Goods and Services Tax vs. Sales and Services Tax: Different Structures Impact on the Households' Expenditure Pattern

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ABSTRACT

The implementation of Goods and Services Tax (GST) in April 2015 has received criticism due to the significant increase in prices of goods and services. To contain this issue, the Malaysian government has decided to replace GST with the former SST system effective September 2018. However, this decision leaves the public with more questions regarding its impacts on households' expenditures. To address these questions, this study is outlined to estimate the impacts of GST rates and SST on households' expenditures. The method use for this study is input-output model in which each of tax variables were identified as items "taxes on products (domestic)" in the input-output table. Findings reveal that GST rates tend to reduce prices, which results in the reduction of expenditures for different household groups. In contrast to GST, SST is estimated to bring undesirable impacts for the households' expenditure. The HES suggests that the main type of expenditures undertaken by households are on Food & Non-Alcoholic Beverages and Housing, Water & Fuel, the increase in production cost of these groups of goods and services will lead to price hikes that result in the rising cost of living. Particularly, the findings indicate that every different household group (Bumiputera by strata, non-Bumiputera by strata, T20, M40 and B40) are heavily affected as most of the expenditures increment are sourced from Food & Non-Alcoholic Beverages. Yet, the findings from this study disregard the real situation because the impacts of other cost-push components are not taken into account.

Keywords: Consumption tax structures, Households' Expenditure, Input-Output Analysis.

INTRODUCTION

A tax called a consumption tax is imposed on consumer spending on goods and services. Consumption taxes include the Goods and Services Tax (GST) and the Sales and Services Tax (SST). GST was implemented at a 6 percent rate for some products and services in Malaysia beginning in April 2015.The implementation of GST replaces the former SST which consists of Sales Tax and Services Tax were introduced on 1972 and 1975 separately. GST, which is normally levied on the consumption of products and services at every level of the supply chain, is a more comprehensive multi-stage consumption tax system than the SST. Currently, there are about 170 countries that have implemented GST. However, GST had been replaced by the reintroduction of SST in September 2018.

The introduction of GST unmistakably improves the effectiveness of the taxing system that promotes national progress as it brought in an average revenue of RM42.7 billion a year in 2016 and 2017, accounting for almost 20% of the country's annual revenue. Despite GST's efficiency, there are concerns that increased revenue will have a detrimental impact on a huge number of people especially the low-income households because lower income earners spend a greater proportion of their income compared to other households. One of the major concerns raised by the adoption of the GST is price increases on products and services, which has an impact on the cost of living. In the literature, several studies have found evidence that GST has aided economic

growth, however, at the same time, prices for goods and services are also on the rise. In Canada for instance, Dungan and Wilson (1989) shows GST is to blame for pricing increases between 1.5% to 2.0%. In a similar vein, Gábriel and Reiff (2010) find 3% increase in GST rate causes 2.13% elevated inflation.

Relating this to the recent announcement of planning to reintroduce GST in 2024, the Malaysian government seems to be revisiting the GST as a possible solution to increase revenue and improve the country's fiscal health. The decision reflects the government's recognition that GST, despite its previous unpopularity, is a more comprehensive and efficient tax system compared to SST.

During implementation in 2015, Malaysia's government opted to replace GST with the earlier SST system due to the price hikes issues. However, this decision leaves industry members and the general public with more questions about how it will affect price levels and the cost of living. For instance, the changes in the taxation system will affect both the producers and consumers as the different scope of charges between GST (multiple rates) and SST (10% and 6% rates) would lead to the potential changes in production cost which will lead to the price changes for goods and services. As a result, it will have a direct impact on the cost of living, particularly for low-income households. To address this issue, the purpose of this study is to examine the effects of Malaysia's GST and SST systems on the cost of living.

This study employs the input-output modelling technique to examine the effects of different consumption tax structures. The technique is used because of its ability to explain interactions between production sectors. Explicitly, it depicts the interdependence of various production sectors, which purchase goods and services from other sectors as production inputs and then produce goods and services that are sold to other sectors and end consumers. Because of the model's ability to capture the entire production interdependencies, it is widely used for taxation impact analysis. Miller and Blair (2009) provide a basic introduction to input-output analysis.

There are four sections to this study.

- By evaluating pertinent literature, section 2 presents our primary contribution to scientific understanding.
- Methodologies for estimating the effects of various tax regimes on the cost of living are presented in Section 3.
- Section 4 presents the key findings generated from the effect estimation.
- The concluding observations are in Section 5.

