organised labours' concerns on possible job losses using a qualitative system dynamics approach. A case is made that despite being set at low levels, the carbon tax has potential to negatively affect competitiveness of firms in the long term. The potential job loss from the carbon tax will not necessarily be a result of increases in the immediate operational costs of firms, but rather from the loss of firms' competitiveness in the long term. It is recommended that the implementation of the carbon tax be put on hold until safe-guards to local employment are put in place. One of the possible safeguards is to ensure that local manufacturers have access to low cost but clean production technologies that do not substitute the local labour force but rather supplement its productivity.

Introduction

Global warming is now an accepted fact. The question is: how do we deal with global warming, given the other social and economic challenges that developing countries face.

The South African government recognises that the country is vulnerable to effects of climate change. As such, the government is taking steps to combat the adverse effects to the environment coming from domestic economic activities. A carbon tax is one of the policy interventions that the South African government planned to introduce in 2013. The government wanted to consult all stakeholders before implementing of the policy.

The position of organised labour on the introduction of a carbon tax in South Africa has ranged from outright rejection of the tax to a request for delay in its implementation until safe-guards on employment are put in place.

The carbon tax policy for South Africa

South Africa's carbon tax policy is aimed at businesses that use and/or produce high emission products or services. The tax is supposed to discourage such businesses from using high emission processes during their production, and is aimed at subsequently reducing their carbon footprint.

The tax is set at a very low level to make sure that it does not negatively affect local productive activities on the one hand, and stifle trade on the other due to loss of competitiveness.

Supporters of the carbon tax policy for South Africa argue that the policy can contribute towards reducing emission in the country. Moreover, this can be done without adversely affecting employment since the tax is set at too low a level to have any impact on jobs. They further argue that the tax makes producers to take full responsibility for the results of their productive activities.

Those who do not agree with the policy, including organised labour, acknowledge that firms may not make decisions to retrench workers because of the carbon tax given the relatively low level at which it is set. However, regardless of the level, the tax could still negatively affect competitiveness of the local firms due to increase in operational costs. Competitiveness is about having an edge over your competitor. Such an edge can easily be lost via small changes in the firms' production costs. Although the tax may seem insignificant, it could still count when it comes to competitiveness. Loss of competitiveness leads to less sales, reduced production and subsequently lower demand of factor inputs, one of which is labour. Loss of employment may not happen immediately with the introduction of the tax but it is possible in the medium to long terms.

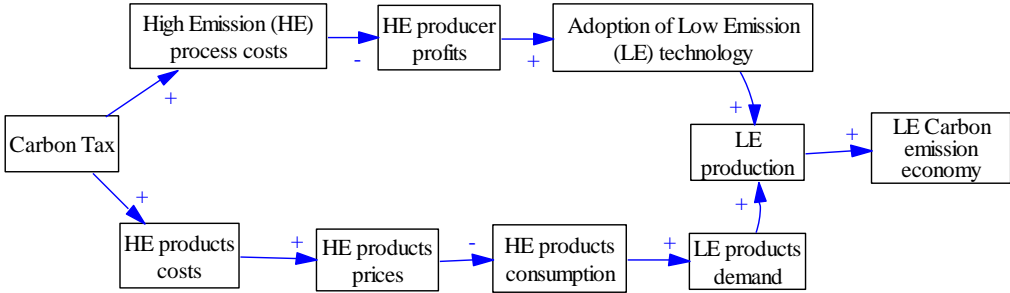
For a successful implementation of the carbon tax in South Africa, convergence of opinions among stakeholders is important.

One-way causal model for South Africa's carbon tax

The articulation of the carbon tax model for South Africa has been based largely on a one-way causal model. It is assumed, for example, that the carbon tax will increase the cost of high emission production processes from the manufacturers' perspective; this will, in turn, decrease their profit margins. The reduction in profit margins will force the manufacturers to change their production to low emission processes. In other words, there will be a one-way causal link from the carbon tax to low emission production and, subsequently to a cleaner economy.

On the consumer side, again, a one-way causal relationship between the carbon tax to low emission production is assumed. The causal relationship is via increase in prices of high emission products, substitution of high emission products with low emission products, and the subsequent increase in demand for low emission products. Increased demand of low emission products motivates their production.

Figure 1: Graphical Representation of the one-way casual thinking of the carbon tax effects



Notes: HE represents High Emission; LE represents Low Emission

There are serious omissions in the articulation of South Africa’s carbon tax policy. These relate to lack of recognition that the direction of causality is not necessarily one way and that the causal effects are neither instantaneous nor linear overtime. By failing to recognise these aspects, key dynamics and effects of the carbon tax are omitted. These omissions make probable that wrong conclusions are drawn on the potential effects of the carbon tax policy.

