Opening of alcoholic drink establishments during the Coronavirus period in Cameroon: scope and economic consequences

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Abstract

The objective of this article is to evaluate the impacts of alcoholic products on the Cameroonian economy following the government decision on opening alcoholic drink establishments during the period of the highest expansion of coronavirus pandemic. This objective is achieved through a dynamic CGE analysis. The main data come from a social accounting matrix for 2016 calibrated on the Cameroonian economy. As findings, a 50% increase of total alcoholic consumption in 2020 increases the demand of that sector whether the final demand or the intermediate input. The government income may increase in 2020, 2021 and 2024 but may decrease in 2021 and 2022. It may impact positively the GDP in the medium term. Finally, the well-being may be positively impacted by the year 2024.

Keywords: alcoholic drink, government policy, public revenue, well-being, CGE

1. Introduction

Cameroon, like many other countries in Africa, consumes alcohol and has been subject in March 2020 to the coronavirus pandemic declared in December 2019 in the city of Wuhan in China. During the month of April 2020, most of the countries of Europe, Asia and America reached the peak of the evolution of this pandemic while almost all the African countries were still in the phase of community contamination. The decision to close land and air borders was accompanied by compliance with the barrier measures dictate by the WHO and governments. As everywhere else, the practice of confinement seemed to be the most effective barrier measure although its implementation was difficult in the field for the most African countries. In Cameroon, one of the resolutions issued by the government was to close drinking establishments from 6 p.m. However, this last measure was lifted on April 30, 2020 even though the country had not yet reached the peak of the pandemic. This measure created an effervescence of the populations who showed their desire to return into drinking establishments. This action was essentially aimed at collecting burden tax for the State weakened by the pandemic. What could therefore justify the choice made by the government on the beverage sector? to answer this question, the sources of the magazine Jeune Afrique (2015) show that the beverage sector is the third lever in terms of tax revenue in Cameroon (see Table 1). The national refining company (SONARA) and the Cameroonian petroleum depots company (SCDP) ranked respectively first and second were already subject to many crises (incendiary fire and the pandemic which caused enormous losses to firms) and therefore could not help achieve the desired objective.

Alcohol is an addictive psychoactive substance that has been widely used in many cultures for centuries. The excessive use of alcohol results in a disease burden and has an adverse socioeconomic impact on societies. In Cameroon, the regulations in force condition the sale of alcoholic drinks through drinking establishments. A drinking establishment is any place or premises fitted out for the sale for the consumption or removal of sanitary drinks, wine or

alcoholic beverages. Alcoholic beverages are any drink other than wine and sanitary drinks including beer, cider, any fermented juice from fresh fruits such as lemon, orange, pineapple, cherry. Alcohol consumption changes humans even if its effect is short-lived (Lemelin, 1992) and the economic consequences associated with this consumption are major concerns in our societies.

On the theoretical framework, Stigler and Becker (1977) justify the attachment of populations to the consumption of alcohol and cigarettes by the theory of rational addiction. Becker and Morphy (1988) who proposed an improved model offer the possibility of taking into account the unstable nature of the price of a good in its steady state. Broadly speaking, addiction concerns any good the consumption of which is addictive. Becker and Morphy (1988) define it as a plan to optimize utility over time. An individual becomes highly addictive in relation to a good when his past consumption of this good has a great influence on his current consumption. They show that people addicted to a good respond much more to permanent variations in the price of the good than to a temporary variation in it. As a result, people can be addictive not only to alcohol, cocaine, cigarettes but also to work, food, music, television, religion, their standard of living and many other activities. They show that in fact what justifies a person being in an addictive state in relation to a good is the unstable nature of the price of that good in the steady state. In the same vein, Orphanides and Zervos (1995) introduce the concept of regret in the consumption of a good on which the consumer may be dependent in relation to the model of Becker and Morphy (1988).

Empirically, several authors show the influence of factors linked to the demand and supply consumption of alcoholic products such as the price and the base tax (Popham et al, 1975; Babor et al, 1978; Willard et al, 1995; Cook and Moore, 2001; Auld, 2005; Wagenaar et al, 2008; McClelland and Iselin, 2017). Thus, Babor et al (1978) showed that a reduction in the price of alcohol leads to an increase in its consumption. He is joined in his position by Popham (1975) who showed that per capita alcohol consumption is generally higher in societies where alcoholic beverages are less expensive relative to disposable income. This conclusion is consistent with that of Bales (1946) and Blacker (1966) for whom societies in which government laxness in terms of regulation of social norms, record high rates of alcohol consumption. Specifically, on the supply side, Cook and Moore (2001) showed that excessive alcohol consumption leads to loss of productivity, death, violence, crime and family responsibilities. This situation may lead the government to undertake regulatory measures for young people, such as prescribing a minimum age for young people to consume alcohol, and imposing fees (Grossman et al, 1994). From this perspective, these authors showed that alcohol consumption control policies reduce the prevalence of that product. Willard et al (1995) as well as McClelland and Iselin (2017) established that an excise tax on alcoholic products discourages and moderates their consumption. Thus, a low level of consumption is beneficial for the economy (Dyer et al., 1980; Klatsky et al., 1981; Marmot et al., 1981).