LITERATURE REVIEW

This section presents key findings from the literature that highlight research gaps in the area of consumption tax structures Based on a review of the literature, this study identified two major research gaps that contribute to the study's novelty. First, no study has been published in the literature that examines the government's decision to replace the GST system with the SST system. Existing research focuses solely on the effects of SST to GST consumption tax reforms. Second, in Malaysia, studies on consumption tax structures frequently focus on the use of partial equilibrium techniques. In fact, when it comes to economic and social consequences, an applied general equilibrium analysis, such as an input-output model, is preferable. The following sections go into greater detail about the literature review.

Several empirical studies have been conducted to investigate the economic and social consequences of various consumption tax structures. The scope of studies ranges from the national to specific regional and local levels. GST and SST are commonly found in empirical findings from studies around the world, particularly in developing and developed countries, for consumption tax structures. (see for example, Gupta, 2014; Alm and El-Ganainy, 2013; Keen and Lockwood, 2010; Carroll et al., 2010; Hoffman, 2009; Olatunji, 2009).

Some studies on consumption tax structures in Malaysia include a number of works by Narayanan and Latiff

(2024), Nutman et al. (2022), Saidi and Harun (2020), Loganathan et al. (2017), Asmuni et al. (2017), Ling et al. (2016), Ramli et al. (2015) and Sanusi et al. (2015). These are national and local studies that focus on the governance, compliance, and acceptance of GST. For instance, Ling et al. (2016) revealed that the acceptance and compliance among consumers of GST is declined if GST caused the price level to arise while Asmuni et al. (2017) the discovered the level of acceptance and compliance among business communities depend on the awareness and attitude of the communities. These studies, however, only look at the effects of GST implementation on acceptance and compliance among business communities and consumers, which are directly related to price stability, consumer behaviour, and tax governance, without taking into account the government's options for reintroducing the SST system. As a result of these gaps in the literature, we can provide useful insights into the effects of different consumption tax structures on prices and the cost of living.

There is an enormous amount of empirical evidence for the effects of consumption tax structures in other countries. Among these are works by Maier and Ricci (2024), Zídková et al. (2024), Smith et al. (2011), Lin (2008), Matthews and Lloyd-Williams (2000), Emini (2000) and Naiyeju (1996), Urakawa and Oshio (2010), Creedy (2002) and Rajemison et al. (2003). Smith et al. (2011), for example, finds that the implementation of GST helps to reduce government administrative costs as revenue increases in European countries. The findings appear to be consistent with the findings of Matthews and Lloyd-Williams (2000), who reported that increased revenue tends to promote economic efficiency.

Meanwhile, the impact of different consumption taxes may varies depend on the consumption pattern by households as discussed in Urakawa and Oshio (2010) and Creedy (2002) since the households with the same total expenditure do not essentially have the equal budget shares for all goods and Rajemison et al. (2003) also claimed that the changes in consumption pattern had influenced the shift of the tax burden concerning poor households, and it is unrelated to the policy tax changes.

In terms of methodology, most studies in Malaysia use the partial equilibrium technique, which is based on econometric modelling approaches. Taha and Loganathan (2008), for example, use a vector autoregression model to investigate the relationship between tax revenue and government spending. Taha et al. (2018) use econometric modelling to investigate the relationship between tax reform, financial development, and economic recovery. Meanwhile, surveys are used in studies by Palil and Ibrahim (2011), Ishak et al. (2015), and Shaari et al. (2015).

The use of an input-output model to study consumption tax reforms in Malaysia is limited. Based on study conducted by Hassan et. al. (2016), GST has the potential to reduce the price level of goods and services hence increase the purchasing power of households especially lower income households. In addition, the study found some reduction in consumption gap between high-income and lower income households based on the changes in expenditure cost for basic necessities such as foods. None of the studies examined the effects of consumption tax structures using an input-output model. This paper aims to fill another gap in the literature by contributing to scientific knowledge.

METHODOLOGY

A. Introduction

This section describes the methodology used in this study. The input-output modelling technique-based methodology is utilised alongside the household micro data obtained from the Household Expenditure Surveys (HES). This framework is based on the research of Hassan et al. (2016) and is enhanced by the inclusion of SST. This section is divided into four subsections in general.

- Subsection 1 describes the study's framework.
- Subsection 2 describes the input-output model for the study of consumption tax structures.

- Subsection 3 presents the model for household expenditures impacts.
- Subsection 4 gives the list of data utilised.