A qualitative system dynamics model of South Africa’s carbon tax policy

Formalization and modelling of the carbon policy using a system dynamics approach help to make clear three aspects omitted in the one-way causal articulation of the carbon tax policy as presented in figure 1 above. These are: two-way causality, time lags or delays, and the changing nature of causal relations overtime.

The articulation of South Africa’s carbon tax as a system dynamics model brings to the fore assumptions that may not necessarily be true, and other omitted effects. The inaccurate assumptions and omitted effects weaken the key proposition that the carbon tax policy will reduce emissions in the domestic economy and will have minimal adverse effects on local employment. The following section considers some of the omitted effects, and how their omission leads to inaccurate conclusions on the country’s carbon tax policy.

Cost of low emission technology

For producers using high emission processes, it is assumed that imposing the carbon tax will reduce their profits on the high emission products. Driven by the desire to

maintain or increase profits, such producers will adopt low emission technologies on which no or low carbon tax is payable. As a result of this, low emission production will increase in the local economy and employment will be created in low emission sectors.

An assumption with this line of thought is that use of low emission technology comes at a cost equal or less than that of high emission technology. If the cost of low emission technology is higher than that of the high emission technology, then the adoption of the low emission technology will not necessarily lead to higher profits, even after imposing carbon tax. Without the higher profits being anticipated, producers will have no motivation to adopt low emission technologies despite the existence of the carbon tax.

Ideally, there is a two way causal relationship between profits for high emission producers and the adoption of low emission technology that is determined by the relative cost of low emission and high emission technologies.

To the extent that low emission technology in South Africa is more expensive than the high emission technology, the assumed effect of the carbon tax motivating the adoption of low emission technologies is less likely to be realised. Subsequently, the anticipated increase in low emission production and increase in employment in low emission sectors may not take place, too.

Price substitution effect between low emission and high emission products

On the consumer side, it is assumed that the imposition of the carbon tax will increase the cost of producing high emission products, and so high emission product prices will increase as a result. Consumers of high emission products will find it more expensive to buy these products and will subsequently switch to buying low emission products. The increasing buying of low emission products will upsurge production levels of low emission sectors, reducing the local economy carbon footprint while creating employment in these 'clean' sectors.

An important effect that is not accounted for in the above logic is that increase in the demand for low emission products will raise up their prices, according to the law of demand. This price increase will force consumers to substitute the low emission products with high emission products according to the phenomenon of price substitution effect. If this happens, the causal link between carbon tax, the low emission production will cease to exist.

Competitiveness and employment in the high and low emission sectors

The focus here is to understand the potential effect of carbon tax on employment. One cannot talk about sustainable employment without considering the aspect of competitiveness. Competitiveness is critical in sustaining jobs.

The carbon tax will increase the unit price of high emission products, subsequently making the high emission sectors less competitive. To the extent that competitiveness is a pre-requisite for sustainable employment, jobs will most likely be lost in the high emission sectors in the long run. Based on the same logic, lower prices for low emission products will make low emission sectors of the economy more competitive and will create more jobs in these sectors.

Whereas job loss in the high emission sectors of the country as a result of imposing a carbon tax is almost certain, the job creation potential of the carbon tax in the low emission sector is doubtful and highly improbable. This observation supports organised labours' position that the introduction of the carbon tax should either be stopped or at least be delayed until safeguards are put in place to mitigate its effect on local employment.

Conclusion and recommendations

There are so many factors that will influence the ultimate impact of the carbon tax on employment in the low emission and high emission sectors of the South African economy. From systems thinking perspective, the scale of probability indicates that jobs will be lost in the high emission sectors of the South African economy if a carbon tax is introduced without employment safeguards.

The modelling exercise validates to a reasonable extent labour's concerns on unconditional implementation of the carbon tax in the country despite being set at low levels. The tax has the potential to negatively affect competitiveness of firms in the long term. The potential job loss from the policy will not necessarily be a result of increase in the immediate operational costs of firms, but rather from the loss of firms' competitiveness in the long term.

It is recommended that the implementation of the carbon tax in South Africa be put on hold until safe-guards to local employment are put in place. One of the safeguards is to ensure, beforehand, that local manufacturers have access to low cost clean technology that does not substitute local labour force, but supplements its efficiency.

Figure for the cover page: Complexity of the Carbon Tax Policy