Typologically, the literature shows that the effects of alcohol consumption can be classified into two types: type I and type II (Jellinek, 1960; Levin, 1990; Farren and Dinan, 1996; Epstein and Coll, 2002). Type I is characterized by heavy dependence on alcohol and retention of acceptable social behaviours. This type is found in both women and men, and the socio-geographic environment is a factor in the development of this type of alcoholism. Type II alcoholism is a much more masculine form. It begins before the age of twenty and is characterized by more aggressive, antisocial and impulsive behaviours. In Cameroon, alcoholism types I and II are observed. Indeed, according to data from Global Drinking Demographics (2020) relating to the first half of 2020, Cameroon is ranked ninth African country after Algeria, Benin, Cote d'Ivoire and first in Central Africa in alcohol consumption with a rate of 5.9 million litters (see Figure 1). This level of consumption, which was 8.7 million

litters in 2010, increased slightly in 2016 to 8.9 million litters. It could be higher in 2020 based on data from the first half of this year. This last year characterized by the occurrence of Covid-19 with upheavals on the political, administrative, health, social and economic levels require special attention to question the consumption of alcohol and its effect on the Cameroonian economy in the period of coronavirus pandemic.

Indeed, declared in December 2019 in the city of Wuhan in China, the pandemic of coronavirus is one of the pandemics with the fastest fatality rate on the earth. The first case of coronavirus was detected and confirmed in Cameroon as imported on March 6, 2019, after a positive test, in Yaoundé, on a French citizen. The detection and confirmation of this Covid-19 case was an alert that plunged Cameroon into sanitarian crisis. Thus, the government has taken a set of measures called barrier measures to respond to the spread of the coronavirus. These are the confinement measures of March 17 and April 13, 2020, followed by the release measures of April 30, 2020 to mitigate the impact of the Covid-19 pandemic on the Cameroonian economy. Among these measures that came into force on March 18, 2020 we have: the systematic closure, under the control of the administrative authorities, of drinking establishments, restaurants and places of entertainment from 6 p.m., the establishment of a system regulation of consumption flows in markets and shopping centers, the obligation of respect and observance by the public of hygiene measures recommended by the World Health Organization (WHO). These measurements were followed for a month. Unfortunately, the number of new confirmed cases has continued to increase exponentially. As these cases reached 856 on April 13, 17,179 confirmed cases and 391 deaths by the end of July 2020 (WHO), the government announced additional measures that went directly into force to strengthen the former. Following this series of confinement and prevention measures with adverse effects on the national economy, other so-called rejection or accompanying measures have also been taken by the Cameroonian government to help firms overcome the difficulties associated with the pandemic. Thus, it was decided to open after 6 p.m. the drinking establishments, restaurants and leisure facilities, with an obligation for customers and users to comply with barrier measures. The objective of these measures was to reduce the impact of the coronavirus on the Cameroonian economy.

This is why the present article places at the heart of its analyses the question of: What are the macroeconomic impacts of the opening of drinking establishments on the Cameroonian economy? in other words, does this decision have consequences for other sectors of the economy? to provide some answers to this question, we use computable general equilibrium modelling which has a definite advantage over the issue of impact assessment compared to other types of model (Cardenete et al, 2017).

Thus, the rest of the paper is structured as follows: some stylized facts are presented in section 2 followed by a brief review of the literature in section 3, then the preferred methodology in section 4. The results are presented in section 5 followed by a conclusion in section 6.

2 Stylised facts on alcohol consumption

Figure 1 shows that in the first half of 2020, Cameroon is ranked 9th African country among the largest consumers of alcoholic products with a consumption volume of 5.9 million litters. It is preceded by Algeria (9.1 million litters), Benin (8.3 million litters) and the Cote d'Ivoire (6.7 million litters). In the Central Africa and specially in the CEMAC zone, Figure 2 shows that Cameroon ranks first among the largest consumers of alcoholic products. It is followed by Central African Republic (5.8 million litters), Chad (5.7 million litters), DR Congo (4.7 million litters), Gabon (2.6 million litters) and Equatorial Guinea (2.4 million litters).

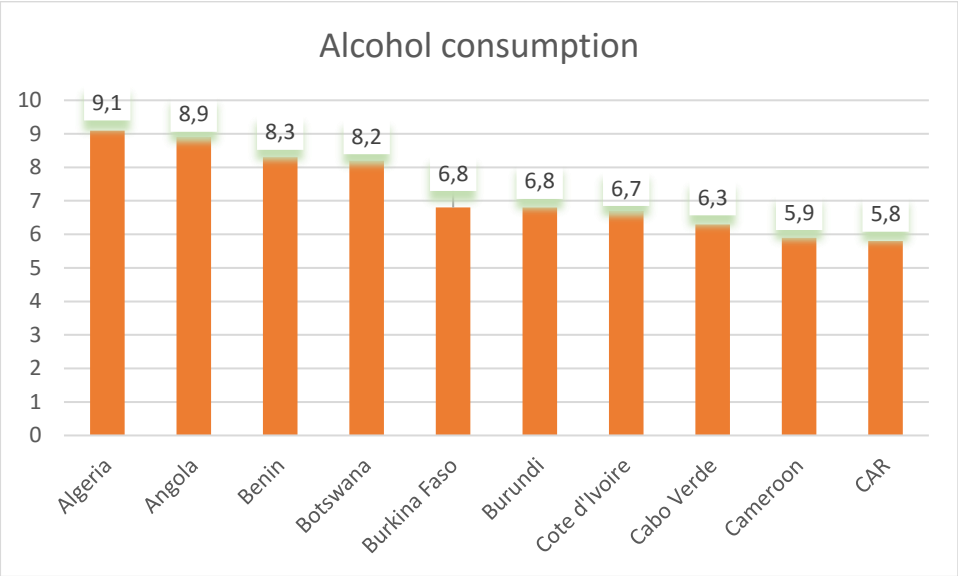
Table 1: Classification of the top ten Cameroonian enterprises in 2015