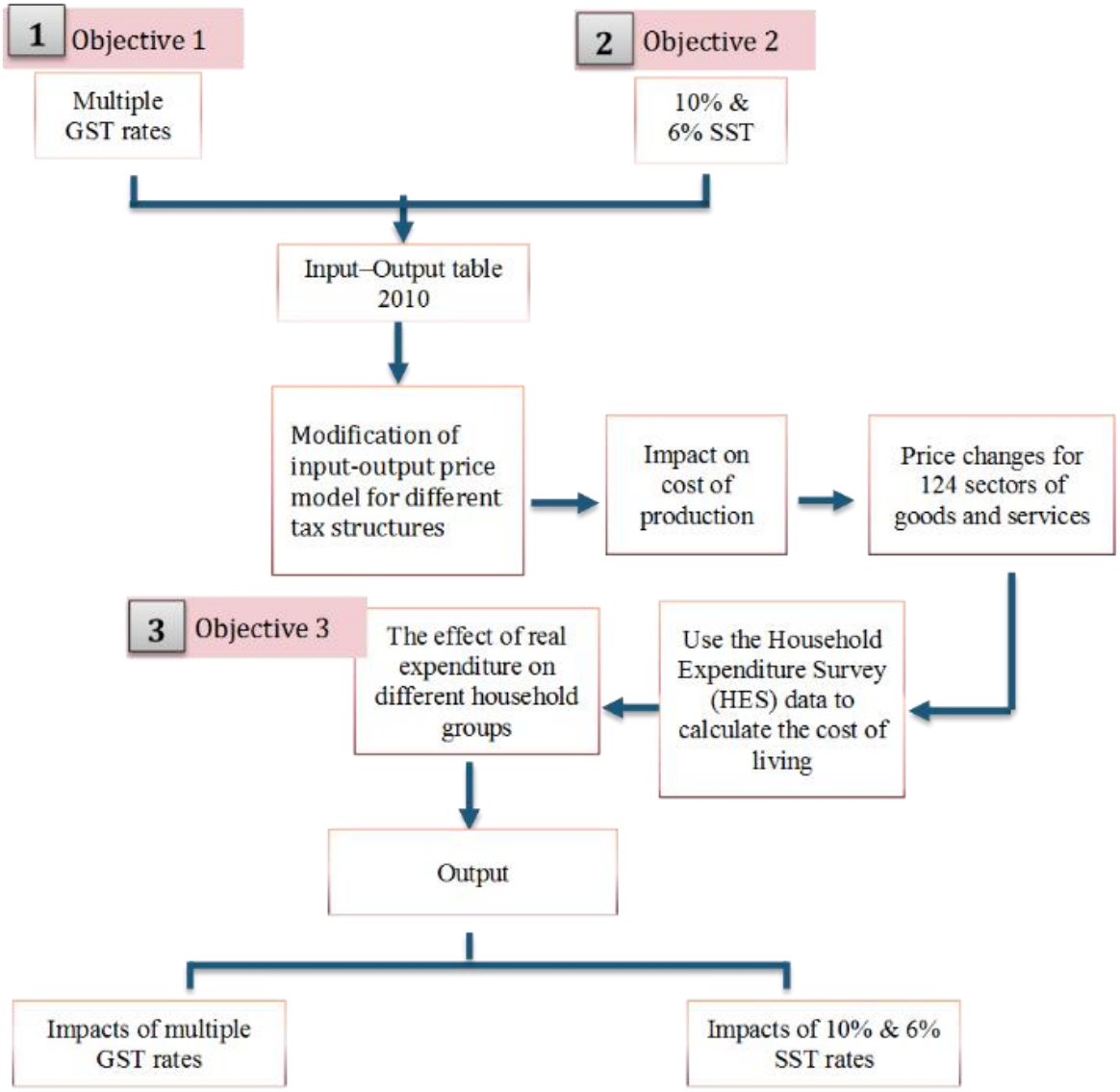

Fig. 1 Framework of the study

According to Figure 1, the framework of this study can be divided into four stages.

i. The first stage of this research identifies the GST and SST variables in the input-output table. The variable can be found in the row "taxes on products" of the 2010 national input-output table. In general, this variable refers to the amount of consumption tax paid to the government by industries.
ii. Second, simulations of the effects of GST rates, zero-rated GST rates, and SST rates are performed. Because each rate of GST and SST has a different impact, the model developed must address this issue.
iii. In the third stage, the effects of all consumption tax structures on production costs are computed. Three different models are developed to analyse the effects based on the price-pass through concept.
iv. In the final stage, the impacts on cost of living are calculated. The calculation is conducted by utilising the household's micro data of HES along with the outcome from the estimation in the third stage. In this case, the impacts on the cost of living that is resulted from the increase in cost of production are detailed based on strata and income classes.

