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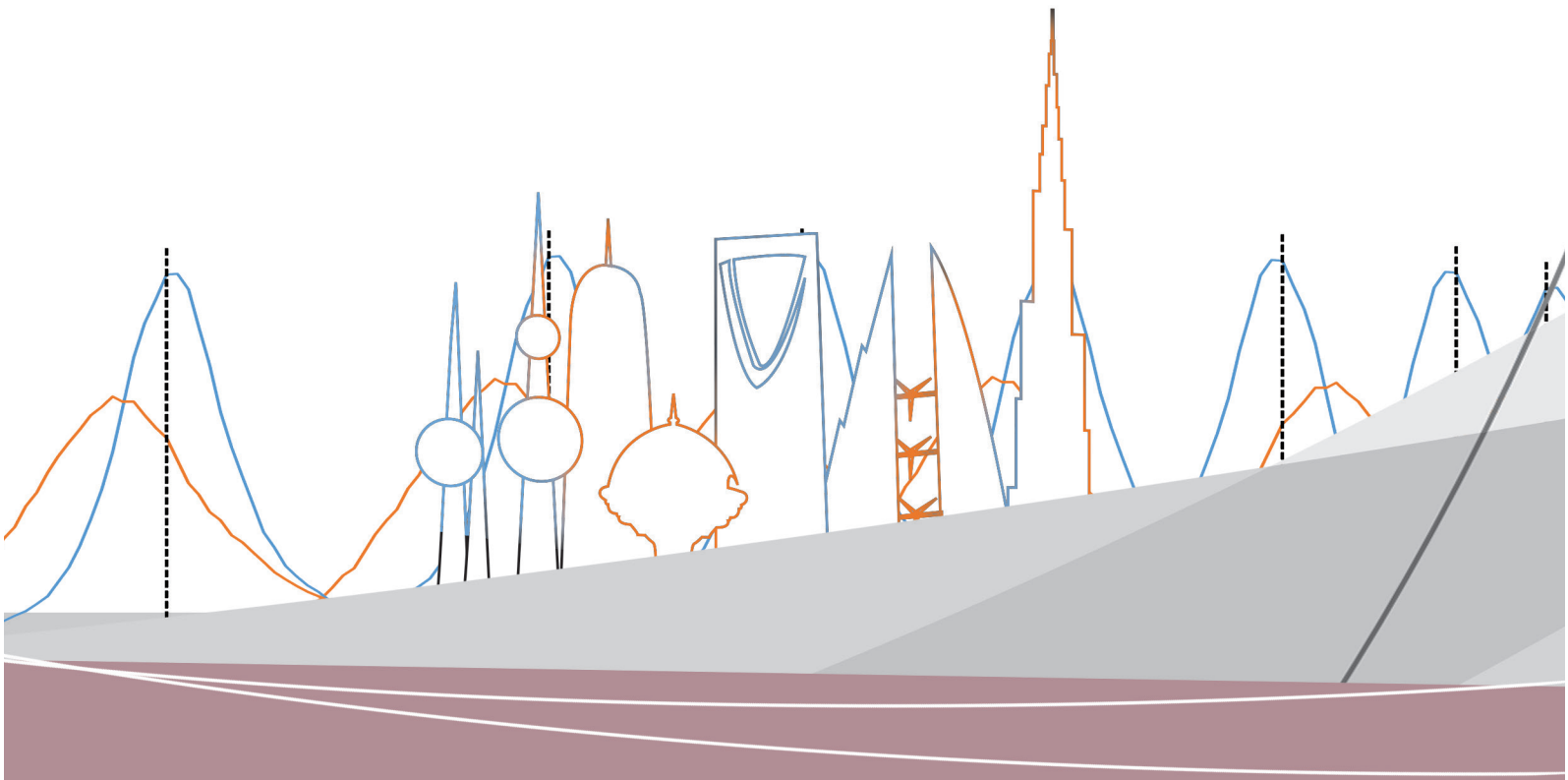
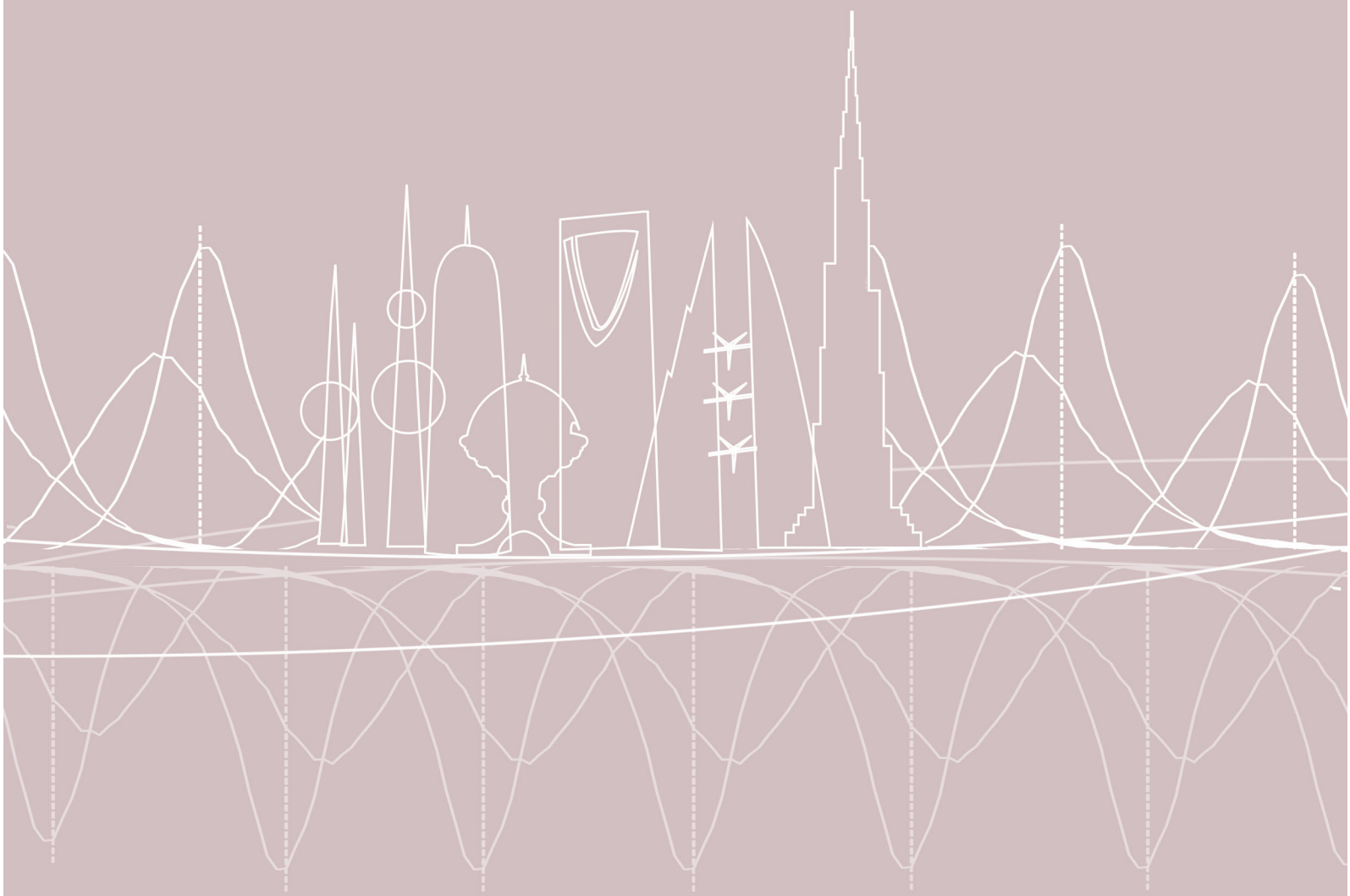