Enterprises	Continental range	Shareholder

National society of petroleum	64th	US$ 2,338 million
Societé national de raffinage	102nd	US$ 1,497.4 million
SABC		US$ 584.8 million
Total Cameroon	138th	
MTN Cameroon	266th	
Perenco Rio Del Rey		347.9 million
Eneo		517.8 million
Tradex		489.6 million
CFAO group		298.3 million
Congelcam		252.7 million

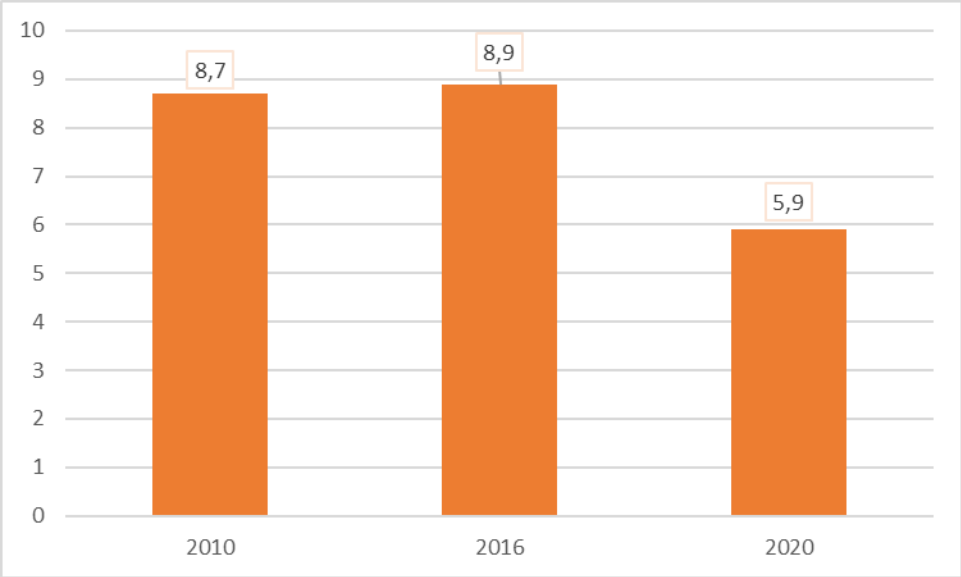
Source: Jeune Afrique Magasine (2015)

Figure 1: Most 10 Alcohol consumers in 2020 in Africa



Source: Authors from Global Drinking Demographics (2020)

Figure 2: Total alcohol consumption per capita in Cameroon (litters of pure alcohol)



Source: Authors from Global Drinking Demographics (2020)

3 Literature review

Beyond the theoretical foundation on alcohol consumption guided by the theory of rational addiction initiated by Stigler and Becker (1977) and extended by Becker and Morphy (1988) which show how alcohol consumption can dictate behaviour at the limit deviating from the consumer, the empirical literature on alcohol consumption is abundant and diverse. It essentially concerns the questions of demand and supply of that product following a change in the price or any other factor likely to influence its consumption (Popham et al, 1975; Babor et al, 1978; Willard et al, 1995 ; Cook and Moore, 2001; Auld, 2005; Wagenaar et al, 2008; McClelland and Iselin, 2017). For example, Auld (2005) showed that there is no correlation between the prices of alcohol and tobacco and the level of wages, but its influence remains certain on the decision to use or smoke. It further shows that a high price of alcohol reduces the likelihood of drinking, but its effect on the likelihood of abstaining is limited. As a result, individuals in the Catholic religious stream tend to consume and smoke more than non-Catholics. For Babor et al (1978), the difference lies in the purchasing power of consumers. For this, a reduction in the price of alcohol leads to an increase in its consumption. He is joined in his position by Popham (1975) who showed that per capita alcohol consumption is generally higher in societies where alcoholic beverages are less expensive relative to disposable income. This conclusion is consistent with that of Bales (1946) and Blacker (1966) for whom societies in which government laxness in terms of regulation of social norms record high rates of alcohol consumption.

In addition, Cook and Moore (2001) showed that excessive alcohol consumption leads to loss of productivity, death, violence, crime and family responsibilities. This situation may lead the government to undertake regulatory measures for young people, such as prescribing a minimum age for young people to consume alcohol, and imposing fees (Grossman et al, 1994). From this perspective, these authors showed that alcohol consumption control policies reduce the prevalence of that product. Willard et al (1995) as well as McClelland and Iselin (2017) established that an excise tax on alcoholic products discourages and moderates their consumption. Thus, a low level of consumption is beneficial for the economy (Dyer et al., 1980; Klatsky et al., 1981; Marmot et al., 1981).

However, it is clear that almost no study has yet addressed the question of the economic consequences of the consumption of alcoholic products, especially during the period of the coronavirus pandemic, the effects of which are certain on the revenues of firms and leaving the government via tax collection. Moreover, the approach to modelling the phenomenon adopted in this work constitutes a remarkable difference. The computable general equilibrium modelling that is concerned that we develop in the next section is appropriate for at least 3 reasons: first, it not only allows us to question the impact of alcohol consumption on government revenue, but also its consequences (especially macroeconomic) on all sectors of the economy. Second, it has well-known theoretical foundations (Walras, 1874; Arrow and Debreu, 1954; Scarf, 1969; Shoven and Whalley, 1984). Finally, it offers the possibility in a counterfactual analysis to guide the decision maker not only on the immediate consequences of his action, but also on its future consequences through the implementation of the dynamics of the phenomenon studied.