B. Input-Output Price Model

The input-output modelling technique is used to estimate the effects of various consumption tax structures on production costs. This modelling approach was chosen because it is capable of addressing the interdependence aspects among the production sectors. The following equation can be used to express the interdependence.

$$\mathbf{x} = \sum \mathbf{Z} + \mathbf{f} + \mathbf{e} \quad \textbf{(1)}$$

where **x** denotes the total output vector Specifically, **x** is formed by adding output consumed as intermediate input **Z** (i.e. output of sector A used as intermediate input by sector B), output consumed by final demand, **f** (private households and government), and exports, **e**. In a common model, equation (1) can be converted into:

$$\mathbf{x} = \mathbf{A}\mathbf{x} + (\mathbf{f} + \mathbf{e}) = (\mathbf{I} - \mathbf{A})^{-1}(\mathbf{f} + \mathbf{e}) = \mathbf{L}(\mathbf{f} + \mathbf{e}) \quad \textbf{(2)}$$

where, **I** represents the identity matrix, $\mathbf{A}(\mathbf{A} = \mathbf{Z}\hat{\mathbf{x}}^{-1})$ represents the input-output coefficient matrix, and **L** represents the Leontief inverse matrix. The Leontief inverse matrix coefficient for each sector represents the direct and indirect output required to meet each unit of final demand. The input-output quantity model is also known as Equation (2). This model assumes that only quantity changes while the price remains constant.

Aside from the quantity model, another input-output model is known as the price model. Because it assumes that the quantity is fixed and the prices and costs are adjustable, this model is useful for analysing the impact of prices and costs such as taxes, import duties, and labour income. In short, prices in this model are not perfectly elastic (compared to prices are perfectly elastic in the quantity model). Price model can be summarised as follows:

$$\begin{aligned}\mathbf{p} &= \mathbf{A}'\mathbf{p} + \mathbf{l} + \mathbf{v} + \mathbf{m} + \mathbf{t} \\ &= (\mathbf{I} - \mathbf{A}')^{-1}(\mathbf{l} + \mathbf{v} + \mathbf{m} + \mathbf{t}) \\ &= \mathbf{L}'(\mathbf{l} + \mathbf{v} + \mathbf{m} + \mathbf{t}) \quad \textbf{(3)}\end{aligned}$$

where, **p** is a price vector that has been normalised (price is adjusted to equal 1 at baseline), **A'** is the matrix of transposed input-output coefficients; and **l**, **v**, **m** and **t** are the coefficients of labour income in the column vectors (income per unit of output), capital income coefficient (capital income per unit of output), import coefficient (import per unit of output) and indirect taxes coefficient (indirect taxes per unit of output), respectively. In equation (3), **l**, **v**, **m** and **t** are exogenous variables. As we set **p** as unity, thus equation (3) can be simplified as follows:

$$\mathbf{p} = \mathbf{L}'(\mathbf{l} + \mathbf{v} + \mathbf{m} + \mathbf{t}) \quad \textbf{(4)}$$

Equation 4 assumes that **l**, **v**, and **m** are fixed and that only **t** is adjusted according to the GST and SST rates. That is, only **t** causes a change in **p**. When there is no change in the indirect taxes in this model, the represented indirect taxes coefficient is equal to 1. Meanwhile, any changes in indirect taxes can be translated. into: $\Delta\mathbf{t} = \mathbf{t} \otimes \Delta\mathbf{p_t}$, where ⊗ relates to Hadamard product, which simply means multiplication on a cell-by-cell basis and $\Delta\mathbf{p_t}$ refers to indirect tax changes. As a result, the effect of changes in indirect taxes (such as GST and SST) on the prices of goods and services across all economic sectors can be expressed as follows:

$$\Delta\mathbf{P} = \mathbf{L}'(\mathbf{l} + \mathbf{v} + \mathbf{m} + \Delta\mathbf{t}) \quad \textbf{(5)}$$

The modification to equation (5) is required for GST because the equation is only modelled for standard tax rates, but in practise, GST rates include 6%, zero-rated, and exempted rates. Each category of GST rates has a different impact on production costs. As a result, the Leontief inverse matrix is modified in accordance with

the GST rates and modelled as shown in equation 6. The same procedure is followed for SST to address the dual tax rate for manufacturing and services.