Some Statistical Issues Arising From the Introduction of the Value Added Tax in GCC Countries

April | 2017



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List of Acronyms

BP	Basic Prices
CFTM	Constant Fiscal Take Method
COICOP	Classification of Individual Consumption by Purpose
CPI	Consumer Price Index
f.o.b.	Free on board
GDP	Gross Domestic Product
GDP(E)	Expenditure-based estimate of GDP
GDP(I)	Income-based estimate of GDP
GDP(P)	Production-based estimate of GDP
GST	Goods and Services Tax
HIES	Household Income and Expenditure Survey
ISIC (Rev. 4)	UN International Standard Industrial Classification of all Economic Activities, Rev. 4
PPIs	Producer Price Indices
PPs	Purchasers' prices
SNA	UN System of National Accounts
SNA 1993	UN System of National Accounts 1993 edition
SNA 2008	UN System of National Accounts 2008 edition
VAT	Value Added Tax

Glossary of Terms

Basic prices	The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, on that unit as a consequence of its production or sale. *See* also Purchasers' prices.
Business register	A list of businesses maintained by the national statistics offices and used for creating survey frames for business censuses and surveys.
Changes in inventories	The difference in value between inventories held at the beginning and end of the reference period by enterprises and general government.
Constant prices	Estimates are valued at prices that prevailed in a defined period in the past.
Current prices	Estimates are valued at the prices of the period to which the observation relates. For example, estimates for this financial year are valued using this financial year's prices. This contrasts with constant price estimates that apply to prices prevailing in a defined period in the past.
Exports of goods and services	The value of goods exported and amounts receivable from non-residents for the provision of services by residents.
General government final consumption expenditure	Net expenditure on goods and services by public authorities, other than those classified as public corporations, which does not result in the creation of fixed assets or inventories or in the acquisition of land and existing buildings or second-hand assets. It comprises expenditure on compensation of employees (other than those charged to capital works, etc.), goods and services (other than fixed assets and inventories) and consumption of fixed capital. Expenditure on repair and maintenance of roads is included. Fees, etc., charged by general government bodies for goods sold and services rendered are offset against purchases. Net expenditure overseas by general government bodies and purchases from public corporations are included. Expenditure on defence assets is classified as gross fixed capital formation.
Gross domestic product at basic prices	Gross domestic product at basic prices is calculated as gross domestic product at purchasers' prices plus subsidies less taxes on products. *See* also Gross domestic product at purchasers' prices.
Gross domestic product at purchasers' prices	The total market value of goods and services produced in a country after deducting the cost of goods and services used up in the production process (intermediate consumption), but before deducting the consumption of fixed capital. *See* also Gross domestic product at basic prices.
Household final consumption expenditure	Household final consumption expenditure consists of expenditure Incurred by resident households on consumption goods and services.
Imports of goods and services	The value of goods imported and amounts payable to non-residents for the provision of services to residents.

Input tax credit	An enterprise is entitled to an input tax credit for the VAT included in the price paid for an acquisition (or the VAT paid on an import) if it is for use in the enterprise, but not to the extent that it is used to make input taxed supplies. *See* also VAT-exempt, Input taxed supply, Supplies, Taxable supply.
Input taxed supply	If a supply is input taxed, the enterprise does not charge VAT on the supply, but neither is it entitled to input tax credits for anything acquired or imported to make the supply. *See* also Input tax credit, VAT-exempt, Supplies, Taxable supply.
Other taxes on production	In the System of National Accounts, these consist of all taxes that enterprises incur as a result of engaging in production except taxes on products. Other taxes on production include: taxes on payroll or workforce excluding compulsory social security contributions paid by employers and also excluding any taxes paid by the employees themselves out of their wages or salaries; recurrent taxes on land, buildings or other structures; some business and professional licences where no service is provided by the Government in return; taxes on the use of fixed assets or other activities; stamp duties; taxes on pollution; and taxes on international transactions. *See* also Taxes on production and imports, Taxes on products.
Private gross fixed capital formation -- dwellings	Expenditure on dwelling construction. Expenditure on repair and maintenance of dwellings is excluded.
Private gross fixed capital formation – other components	Expenditure on fixed assets broken down into non-dwelling construction, machinery and equipment, cultivated biological resources, intellectual property products and ownership transfer costs. The machinery and equipment category includes plant, machinery, equipment, vehicles, etc. Expenditure on repair and maintenance of fixed assets is excluded.
Public gross fixed capital formation – general government	Expenditure on new fixed assets plus net expenditure on second-hand fixed assets whether for additions or replacements. Expenditure on new road works (or on upgrading existing roads) is included, but expenditure on road repair and maintenance is classified as government final consumption expenditure.
Public gross fixed capital formation – public corporations	Expenditure on new fixed assets plus net expenditure on second-hand fixed assets and including both additions and replacements. Also included is compensation of employees paid by public corporations in connection with capital works undertaken on own account.
Purchasers' prices	The purchasers' price is the amount paid by the purchaser, excluding any deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. *See* also Basic prices.
Supplies	Includes the goods and services sold or provided by an enterprise.
Taxable supply	Includes most goods and services provided by enterprises. A supply is not a taxable supply if it is VAT-exempt or input taxed. *See* also Input tax credit, Input taxed supply.
Taxes on production and imports	This term is synonymous with 'indirect taxes'. It consists of 'taxes on

	products' and 'other taxes on production'. These taxes do not include any taxes on the profits or other income received by an enterprise. They are payable irrespective of the profitability of the production. They may be payable on the land, fixed assets or labour employed in the production process, or on certain activities or transactions. *See* also Other taxes on production, Taxes on products.
Taxes on products	A tax on a product is a tax that is payable per unit of some good or service. The tax may be a specific amount of money per unit of quantity of a good or service (quantity being measured either in terms of discrete units or continuous physical variables such as volume, weight, strength, distance, time, etc.), or it may be calculated *ad valorem* as a specified percentage of the price per unit or value of the goods or services transacted. A tax on a product usually becomes payable when it is produced, sold or imported, but it may also become payable in other circumstances, such as when a good is exported, leased, transferred, delivered, or used for own consumption or own capital formation. The VAT is a tax on products. *See* also Other taxes on production, Taxes on production and imports.
VAT-exempt	Certain goods and services do not incur VAT liability and are referred to as VAT-exempt. Businesses trading in VAT-exempt goods and services are, nevertheless, able to claim input tax credits on creditable purchases. *See* also Input tax credit, Input taxed supply, Supplies, Taxable supply