4 Methodology

To evaluate the impact of opening the alcoholic drink that comes at the confine period of coronavirus in Cameroon, we need to use an appropriate tool which allows us to navigate into the whole economy, especially the government receipts. In this way, the econometric models

are less useful [1]. The more appropriate tools are among others: the structural vector-autoregressive models (SVAR), the dynamic stochastic general equilibrium models (DSGE)[2], the computable general equilibrium (CGE) models (Herault, 2011). Contrarily to SVAR which just take a few numbers of variables in the analysis and impose some restrictions in the analysis, the CGE models gives the possibility of taking into account a very large number of variables and more often the whole economy. They permit the modeller to capture the simultaneous impacts of a simulation on several market as well as the accuracy of results (Decaluwé et al., 2001). CGE models are comprehensive because whether they are detailed or not, they describe simultaneously all parts of the economy and show how they interact each other (Burfisher, 2016). A complete CGE model should take into account two sectors: the real sector of the economy and the financial sector (Haqiqi & Mirian, 2015). The real sector contains the good and services market and the market of factors of production. Likewise, the financial sector takes into account the interactions on the financial market (share, bonds, debt obligations) and also the monetary market (the control money supply, the interest rates, the mortgage rates, the central banks). CGEs permit to deal the economic theory founded by Walras (1874) [3] in "élément d'économie politiques pure" with the empirical analyses that can provide an accurate way to elabourate policies such as taxation or subsidies and their effects on the economic system (Narayanan & Rungta, 2014)[4]. However, notable generation of practical CGE works relies on the Shoven and Whalley (1984) article.

4.1 Presentation of the model

In this research, we use the EXTER model built by Decaluwé et al. (2001). The social accounting matrix (SAM) used as the data base of the model is that of the Cameroonian economy that we constructed using input-output data and national accounting data for 2016. Because the decision of opening alcoholic drink establishments comes in April 2020, we should therefore update the data base in 2020[5] before carrying on any simulation. This makes our model somewhat to be dynamic and so far, it permits us to capture the upcoming impacts through year 2025. The base year data come from the national institute of statistic. The methodology we have used to elabourate that matrix was inspired from Fofana (2007). The SAM is a squared matrix that records interaction flows between economic agents, sectors of activity and the rest of the world during a given period, mostly annual. Its theorical framework comes from the work of Quesnay (1759) which was ameliorated by Leontief (1941) in the form of input-output table. To balance the matrix, we used the entropy method. Details can be found in Robinson et al. (1998), Robinson and Moataz (2000), Fall (2010). The functioning of the model is summarized in Figure 3.

Indeed, the production is determined by a Leontief function between the total value added and the intermediate consumption of the different sectors. All products that come from the activity branches are sold on the market and the factors of production are combined in a constant elasticity of substitution (CES) production function between labour and capital. To minimize their production cost, firms determine the optimal quantities of different factors to use in the production process taking into account the level of demand to satisfy. Capital is fixed while labour factor is mobile between sectors. The mobility of the latter permits us to define the

[1] However, there can be used for estimating parameters of the impact models

[2] See Kimbambu (2014) for more details on DSGE models

[3] The Walras law is still fundamental in the construction of many impact models. It relies on a system of simultaneous equilibria on several market. The prof of the unicity of that equilibrium has been done by Arrow and Debreu (1954) (See Cardenete et al., 2017, page 12) for more details.

[4] For a critical review on CGEs see Iqbal and Siddiqui (2001).

[5] Indeed, data for constructing a 2020's SAM were not available at the time we carrying on this research.

quantity of labour needed in production and especially the level of wealth applied on the labour market. The output price and the world price of exported goods are constants. The domestic price is constituted of producer price and the indirect tax on products. The price of a composite good is a function of the domestic price and the market price of imported good in each sector. The output price is function of the price of input used which in the same way affects the export price. The sectoral output is an aggregated output. One part of that output is sold on the domestic market and the other part is exported abroad. This creates an imperfect processing of the aggregated output intended for the domestic and external markets given by a constant elasticity of transformation (CET) function.

The producers maximize their profits from their selling on the market subject to the transformation constraints. The export demand is infinitely inelastic. The price received by producers is given in local currency. Domestic goods are sold on the market to households, government, and they are also bought by firms as intermediate inputs. The domestic prices are flexible and reflect the equilibrium between demand and supply of goods on the market. The external supply is perfectly elastic with respect to the world prices. Households who detain the factors of production earn in return a revenue constituted of wages for salaried households and capital remuneration for capitalist households. They also receive transfer revenue by the government, enterprises, other households and the rest of the world. They spend their money to buy goods on the market, make transfer to other households, pay direct taxes and make savings.

Firms receive capital revenue as well as transfer from the institutions. They pay direct taxes, pay dividends to capitalist households and make savings.

Government collects taxes, one part comes from the direct taxes and the other part from the indirect taxes whether on the domestic production or on imported goods after imposing custom duties. As spending, it pays wages to the government authorities, makes transfer to households, makes public investments, makes subsidies to firms and makes savings. The current account deficit is constant in order to avoid the external shocks that affect the economy.

