

Taxation of Sugar-Sweetened Beverages: Simulations in a Computable General Equilibrium Model for Brazil

Topic: Input-Output Analysis: Sustainable Production and Consumption Policies - V

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Sugar-sweetened beverages (SSB) consumption is increasing worldwide, but higher growth rates have been seen in developing countries. Brazil is one of the Latin American countries with a higher level of consumption of SSB. The high sugar content in these beverages and regular consumption of SSB has impacts on individual health and contributes to the increased prevalence of chronic diseases such as obesity. In addition to the potential health outcomes generated by a SSB taxation policy, the effects on the economy must be examined. Considering that, the objective of this article is to analyze the wide-economy impacts of SSB tax in Brazil in the short- and long-term. To analyze these effects, we used a national dynamic Computable General Equilibrium (CGE) model calibrated for the Brazilian economy and evaluates the effects on macroeconomic indicators of production, employment, household consumption, prices and tax revenue in four scenarios. The model's database was calibrated using data from the 2015 Brazilian input-output matrix released by the Brazilian Institute of Geography and Statistics (IBGE), the sugar-sweetened beverages sector (the focus of this work) was disaggregated based on data from the Annual Industrial Survey (PIA) of 2015 considering the participation of Nectars and soft drinks in the Other food products sector and Soft drinks in Other Beverages. The final model has 124 products and 124 productive sectors. Two sets of simulations were performed in which different rates were applied to the sugar-sweetened beverages sector, with different assumptions about government spending. In the first set of simulations, it is considered that the variation in tax revenue resulting from the change in taxation does not change the total volume of government spending. In turn, in the second set of simulations, the resources collected with the tax on the sugar-sweetened beverages sector are directed to the Public Health sector, increasing public expenditures in this sector, in the same amount collected with the taxation. For each of the two sets of simulations, four policy scenarios were considered: 1) an increase of 10p.p. in the taxation of the sector from 2023; 2) an increase of 20p.p. in the taxation of the sector from 2023; 3) an increase of 30p.p. in the taxation of the sector from 2023; and 4) gradual increase from 10 to 30p.p. in sector taxation between the years 2023 and 2025. In all simulations, with the increase in taxation in the sugar-sweetened beverages sector, an increase in the sector's costs is expected, which are partially passed on to consumers in the form of price increases. The main results show negative effects for the SSB sector, with an increase in prices and a reduction in the level of economic activity. At the same time, as recommended, families reduce SSB consumption, in reaction to rising prices. When there is no change in government spending, negative results are observed in the short term in macroeconomic indicators. The introduction of a tax on SSB sector contributes to reduce household and government consumption, exports, and the price index. However, these effects contribute to a reduction in GDP in all scenarios. Over time, exports are encouraged, investments are resumed, and price indexes rise. The observed effects have repercussions on the labor market, generating a reduction in employment and wages in the short term. The fall in employment, however, is reversed in the long term, reaching the end of the period with positive variations. The wage mass, however, did not recover and maintained negative variations throughout the period. On the other hand, when the resources collected from taxation are reintroduced into the economy in the form of increased public spending, the negative macroeconomic effects are reversed, maintaining similar results for the SSB sector. Additionally, when comparing the strategy of establishing a fixed tax of 30p.p. or a gradual increase until reaching the same percentage, it is observed that the tax revenue is less affected and that in the last year of the analyzed period, the effects on the different economic indicators are slightly less expressive with the gradual increase.