Foreword

It has been announced that all countries in the Cooperation Council of the Arab Countries of the Gulf (GCC) will introduce a Value Added Tax (VAT) in accordance with a common framework agreement. Within that agreement, each of the GCC countries will introduce laws to enact the VAT.

Some key official statistics will be impacted by the VAT. Official statisticians may also be able to take advantage of the VAT administrative data for purposes of compiling official statistics.

This Methodological Paper has been prepared by GCC-Stat to give guidance to the official statisticians in the GCC countries on the statistical implications of the VAT. The Paper may also be of interest to users of official statistics in understanding how the VAT will show up in official statistics.

GCC-Stat is very grateful to the Statistics Department of the International Monetary Fund and to Eurostat, the statistical office of the European Union, for providing valuable comments on an earlier draft of this Paper. While all care has been taken in the preparation of the Paper, any remaining errors or omissions in the Paper are the responsibility of GCC-Stat.

Sabir Said Al Harbi

Director General

1. Introduction

1.1 It has been announced that a Value Added Tax (VAT) will be introduced in all Member Countries in the Cooperation Council of the Arab Countries of the Gulf (GCC) over the course of the next few years. While the specific details of the VAT are not yet available, the new tax will have considerable implications for official statistics in the countries in which it is introduced. This Methodological Paper sets out these matters for consideration by national statisticians, policy makers and other analysts.

1.2 The structure of the Paper is as follows:

- Chapter 2 presents a non-technical description of a VAT and how it works in practice.
- Chapter 3 summarizes the key statistics that will be impacted by the VAT.
- Chapters 4 to 6 describe in more detail the statistical treatment of the VAT in each relevant field of statistics.
- Chapter 7 sets out the opportunities that could open up for official statisticians in using the VAT administrative source in the compilation of official statistics.
- Chapter 8 discusses issues around measuring the impact of the VAT.
- Attachment A is a technical note on how the *first round* inflationary effects of the introduction of the VAT might be measured through the Consumer Price Index.

1.3 It is important that official statisticians adopt a proactive approach to the introduction of the VAT to ensure that its impacts are adequately captured in official statistics. On the other hand, the introduction of new procedures for administration of the VAT potentially opens up valuable new data sources for compilation of official statistics, provided that the new procedures are sympathetic to the needs of the statisticians. Official statisticians should work with the relevant administrative authorities to achieve this end.

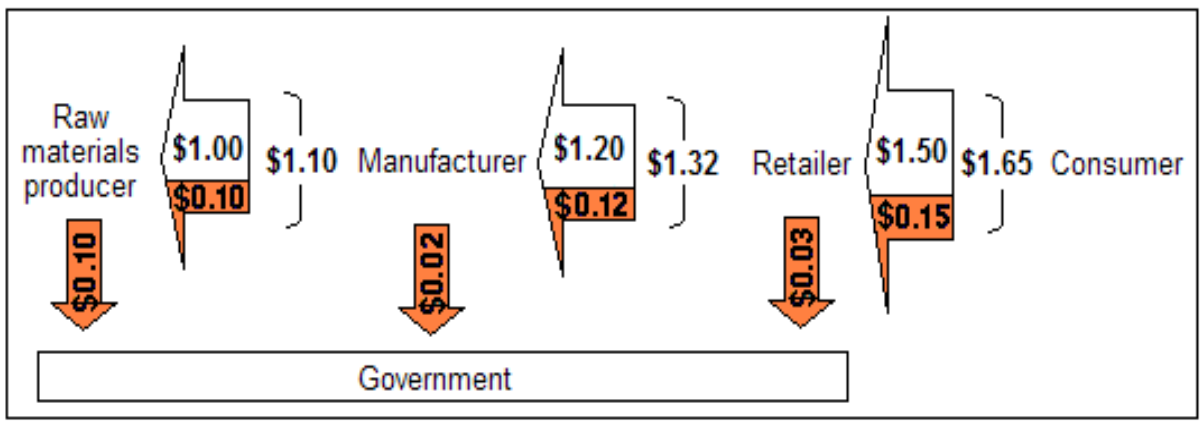
1.1 Further information

1.4 Any queries on the content of this Methodological Paper can be addressed to Ahmed Fadel Al Farid, Director, Economic Statistics Department, GCC-Stat. His email address is: AAlfarid@gccstat.org