$$\Delta \mathbf{p} = \left(\mathbf{I} - \mathbf{A}'\widehat{\mathbf{B}}\right)^{-1}(\mathbf{1} + \mathbf{v} + \mathbf{m} + \Delta \mathbf{t}) = \mathbf{L}'(\mathbf{1} + \mathbf{v} + \mathbf{m} + \Delta \mathbf{t}) \quad \textbf{(6)}$$

Where,

$\widehat{\boldsymbol{B}}$ represents the diagonal matrix employed in the modification of the input-output coefficient, **A'** based on GST and SST rates. Apart of **A'**, coefficient of indirect taxation, **t**, are adjusted to account for the effects of GST because this consumption tax is based on value addition. The entire model for the effects of GST and SST on production costs is based on the following equation:

$$\Delta \mathbf{p} = \left(\mathbf{I} - \mathbf{A}'\widehat{\mathbf{B}}\right)^{-1}(\mathbf{1} + \mathbf{v} + \mathbf{m} + \mathbf{u}) = \mathbf{L}'(\mathbf{1} + \mathbf{v} + \mathbf{m} + \mathbf{u}) \quad \textbf{(7)}$$

C. Household Expenditure Model

The changes in household expenditure which reflects the cost of living can be evaluated after estimating the impacts of cost of production. The evaluation can be conducted by linking the household expenditure patterns on all 12 categories of goods and services with the changes of cost of production. The linkage can be established based on the assumption that extra expenditures are incurred by households in order to retain their purchasing power as the prices of goods and services increases. The changes in the expenditure can be calculated using equation 8.

$$\Delta \mathbf{E} = \tilde{\mathbf{E}} - \mathbf{E} = \Delta\widehat{\mathbf{P}}\mathbf{Q} - \mathbf{P}\mathbf{Q} \quad \textbf{(8)}$$

where, **E** and $\tilde{\mathbf{E}}$ represent the expenditure matrix of goods and services for each sector that consumed by household, **h**; before and after each tax system, respectively; $\Delta\widehat{\mathbf{P}}$ refers to the diagonalized matrix of price changes based on equation (7) and **Q** represents the expenditure matrix on each sector consumed by household, **h**. It is important to note that the information on household expenditure based on strata and income level are not directly available in the input-output table. In order to separate the expenditure matrix into the desired groups, we use the household micro data from HES 2014.

D. Data Specification

This study draws on information from three major sources. The following is a list of the data:

i. Input-Output Table 2010 (Department of Statistics Malaysia, 2014)

The Malaysian Department of Statistics publishes this table (DOSM). The most recent table is available for the base year of 2010 during this study conducted, and it covers 124 production sectors.

ii. Household Expenditure Surveys 2014 (Department of Statistics Malaysia, 2015)

This micro data is published by the DOSM based on survey on 14,838 Malaysian households. The data details the expenditures in all 12 categories of products and services which are categorized based on COICOP.

The Royal Malaysian Customs Department provides GST and SST rates for goods and services.

During the course of this study, the Input-Output analyses are based on the publicly available Input-Output table as of 2010. As a result, there was some debate about the validity of using the same data set for this

analysis, given that the available Input-Output table for Malaysia is for the reference year 2010. (released in 2014). However, from the standpoint of national accounting, the time-lag issue with input-output tables is insignificant because there is strong evidence proving only marginal changes in the economic structure over five to ten years. Thus, the use of the Input-Output table 2010 for economic analysis prior to 2018 is valid, as the most recent Input-Output table is released at the end of 2018.

FINDINGS

A. Introduction

This section presents the major findings from the study which are divided into two parts. The first section discusses the impact of various consumption tax structures on the prices of goods and services. The findings in this part specifically focus on the impacts to the production-side of the economy. As the continuity, the second part links the findings to cost of living. In specific, the impacts from the price movements are assessed for households based on strata and income group.

B. Impacts on Price

The input-output modelling technique is used to assess the effects of various tax structures on the cost of living. Prior to further analysis of the cost of living, price impact models are developed. At this instant, there are two stages of data processing. First, the list of COICOP-classified goods and services is matched with their respective taxation rates under each consumption tax structure. Following this, the output of stage one is mapped to the list of sectors in the input-output table using MSIC 2008. The mapping enables researchers to determine the composition of goods and services in a sector, which serves as the foundation for price impact modelling.

GST rates will reduce the price level by 0.63% if only consumption tax structures govern the price level in the economy. The services and manufacturing sectors have seen the greatest price decreases. This situation, however, is not reflected in the economy because price levels are influenced in part by subsidy rationalisation, currency depreciation, minimum wage, and monopolistic market structure. Meanwhile, the tax structure is likely to raise total prices by 10.83% with the reintroduction of SST. The main reason for the sharp price increases is the higher tax rates levied on manufacturers and service providers, which are 10% and 6%, respectively.