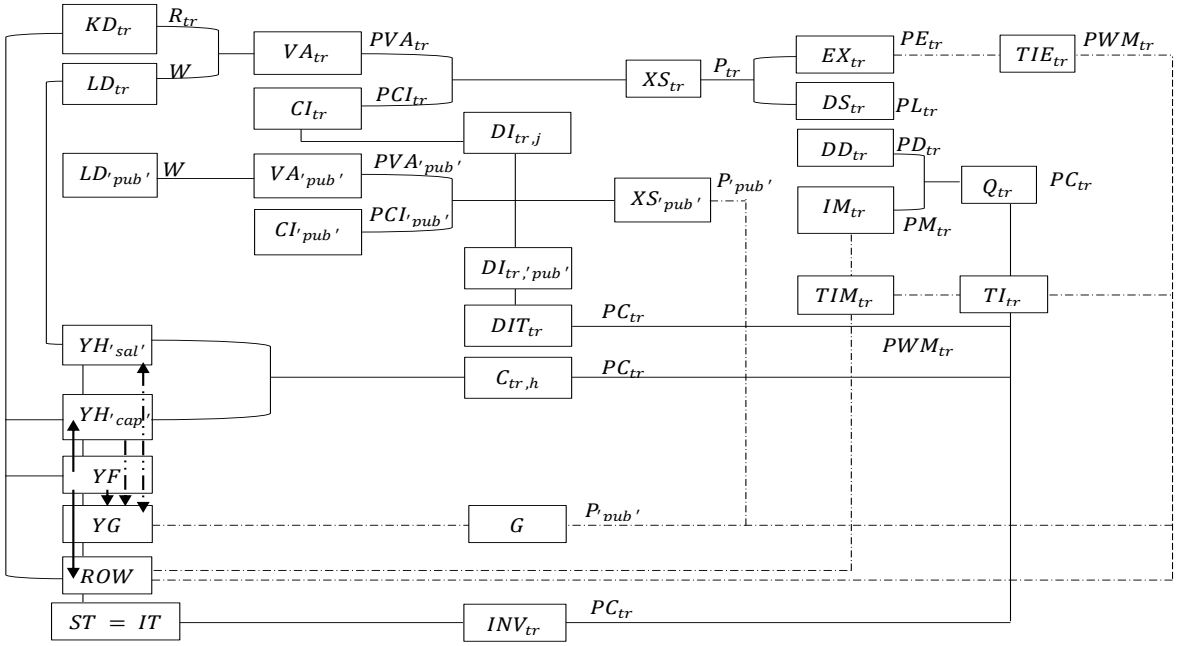
For this model, we bring a bit modification on the set of equations. This concerns especially the government revenue (Yg) which in this study should be increasing. For that reason, we added a lump-sum variable (Fc) for government equilibrium purpose so that the following equation (1) holds:

$$\sum_{tr} Ti_{tr} + \sum_{h} Td_h + Tde + Duties = Fc + \sum_{h} C_{h,'a13'} \qquad (1)$$

Where Ti_{tr} represents the indirect tax levies on product tr, Td_h the direct tax on household's h revenue, Tde the direct tax on firms' revenue, $Duties$ the customs duties on foreign trade, $C_{h,'a13'}$ the quantity of alcoholic drink consumed by household h. The left-hand side of equation (1) basically expresses the total government revenue collected. Thus, the new variable Fc represents all the government revenue apart from the one collected on the alcoholic drink by households[6].

Figure 3. Sheme of the model

[6] For the remain equations of the model, see Decaluwé et al (2001)



Source: Authors from the Partnership for Economic Policy (PEP)

4.2 Dynamic of the model

As mentioned previously, we use to update data from 2016 to 2020 which therefore constitutes the baseline. As well, the process followed in this research is an adaptation of Hosoe's dynamic model. Hence, we suppose that data for endogenous variables grow at the rate of population growth path[7]. Fundamentally, the dynamic structure of a model comes from the fact that investment is always a dynamic phenomenon.

$K_{t+1} = K_t - \delta K_t + I_t$ or

$$K_{t+1} = (1 - \delta)K_t + I_t \quad (2)$$

Where t denotes the time period, K_t the capital stock at period t, K_{t+1} the capital stock at period $t + 1$, I_t the new capital or investment and δ the depreciating rate of capital.

4.3 Calibration of the model

To reach the benchmark[8], the model needs to be calibrated that is each equation should be fixed from the SAM data. According to Emini et al. (2006), calibrating each equation can be done by either defining some parameters (known[9] in the model β) which will help the solver to easily solve that equation or choosing other parameters (known parameters γ). The process starts with the following equation 1:

$$Y = f(X, \beta, \gamma) \quad (3)$$

Where Y represents the vector of endogenous variables, X the vector of exogenous variables.

Since the values of β and endogenous and exogenous are known (we design them respectively by Y_0 and X_0as the basis values), equation (3) becomes:

$$Y_0 = f(X_0, \beta, \gamma) \quad (4)$$

[7] According to national statistics the Cameroon's annual population growth is 2.8% (MINFI, 2008)

[8] The purpose of the benchmark is to facilitate the solver to replicate the SAM before any simulation

[9] The latter can be either picked from the literature, or estimated econometrically

The resolution of equation (4) permits to obtain the values of parameters γ.

$$\gamma = f(Y_0, X_0, \beta) \quad (5)$$

4.4 Macro closure

The closure of the model consists of choosing the variables that have to be exogenous in the model. Even though our model is not squared as initially fixed by Decaluwé et al. (2001), we have fixed the following variables for the closure rule in a Non-Linear Programming (NLP).

The export price of the product $tr\ PWE(tr)$; the price consumption index $(PINDEX)$; the exchange rate (e) ; the direct tax $Td(h)$. The variable production of the alcohol sector on which we base our main scenario $C(h,'a13')$ is chosen exogenously only at the simulation stage that is during the second solve of the model.