2. A Description of the VAT

2.1 A value-added tax (VAT), known in some countries as a goods and services tax (GST), is a type of general consumption tax that is collected incrementally, based on the value added at each stage of production. In statistical terms, it is treated as a tax on a product[1]. While the exact details of the tax to be introduced in GCC countries is not known at the time of preparing this Methodological Paper, it is usually implemented as a destination-based tax, where the tax rate is based on the country of the customer; in other words, exports are usually treated as being VAT exempt. Other goods and services may also be VAT-exempt, or may be zero-rated (also refer to input-taxed supply).

2.2 For the sake of simplicity, the following stylized example assumes a 10 per cent VAT. (Five per cent has been indicated as the likely rate at which a VAT will be introduced in GCC countries.) The example has been taken from Wikipedia, accessible at https://en.wikipedia.org/wiki/Value-added_tax



2.3 In this simple example:

- The manufacturer spends ($1 + 10%) = **$1.10** for the raw materials, and the seller of the raw materials pays the government **$0.10**
- The manufacturer charges the retailer ($1.20 + 10%) = **$1.32** and pays the government ($0.12 *minus* $0.10) = **$0.02**
- The retailer charges the consumer ($1.50 + 10%) = **$1.65** and pays the government ($0.15 *minus* $0.12) = **$0.03**

2.4 Note that the taxes paid by the raw materials producer, the manufacturer and the retailer to the government are 10% of the *values added* by their respective business practices (e.g. the *value added* by the manufacturer is $1.20 minus $1.00, thus the tax payable by the manufacturer is ($1.20 – $1.00) × 10% = $0.02.

2.5 Although the VAT is paid progressively through the "production pipeline" ($0.10 + $0.02 + $0.03 in the example above), the tax is ultimately paid by the final consumer ($0.15). While the various producers levy

[1] United Nations *System of National Accounts 2008* (SNA 2008), paragraph 6.56. The SNA 2008 is accessible at **http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf**

the VAT that applies to their supplies to their customers, they are able to claim back the VAT that has been paid on their purchases. The VAT is a tax on consumption, not on production or investment.

2.6 Countries around the world that have implemented a VAT have typically exempted certain items from the VAT and the rate of VAT varies widely among countries. Further, some countries levy different (non-zero) rates of VAT on different products as well.

2.7 There are two main methods of calculating VAT:

- ***the credit-invoice or invoice-based method***. Using this method, sales transactions are taxed, with the customer informed of the VAT on the transaction, and businesses may receive a credit for VAT paid on input materials and services. In the example above, the manufacturer for example levies VAT of $0.12 on his supplies and can claim back $0.10 for the VAT he has paid on his purchases, giving a net $0.02 that is paid to the tax authority. The credit-invoice method is the most widely employed method in the world.
- ***the subtraction or accounts-based method***. Using the subtraction method, at the end of a reporting period, a business calculates the value of all taxable sales then subtracts the sum of all taxable purchases and the VAT rate is applied to the difference. In the example above, the manufacturer has value added of $1.20 - $1.00 = $0.20. Ten per cent of this amount is $0.02, which is the amount that would be remitted to the tax authority. The subtraction method VAT is used very rarely in countries because it complicates the estimation of VAT when different products have different rates of VAT applied.

2.8 Irrespective of the calculation method used, it can be seen that the same outcome is achieved in terms of the amount of revenue raised by the tax.

2.9 In order to administer the VAT, businesses have to be registered with the tax authority and they will be assigned a VAT reference number. This reference number must be shown on all business invoices and receipts, with the amount of VAT separately identified. Only businesses that are registered for VAT purposes will be able to claim back the VAT that they have paid on their purchases.

2.10 Businesses will also need to provide regular tax reports to the tax authority and remit the net amount of VAT owing to the tax authority or claim back the net amount of VAT that may be due to them.

2.11 At the time of writing this Methodological Paper, the exact details of the procedures to be introduced to administer the VAT in GCC countries are not known. It will be very important for official statisticians to stay abreast of these matters, including seeking to influence the administrative arrangements so that the VAT source can be used to compile official statistics.