C. Impacts on Cost of Living

With the previous subsection discussing the impacts on price level from the perspective of production cost, this subsection links the findings to cost of living. The linkages between production and living cost are established using the information from 2014 Household Expenditure Survey (HES). Technically, the effects on the cost of living that are reflected in changes in household expenditure levels are entirely dependent on changes in the prices of goods and services. The list of consumable goods and services in HES is divided into 12 categories for presentation purposes. These categories are based on the Classification of Individual Consumption by Purpose (COICOP), which divides individual consumption expenditures only acquired by households.

Table 1: Classification of Individual Consumption according to Purpose (COICOP)

Category	Description
01	Food and non-alcoholic beverages
02	Alcoholic beverages, tobacco, etc.
03	Clothing and footwear

04	Housing, water and fuel
05	Furnishings, household equipment, etc.
06	Health
07	Transport
08	Communication
09	Recreation and culture
10	Education
11	Restaurants and hotels
12	Miscellaneous goods and services

Based on the listed goods and services categories, the list is then cross-tabulated ethnicity (Bumiputera and Non-bumiputera) by strata and income group (top 20%, middle 40% and bottom 40%). The results for both impacts on ethnicity by strata and income group are given in Table 2, Table 3 and Table 4.

On average, total monthly expenditure of bumiputera households both urban and rural decreases under GST, while increment is recorded for SST. The estimated reductions are RM24.23 for urban while RM17.76 for rural under GST. While the expenditures of households are expected to increase by RM404.04 and RM287.53 for both urban and rural respectively through SST. Table 2 shows the full results of GST and SST impacts on the Bumiputera both urban and rural.

Table 2: GST and SST structures impacts on cost of living on Bumiputera (Urban) by strata (RM)

HES Group	E (RM)	E (%)	ΔE (RM)	
			GST	SST
Bumiputera (Urban)				
Food & Non-Alcoholic Beverages	686	19.87	(7.67)	101.98
Alcoholic Beverages, Tobacco, Etc.	70	2.01	(0.84)	8.28
Clothing & Footwear	128	3.70	(1.15)	20.49
Housing, Water & Fuel	784	22.71	(2.52)	86.34
Furnishings, Household Equipment, Etc.	145	4.20	(0.79)	23.15
Health	51	1.47	(0.31)	5.31
Transport	524	15.16	(2.93)	46.52
Communication	186	5.39	(0.40)	20.51
Recreation & Culture	154	4.46	(0.61)	18.06
Education	36	1.05	(0.99)	2.71
Restaurants & Hotels	435	12.58	(4.35)	49.63
Miscellaneous Goods & Services	255	7.39	(1.68)	21.06
Average Monthly Expenditure	**3,454**	**100.00**	**(24.23)**	**404.04**

Table 3: GST and SST structures impacts on cost of living on Bumiputera (Rural) by strata (RM)

HES Group	E (RM)	E (%)	ΔE (RM)	
			GST	SST
Bumiputera (Rural)				
Food & Non-Alcoholic Beverages	649	27.11	(7.25)	96.39
Alcoholic Beverages, Tobacco, Etc.	65	2.70	(0.78)	7.70
Clothing & Footwear	92	3.85	(0.83)	14.77
Housing, Water & Fuel	481	20.11	(1.54)	52.98

Furnishings, Household Equipment, Etc.	94	3.91	(0.51)	14.92
Health	33	1.38	(0.20)	3.46
Transport	343	14.32	(1.92)	30.45
Communication	99	4.14	(0.21)	10.93
Recreation & Culture	94	3.93	(0.37)	11.03
Education	15	0.62	(0.41)	1.11
Restaurants & Hotels	266	11.10	(2.66)	30.33
Miscellaneous Goods & Services	163	6.82	(1.07)	13.47
Average Monthly Expenditure	**2,393**	**100.00**	**(17.76)**	**287.53**

For non-bumiputera households, their expenditures are expected to decrease by RM28.71 for urban and RM18.30 for rural under GST. In the case of SST, the result is expected a significant increment in the expenditures by RM487.42 for urban households while rural households are expected an increase on their expenditures by RM297.61. Table 3 details the impact of both tax structures on the Non-bumiputera according to urban-rural area.