4.5 Sensitivity analysis

According to Hosoe et al (2010), the sensitive analysis consists of proving the robustness of the results, that is to show that results are not sensitive to a change of a given parameter. The most common used parameters are the constant elasticity of substitution (CES) and the constant elasticity of transformation (CET). Here, we focus on the CES elasticity.

5 Results

During the period of expansion of the coronavirus pandemic, the government of Cameroon lifted the measure closing drinking establishments beyond 6 p.m. throughout the national territory. The resulting population turmoil would have had a definite impact on a number of macroeconomic indicators. From the outset, such a political decision would have increased government revenue. In this regard, we have simulated a 50% increase in household alcohol consumption. Given the dynamic nature of our model, we assumed that most of the variables grow at the rate of the annual growth rate of the Cameroonian population which according to MINFI (2008) is 2.8%. This section will present and discuss the results of the analysis of the impact of a 50% increase in the consumption of alcoholic beverages, first, on demand (overall and intermediate between branches of activity), then on macroeconomic variables such as government revenue, firms' income, direct tax on firms' revenue, GDP, etc. and finally on the well-being of households.

5.1 Impact on demand

The opening of outlets for alcoholic beverages has led to an increase in demand for this product (a13) as shown in Table 2. The same trend could be maintained over the entire period 2020-2025 with an increase hovering around 36%. We can explain this by the constant habits of Cameroonians in the consumption of alcoholic products. Figures 1 and 2 attest this rightly. On the continental level, Cameroon ranks ninth among highest drinkers with an average of 5.9 million litters of alcohol per year in mid-2020, behind Cape Verde according to data from Global Drinking Demographics (2020). At the level of activity branches, the intermediate consumptions used in the production process of the drinks branch are shown in Table 3. According to the input-output data used in the social accounting matrix, the branch uses 7 types of intermediate inputs (cereal-based products, dairy or fruit-based products, beverages, textile industry products, transport and storage, public administration and security services, health and social action services). It emerges that an increase in the consumption of alcoholic products is

reflected in an increase in cereal-based products, especially corn in 2020, 2023 and 2024, respectively by 8.96%, 6.51% and 36.93%. This increase is due to the increase in demand mentioned above. On the other hand, we note a drop in the consumption of alcoholic beverages in 2021 and 2025. This could result from technical problems likely to arise in production plants. As for dairy products or fruit-based products, these will be less in demand over the entire 2020-2025 period. This could reflect the decline in fruit-based drinks to the detriment of alcoholic products. The industry will also increasingly rely on its own products (water, for example) for its new production. As for the manifested demand for the products of the textile industry (clothes, gangs etc.) this is growing over the entire period except 2025. The transport and storage services sector will experience a rebound in its activities due to growing demand over 4 years in particular (2020, 2022, 2023 and 2024). In addition, 3 sectors specifically public administration and security services, health and social action services will be less solicited.

Regarding the factors of production (capital and labour), Figure 5 shows that the demand for the latter by the drinks sector will continue to increase despite a fall in demand for labour in 2025. These combined effects will have consequences of boosting production by 37.78% in 2020, 36.7% in 2021, 38.71% in 2022, 39.39% in 2023, 42.90% in 2024 and 39.75% in 2025 (see table 4).

5.2 Impact on some macroeconomic aggregates

Let us now focus on the macroeconomic impacts of this increase in consumption. It should be noted from the outset as showing in Table 4 that the decision to open alcoholic beverage outlets would have helped to increase firms' revenue by 29.63% in 2020. This trend could be maintained in the years to come when we will see an increase of 56.23% in 2021, 36.84% in 2022, 49.90% in 2023, 35.03% in 2024 and 621.71% in 2025. But it should be noted that these increases are in reality equivalent to the amount of tax that the government will have levied on firms' revenue as shown in Table 4. The direct tax increase consequently generates an increase in government income of 8.02% in 2020, 6.50% in 2021, 3.79% in 2023 despite a decrease in 2022 and 2023 of -2.54% and -2.95% respectively. This is testament to the financial implications of making such a decision. It would not only have helped to increase public revenues, but also firms will have benefited from it seeing their income increase by 29.63% in 2020 with a trend that could continue until 2025 or even beyond.

Regarding the impact on GDP, we note that the opening of alcoholic beverage outlets would have a positive impact on growth of 2.11% in 2020, 1.46% in 2021, and 3.77% in 2023. On the other hand, the impact appears negative in 2022 and 2024 (-2.33% and -3.39% respectively). It should be noted that the increase could be explained more by the increase in the consumption of alcoholic beverages than by the production because the latter, although on the increase, is only a consequence.

5.3 Impact on well-being

One can wonder if such a government decision would have had a significant impact on household well-being. Figure 4 shows that the equivalent variation (in billions of FCFA) will have increased in 2020 and will remain positive until 2024 before decreasing in 2025. This reflects an improvement in the well-being of both salaried and capitalist households. This situation is explained more by the fall in producer prices than by the improvement in household income. However, it is difficult to assess the overall impact on well-being as the health aspect has not been taken into account in the model. Some households in view of the increase in the corona virus pandemic observed at the time of the implementation of such a decision could be infected, which is a major handicap to their health status or well-being.

5.4 Sensitivity analysis

This section aims to prove the robustness of the results presented above. Therefore, it should be noted that we made a 10% increase in the constant elasticity of substitution (CES) parameter and also on the transformation elasticity parameter. It emerges that no change is observable on all endogenous variables. This proves that our results are not sensitive to the values of the parameters and therefore are robust.