3. Key Statistics That Will be Impacted by the VAT

3.1 Many official statistics will be affected by the introduction of the VAT. Some of the impacts will be immediate, while some will be longer term. Some of the impacts will be direct; some will be indirect. It will be difficult to isolate the effects of the introduction of the VAT from other changes that are occurring in the countries' economies. This chapter summarizes some of the changes that will occur across a range of statistical series. Subsequent chapters spell out these issues in more detail. The introduction of the VAT will have direct effects; it will also have indirect effects associated with changes in the economic behaviors of businesses and consumers.

3.1 Direct effects

3.2 Direct effects will occur irrespective of changes in economic behavior of households and businesses. The Consumer Price Index (CPI) will continue to measure final transaction prices paid by households for the goods and services they consume. For those goods and services for which the VAT applies, prices will rise and the CPI must capture this price rise. On the other hand, the Producer Price Indices (PPIs) should not include VAT in their compilation and therefore the introduction of the VAT will not directly impact on these series, except for the indirect effects embedded in the component prices.

3.3 Current price estimates of Gross Domestic Product (GDP) and other national accounting components will increase, other things being equal. GDP is compiled at purchasers' prices and the VAT, being an indirect tax, will increase purchasers' prices. This will show up, for example, in household final consumption expenditure in the compilation of the expenditure-based estimate of GDP (GDP(E)). For the production-based estimate of GDP (GDP(P)), the VAT will show up as a tax on products and be included in the category *taxes less subsidies on products*[2]. For the income-based estimate of GDP (GDP(I)), the VAT will be reflected in the item *taxes less subsidies on production and imports.*

3.4 As a result of the changes to current price GDP, many of the ratios that are derived using current price GDP will also change, for example government surplus/deficit as a proportion of GDP. Further, since current price GDP is the starting point in compiling gross national income and gross national disposable income, these other statistics will also change in current prices. The impact on national saving is likely to be very small (general government saving will increase, offset by a decrease in household saving and business saving will also decrease to the extent that businesses absorb part of the VAT-induced price increases). Given the near-zero effect on the level of national saving, the national saving ratio will decrease because of the VAT-induced increase in current price GDP.

3.5 Provided that the CPI and PPIs used to deflate the national accounts statistics to derive constant price estimates are correctly compiled, there should be no direct effect on constant price GDP and its components. However, to the extent that the introduction of the VAT induces changes in the economic

[2] SNA 2008, paragraph 16.50.

behaviors of businesses and households, then there may be indirect impacts on constant price GDP and its components.

3.6 Careful design of the forms used in economic surveys will be necessary to ensure the correct pricing of industry turnover, operating expenses and capital expenditure. In general, these data should be collected *net* of the VAT, resulting in no change in the current price basis for compiling these statistics. The exception is sales of goods and services to households, which should be collected *gross* of the VAT. The reason for this exception is that households will not be able to claim a refund of the VAT that they pay on their purchases and hence the value of their purchases should include the VAT. In this regard, the current price treatment of these data is the same as for household final consumption expenditure in the GDP calculations.

3.7 Government finance statistics will, of course, be impacted. The VAT is a tax on products and will show up in the total taxation revenue data[3]. Other things being equal, the surplus/deficit figure will change in accordance with the increased tax revenue.

3.8 Household expenditure statistics as compiled from the periodic household income and expenditure surveys will change. Again, since households are not able to claim a refund of the VAT that they have paid on their purchases, the expenditure data collected should be inclusive of the VAT. Chapter 4 below discusses the issue of the need to re-weight the CPI following the introduction of the VAT.

3.2 Indirect Effects

3.9 It can be reasonably expected that the introduction of the VAT will affect the economic behavior of both households and businesses in a variety of ways. This will have consequential indirect effects on the observed levels and movements relating to a broad range of statistical series. For example, changes in relative prices of various goods and services caused by the introduction of the VAT will impact upon consumer behavior and therefore the various categories of household final consumption expenditure. Such changes in relative prices could also affect a range of other activities such as capital formation and holding of inventories.

3.10 The change in relative prices of products that will be caused by the VAT introduction will most likely lead to changes in the weighting patterns that underlie the compilation of constant price measures of GDP and other aggregates.

[3] It is treated as a component of the item “Taxes on goods and services” in the International Monetary Fund *Government Finance Statistics Manual 2014(GFSM 2014)* , see Table 5.1 (page 88).

4. Impact of the VAT on Prices Statistics

4.1 Producer price indices

4.1 The implications of the introduction of the VAT on producer price indices (PPIs) relate to both conceptual and practical issues.