Table 4: GST and SST structures impacts on cost of living on Non-bumiputera (Urban) by strata (RM)

HES Group	E (RM)	E (%)	ΔE (RM)	
			GST	SST
Non-bumiputera (Urban)				
Food & Non-Alcoholic Beverages	692	16.36	(7.74)	102.87
Alcoholic Beverages, Tobacco, etc.	103	2.43	(1.25)	12.24
Clothing & Footwear	117	2.77	(1.06)	18.80
Housing, Water & Fuel	1,114	26.32	(3.57)	122.62
Furnishings, Household Equipment, etc.	153	3.62	(0.83)	24.40
Health	76	1.79	(0.46)	7.91
Transport	584	13.80	(3.26)	51.86
Communication	233	5.50	(0.50)	25.67
Recreation & Culture	245	5.78	(0.97)	28.70
Education	57	1.34	(1.55)	4.26
Restaurants & Hotels	545	12.87	(5.45)	62.21
Miscellaneous Goods & Services	314	7.41	(2.06)	25.87
Average Monthly Expenditure	**4,231**	**100.00**	**(28.71)**	**487.42**

Table 5: GST and SST structures impacts on cost of living on Non-bumiputera (Rural) by strata (RM)

HES Group	E (RM)	E (%)	ΔE (RM)	
			GST	SST
Non-bumiputera (Rural)				
Food & Non-Alcoholic Beverages	622	24.66	(6.95)	92.44
Alcoholic Beverages, Tobacco, etc.	84	3.31	(1.01)	9.95
Clothing & Footwear	76	3.03	(0.69)	12.23
Housing, Water & Fuel	512	20.32	(1.64)	56.42
Furnishings, Household Equipment, etc.	83	3.27	(0.45)	13.17
Health	51	2.03	(0.31)	5.36
Transport	368	14.58	(2.06)	32.67
Communication	125	4.97	(0.27)	13.81
Recreation & Culture	133	5.29	(0.53)	15.65

Education	24	0.95	(0.66)	1.80
Restaurants & Hotels	238	9.42	(2.38)	27.14
Miscellaneous Goods & Services	206	8.16	(1.35)	16.98
Average Monthly Expenditure	**2,522**	**100.00**	**(18.30)**	**297.61**

The results are in line with the findings in the prices impact in subsection 2 as the amount of household expenditures are determined by the price level in cost of production which translates into the changes in household expenditures. Based on the findings for bumiputera and non-bumiputera both urban-rural households, large amount of price hikes will affect their cost of living through the expenditure on Housing, Water & Fuel and Food & Non-Alcoholic Beverages. This situation occurs as more than 40% of urban and rural household expenditures are devoted for these group of products and services. In specific, Non-bumiputera in urban area mostly affected with the price hikes in Housing, Water & Fuel recorded the highest expenditures of RM1114 compared to others. This is due to the location of the houses that particularly, housing sector in urban areas still dominated by Non-bumiputera in the major towns and cities such as Kuala Lumpur, Johor Bharu, Ipoh and Penang (Ahmad Ariffian et.al, 2008).

For income group category, similar patterns in expenditure level can be observed for households that earn in top 20% (T20), medium 40% (M40) and bottom 40% (B40) groups based on Table 4. The expenditure of these group of households will decrease through GST, while increment is recorded for SST. On average, the estimated reductions for T20, M40 and B40 under GST are RM42.29, RM23.93 and RM13.66 respectively. While the expenditures of T20, M40 and B40 households are expected to increase by RM721.24, RM394.55 and RM223.52 correspondingly through SST. Although the impacts of SST for middle and bottom 40% group are relatively lower than the impacts on the top 20% income earners, the findings indicate that these group of households are heavily affected as most of the expenditures increment are sourced from Food & Non-Alcoholic Beverages.

Table 6: GST and SST structures impacts on cost of living by income group (RM)

HES Group	E (RM)	E (%)	ΔE (RM)	
			GST	SST
Top 20%				
Food & Non-Alcoholic Beverages	892	14.11	(9.97)	132.54
Alcoholic Beverages, Tobacco, etc.	116	1.84	(1.41)	13.83
Clothing & Footwear	199	3.15	(1.79)	31.89
Housing, Water & Fuel	1,548	24.50	(4.97)	170.44
Furnishings, Household Equipment, etc.	278	4.40	(1.51)	44.34
Health	110	1.74	(0.67)	11.51
Transport	997	15.77	(5.57)	88.53
Communication	372	5.89	(0.80)	41.00
Recreation & Culture	355	5.61	(1.40)	41.61
Education	86	1.36	(2.35)	6.44
Restaurants & Hotels	832	13.16	(8.32)	95.00
Miscellaneous Goods & Services	535	8.46	(3.52)	44.10
Average Monthly Expenditure	**6,319**	**100.00**	**(42.29)**	**721.24**
Middle 40%				
Food & Non-Alcoholic Beverages	717	21.37	(8.01)	106.52
Alcoholic Beverages, Tobacco, etc.	90	2.68	(1.09)	10.69
Clothing & Footwear	118	3.52	(1.06)	18.89
Housing, Water & Fuel	736	21.95	(2.36)	81.05