Table 2: Impact on the demand of products (value in %)

Code	Products	2020	2021	2022	2023	2024	2025
A1	Agricultural products	19.67	32.96	18.09	15.50	-2.01	-20.32
A2	Livestock and hunting products	0.74	-10.73	-16.00	4.51	-23.58	-19.72
A3	Silvicultural products	-3.26	-5.03	-1.60	9.10	0.13	-25.27
A4	Fishery and fish farming products	-8.05	-16.47	-2.94	19.29	8.98	-25.06
A5	Energy products	0.00	0.00	0.00	0.00	0.00	0.00
A6	Other extraction products	-14.14	-3.96	-11.11	-15.86	-25.79	62.19
A7	Meat and fish	-21.63	-38.11	-54.72	36.02	-49.36	-45.10
A8	Grain processing products and products	21.98	27.34	36.93	29.74	31.29	-13.05
A9	Cocoa, coffee, tea and sugar products	-8.80	-16.58	-24.36	-4.03	-29.55	-16.28
A10	Oilseeds and animal feed	7.22	-1.21	7.17	25.65	10.42	-12.87
A11	Cereal products	8.25	-1.85	5.81	33.88	15.07	-11.55
A12	Dairy products; fruit products	-12.35	-19.80	-21.06	-23.81	-22.35	-15.84
A13	*Drinks*	*36.36*	*35.37*	*36.54*	*36.81*	*37.19*	*35.20*
A14	Tobacco products	-15.38	-16.47	-20.67	-24.73	-26.00	-24.65
A15	Textile industry products	7.93	-0.22	10.41	22.46	17.65	-19.01
A16	Leather and shoes	0.27	-2.41	11.06	23.50	5.79	-14.07
A17	Woodworking products and articles made of	-15.02	-19.30	-18.84	-13.81	-5.74	2.12
A18	Paper and cardboard; edited and printed products	5.89	3.67	0.05	24.81	28.84	10.46
A19	Products of refining, coking	-19.68	-19.35	-15.06	-8.04	-15.44	-20.55
A20	Chemical products	-12.51	-3.95	-13.63	-6.97	-25.70	-25.92
A21	Rubber and plastic products	2.41	15.54	18.43	14.57	17.76	111.32
A22	Other non-metallic mineral products	0.64	-9.79	0.20	1.81	-3.27	111.86
A23	Basic metal products and articles of m	-8.17	-8.35	-6.91	-4.87	-9.25	7.56
A24	Machines, electrical devices and materials	-50.58	-40.39	-56.28	-60.62	-53.98	221.39
A25	Audiovisual and video equipment and devices	22.82	30.31	32.19	-14.86	20.33	16.68
A26	Transportation equipment	-53.68	-54.36	-60.04	-61.36	-61.22	98.01
A27	Furniture, products of industries div. and Sce	1.59	-9.71	0.39	20.21	22.02	-22.44
A28	Repair and installation of machinery and equipment		0.00				0.00
A29	Electricity and energy support	0.00	0.00	0.00	0.00	0.00	0.00
A30	Water and sanitation			0.00		0.00	
A31	Construction works	-62.87	-66.87	-77.05	-80.23	-80.25	22.91

A32	Wholesale and retail		0.00				0.00
A33	Repair and maintenance of vehicles and motorcycles	-15.23	-29.19	-26.85	-7.15	-28.19	988.86
A34	Hotel and restaurant services	-4.79	-12.42	-8.76	-5.18	-8.00	-27.15
A35	Transportation and warehousing	0.28	-7.84	1.74	26.78	22.42	-7.37
A36	Agricultural products	-4.91	-10.77	-5.18	1.47	1.29	35.33
A37	Livestock and hunting products	-3.28	-9.73	-5.46	-2.08	-2.22	-29.37
A38	Forestry products	-35.62	-38.77	-43.68	-38.55	-42.20	22.99

Source: Authors from GAMS software

Tableau 3 : Impact sur la consommation intermédiaire de la branche boissons (valeurs en %)

Code	**Produits**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
A11	Cereal products	8.96	-1.50	6.51	36.93	16.44	-11.55
A12	Dairy products; fruit products	-9.38	-19.58	-19.10	-19.86	-17.17	-12.93
A13	Drinks	37.87	36.67	38.71	39.39	42.90	39.75
A15	Textile industry products	9.86	1.80	13.55	27.12	22.59	-16.55
A35	Transportation and warehousing	6.23	-4.15	11.87	66.98	60.74	-2.49
A39	Public administration and security services	-30.71	-97.73	-15.67	-14.72	-10.39	-99.65
A41	Health and social work services	-15.08	-41.67	-35.05	-11.49	-67.99	-99.78
A43	Territorial correction	-8.31	-18.61	-6.26	-1.53	-13.71	-97.50