4.2 The applicable valuation basis for the PPIs is *purchasers' prices* (PP) for the input indices and *basic prices* (BP) for the output indices (see Glossary of Terms for definitions of purchasers' prices and basic prices). It is important to note that input price indices at purchasers' prices relate to a different pricing point to output indices at basic prices, and thus cover different transactions in the economy. The applicable pricing basis for the international trade indices (Import Price Index and Export Price Index) is free on board (f.o.b.), country of origin.

4.3 The VAT will be levied at each stage in the production and distribution chain with the tax ultimately being paid (in the main) by the final consumer. This is because, in general, businesses can claim credits for the VAT paid on inputs (both intermediate consumption and capital expenditures), i.e. ultimately VAT is a tax on consumption, not on production or investment, even though it is levied administratively on the value added at each stage of production.

4.4 The prices of the sales or purchases covered by the PPIs do not represent final transactions. Therefore, the VAT paid on purchases by businesses will generally be netted off the VAT collected on sales and the balance paid to the taxation authority. Thus, for all the PPIs, a 'net system' should be applied in recording the VAT, i.e. the VAT will be excluded from producer prices.

4.5 Conceptually, the scope of *service industry* output price indices includes any transactions with households (i.e. final transactions) as well as transactions with other businesses (i.e. intermediate consumption). To the extent that any business-to-household (i.e. final) transactions are priced in service industry output PPIs, the VAT is out-of-scope and should be excluded because of the basic prices valuation basis.

4.6 In the compilation of the national accounts, the 'net system' should be applied in recording the VAT, i.e. the VAT will be recorded as being payable by purchasers, not sellers, and then only by those purchasers who are not able to deduct it. The conceptual treatment of the VAT in the PPIs outlined above means that they will be compatible with the requirements for national accounts deflation of current price estimates to produce constant price measures.

4.7 The exclusion of the VAT from prices used in compiling the PPIs is consistent with the treatment adopted by statistical agencies in other countries in which a value-added type of tax has been introduced.

4.8 Depending on the exact details of the introduction of the VAT, including whether particular goods or services are VAT exempt or zero-rated, there could be some changes in business behaviors that might

suggest the need to re-weight the PPIs at some stage after the VAT is introduced. Official statisticians should keep this matter under review.

4.2 Consumer price indices

4.9 The consumer price index (CPI) is compiled monthly in each GCC country. It is a measure of price change faced by households. In practice, this is achieved by measuring the change in the cost of a fixed 'basket' of goods and services from one period to another. As the prices of the items in the basket change, so does the total price of the basket. The basket of goods and services is constructed to be representative of the spending patterns of households.

4.10 The CPI measures prices actually paid by households for the purchase of goods and services. By definition, these prices or charges are affected by taxes (or subsidies) on either inputs to the manufacture or supply of the item as well as costs and margins of manufacturers and suppliers. With the introduction of the VAT, the CPI should continue to measure final transaction prices, i.e. prices inclusive of the VAT and any other indirect tax. This measurement of prices is consistent with international practice in compiling consumer price indices.

4.11 While in concept the treatment of the impact of the introduction of the VAT on prices collected for the CPI is relatively straight forward, in practice the introduction of the VAT raises a number of important issues with respect to the CPI. The issues are as follows:

- Are the current weights for the CPI appropriate as we move into the implementation phase of the introduction of the VAT?
- When should CPI weights next be updated following implementation of the VAT?
- Can official statisticians isolate the impact of the introduction of the VAT on the headline CPI and, if so, how might they publish such measures?

4.12 If countries wish to publish average retail prices, which would cover average prices for selected items that are included in the CPI, the average retail prices should include the VAT.

4.3 The VAT and CPI weights

4.13 If all prices in an economy move in the same direction and at the same rate, then weights do not matter in the construction of a CPI. Indeed, it would only be necessary to measure the price change of one commodity from one period to another in order to calculate the index. As we move further away from this unrealistic proposition, the issue of weighting in the construction of the CPI becomes increasingly important. It is usual to reweight the CPI following the conduct of each Household Income and Expenditure Survey (HIES), the results of which form the basis for calculating the weights.

4.14 The introduction of the VAT will result in changes in the relative prices of goods and services purchased by households. For many products, prices will be relatively, as well as absolutely, more expensive. In other cases, products will become relatively cheaper even though their absolute prices may

be unchanged. This *price effect* could lead consumers to substitute between goods and services depending on changes in their relative prices.

4.15 Ideally, the weights for the CPI should be as up to date as possible prior to the introduction of the VAT. The greater the variation in price behavior across commodities, the greater the role of weights in correctly measuring aggregate rates of price change. As the introduction of the VAT may cause a significant variation in price behavior over the next few years, it is important that the weights used to construct the index over this period are as representative as possible of contemporary household behavior.