Furnishings, Household Equipment, etc.	129	3.85	(0.70)	20.59
Health	50	1.48	(0.30)	5.21
Transport	496	14.79	(2.78)	44.08
Communication	176	5.24	(0.38)	19.38
Recreation & Culture	162	4.83	(0.64)	19.02
Education	34	1.00	(0.92)	2.52
Restaurants & Hotels	416	12.40	(4.16)	47.50
Miscellaneous Goods & Services	232	6.90	(1.52)	19.10
Average Monthly Expenditure	**3,355**	**100.00**	**(23.93)**	**394.55**
Bottom 40%				
Food & Non-Alcoholic Beverages	525	28.38	(5.87)	78.04
Alcoholic Beverages, Tobacco, etc.	47	2.55	(0.57)	5.62
Clothing & Footwear	66	3.55	(0.59)	10.53
Housing, Water & Fuel	447	24.17	(1.44)	49.23
Furnishings, Household Equipment, etc.	59	3.20	(0.32)	9.43
Health	27	1.48	(0.17)	2.87
Transport	219	11.83	(1.22)	19.45
Communication	71	3.84	(0.15)	7.84
Recreation & Culture	66	3.56	(0.26)	7.74
Education	13	0.68	(0.34)	0.94
Restaurants & Hotels	197	10.65	(1.97)	22.51
Miscellaneous Goods & Services	113	6.10	(0.74)	9.31
Average Monthly Expenditure	**1,850**	**100.00**	**(13.66)**	**223.52**

CONCLUSIONS

This study presents the findings of an estimation of the effects of various consumption tax structures on the cost of living in Malaysia. The input-output modelling technique is used to estimate the impacts based on the available dataset at the national level. This method is supported by the available national input-output table from 2010 and the HES 2014. An input-output price model is developed to assess the impacts on the cost of production and linked to HES household micro data to assess the impacts on the cost of living.

The findings show that GST rates have a tendency to lower the price level, resulting in a lower cost of living for households. It found that GST give positive impact on household expenditures where all categories of households (ethnicity by strata and income groups) enjoy most expenditure reduction in Food & Non-Alcoholic Beverages and Housing, Water & Fuel. This demonstrates that GST tends to reduce the cost of living, particularly on household necessities. In contrast to GST, SST is expected to have a negative impact on both the price level and the cost of living. It shows the negative impact where it indicates the increment in the household expenditures for all different household groups. The result shows Food & Non-Alcoholic Beverages and Housing, Water & Fuel are mostly affected by the SST where every category of household groups tends to spend more on these basic necessities goods. With the HES suggests that the main type of expenditures undertaken by households, regardless of different household groups (ethnicity by strata and income groups) are on Food & Non-Alcoholic Beverages and Housing, Water & Fuel, the increase in production cost of these group of goods and services will lead to the rising of cost of living.

Regardless of how useful the findings of this study are, they must be interpreted with caution because the study is based on a number of assumptions. First, this study assumes that only consumption tax structures influence price levels and living costs. Other forces such as subsidy rationalisation, currency depreciation, minimum wage, and monopolistic market structure are assumed to be constant. However, in practise, these

forces may have a significant impact on both costs. Second, the SST rates used in the estimation are based on the assumption that all manufactured goods and services are taxed at 10% and 6%, respectively. This assumption resulted in the maximum impact that can be produced by SST re-introduction.

Future research into such areas is suggested to overcome the limitations caused by the assumptions used in this study. Future research on the effects of various consumption tax structures must include other factors that influence the cost of production and cost of living in the equation. Additionally, the recently publication from the Royal Malaysia Customs Department on the list of goods and services in the manufacturing and services industry that are subjected to SST also need to be addressed. This initiative is needed as some of the goods and services under both of industries are exempted from SST. In addition, the challenges, including public perception, inflationary pressures, and the need for businesses and consumers to adapt once again to the tax need to be addressed to ensure a smooth transition and public acceptance of the reintroduced GST.

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