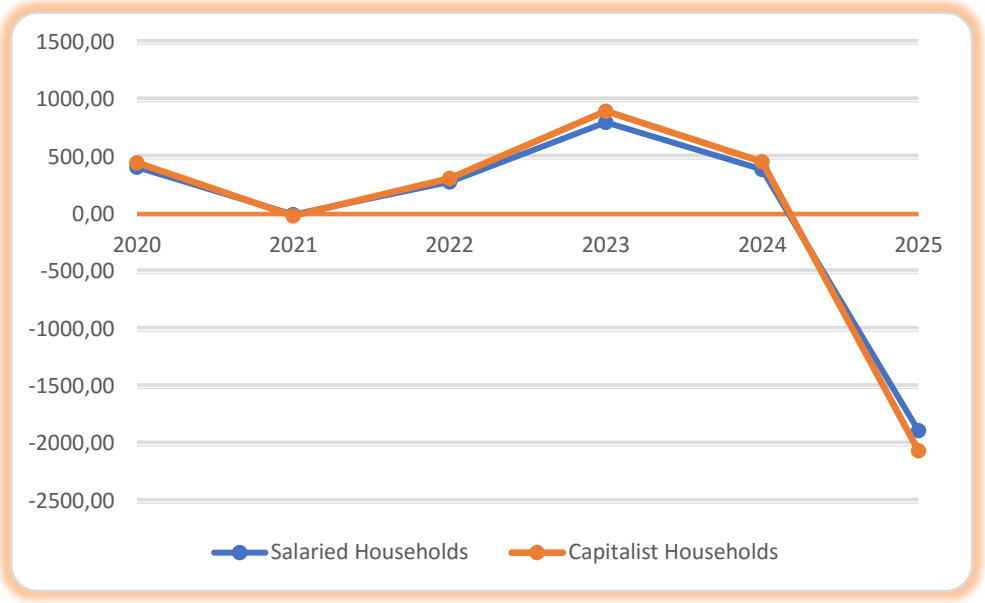
Source: Authors from GAMS software

Table 4: Impact on autonomous indicators (value in %)

	Total Labour Supplied	GDP	Governement Savings	Tax Revenue from firms	Firms' Income	Governement Income	Alcoholic drink prodruction
2020	0.74	2.11	-115.14	29.63	29.63	8.02	37.87
2021	-9.74	1.46	-114.68	56.23	56.23	6.50	36.67
2022	-3.04	-2.33	-135.87	36.84	36.84	-2.54	38.71
2023	10.80	3.77	-142.21	49.90	49.90	-2.95	39.39
2024	-2.15	-3.39	-136.69	35.03	35.03	3.79	42.90
2025	205.52	76.64	181.98	621.71	621.71	123.04	39.75

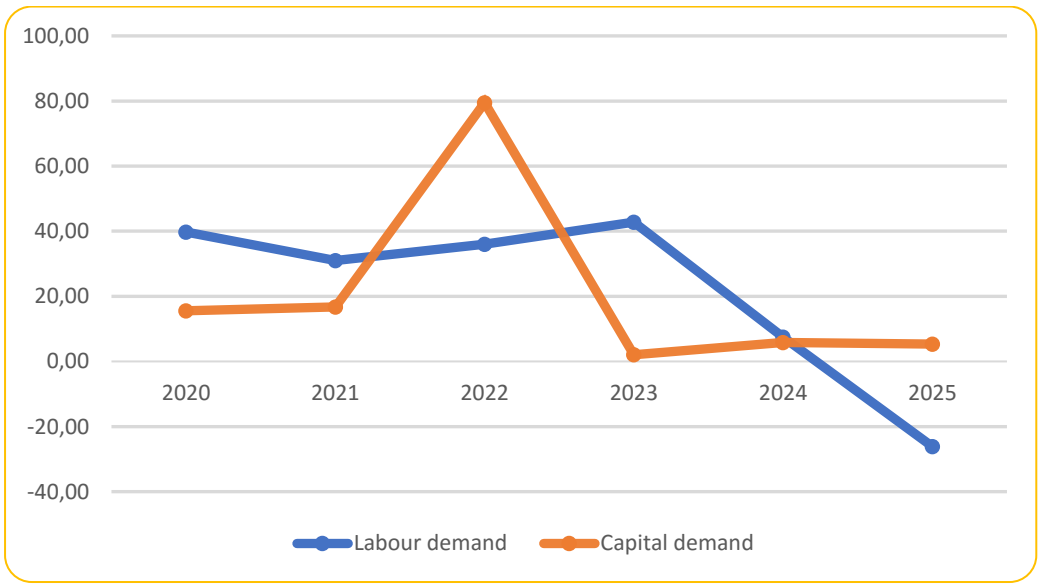
Source: Authors from GAMS software

Figure 4 : Impact on well-being (values in billions of FCFA)



Source: Authors from GAMS software

Figure 5: Impact on supply and demand for capital in the beverage sector (values in%)



Source: Authors from GAMS software

6 Concluding remarks

The objective of this study was to assess the macroeconomic impacts of the decision to open alcoholic beverage outlets in Cameroon during the period of expansion of the coronavirus pandemic. This decision to open drinking establishments, which came at a time when the State was facing cash flow difficulties, is no accident. Indeed, according to the sources of the magazine Jeune Afrique (2015), the drinks sector constitutes the third major source of government revenue after the national refining company (SONARA) and the Cameroonian company of petroleum depots (SCDP). This justifies the choice that the government has made in this sector in order to reject the public funds which would help revive economic activities. This article has the merit of being the first to question the impact of such a political decision not only on public finances but also on other sectors of the economy. To achieve this objective,

we have built our approach around a computable general equilibrium model (MEGC) whose basic data were taken from a social accounting matrix of 2016. This dynamic type model required us to update the data in 2020 and consider projections until 2025. As results, analyses show that a 50% increase in the consumption of alcoholic products could lead to an increase in public revenue. This increase is due to the increase in demand from this sector, whether it is final demand or intermediate demand. In addition, it could positively impact the GDP in the medium term as well as the well-being of households.

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