4.16 Potential changes in household expenditure patterns following the introduction of the VAT raise questions as to the timing of updating of CPI weights beyond the introduction of the VAT. The key issues are as follows:

a) Would a CPI based on quantities following the introduction of the VAT produce a significantly different measure of aggregate price change compared to a CPI based on pre-VAT quantities?

b) To what extent are the relative quantities likely to change as a result of the introduction of the VAT?

c) How long will it take for expenditures to settle into a 'normal' pattern following the introduction of the VAT?

d) What is the earliest possible time frame to run a HIES capable of picking up these normalized expenditure patterns?

e) Are we using a commodity classification in the CPI that can best handle changes in consumer expenditures in response to a price shock?

4.17 These are not simple questions to answer. The difficulty lies in the fact that the impact of any individual item on the aggregate CPI is a function of its weight and its rate of price change. If the prices of all items change at the same rate, then the weights would be irrelevant. The more dispersion in the rates of price change, the greater the role-played by weights. Similarly, with some reasonable (but not extreme) dispersion in rates of price change, in general, tolerable percentage errors in weights are inversely proportional to the absolute value of the weight (i.e. the larger an item's weight, the lower the tolerable percentage error). The tolerable error in weights declines as the rate of price change increases.

4.18 Further, prediction of the tolerable error in the weight for any item depends on knowledge of future price change. Analysis based on past rates of price change can at best only provide an indication of potential future risk.

4.19 Consumer theory tells us that households will alter their consumption patterns in response to changes in absolute prices of items; changes in relative prices of items; and changes in incomes. A thorough analysis of expected changes in relative quantities following the introduction of the VAT would require a general equilibrium model with a full set of demand equations (including own-price elasticities of demand, cross-price elasticities of demand and income elasticities).

4.20 As the weights in the CPI are constructed to reflect a 'normal' level of expenditure likely to be representative of expenditure patterns expected throughout the life of a particular series, the length of

the adjustment period following a price shock is important. Little empirical work has been done on this matter. Following the introduction of the goods and services tax (which is conceptually the same as a VAT) in Australia in 2000, the Australian Bureau of Statistics took the view that spending patterns should stabilize sufficiently for the conduct of a household income and expenditure survey two years after the introduction of the tax, with a subsequent re-weighting of the CPI based on the survey results.

4.21 In considering the issue of the timing of the household income and expenditure survey, it is important to take into account the use of respondent recall to capture expenditures on lumpy, irregular purchases such as consumer durables and housing. The recall periods typically extend up to two years. Therefore, given that expenditures are likely to be atypical in the year following the introduction of the VAT, the earliest period for conducting the survey would be two years after the introduction of the VAT.

4.22 The CPI commodity classification serves a number of important purposes:

- it assists in describing the CPI item coverage, weighting patterns and methodology to a broad range of users;
- it provides a framework for defining item coverage and identifying whether new items are within scope of the CPI and, if so, where price observations 'belong'; and
- it facilitates the production of indices for components of the CPI for analytical and other purposes.

4.23 Notions of consumer utility and substitutability should underpin the CPI classification. The general principle is to structure the classification such that the highest levels of the classification represent items between which substitutability is deemed low, with the degree of substitutability increasing at the finer levels (with the finest level of the formal classification (expenditure classes) representing the level at which underlying quantity weights are fixed between CPI re-weighting)[4]. This approach varies from the more common industry-based commodity classifications which are generally more concerned with grouping items with similar inputs (or manufacturing processes) together rather than grouping items with similar use (or utility) together.

4.24 The international standard Classification of Consumption of Individual Consumption by Purpose (COICOP) is a commodity classification that is based on the concept of household utility and is the recommended classification for use in CPI construction. The use of the COICOP in the CPI has the incidental, but significant, advantage of aligning the CPI closely with the dissection of household final consumption expenditure in the national accounts, which is also based on COICOP.

4.25 All GCC countries currently use the preferred international standard COICOP classification in their CPI compilation.

[4] The importance of getting the commodity classification right from an index construction viewpoint was highlighted in the report of the (USA) *Advisory Commission to Study the Consumer Price Index* (Boskin Report: *Toward a More Accurate Measure of the Cost of Living, Final Report* (December 1996)) which stated (page 17, footnote 19) that in order to minimise item substitution and quality adjustment bias, "..... items which are the closest substitutes for each other in terms of how they are used, must be in ..... the lowest levels at which indexes are constructed .....".

4.4 Measuring the impact of the VAT on the CPI

4.26 As previously noted, the CPI should continue to measure final transaction prices inclusive of indirect taxes. The CPI will, in effect, include the net impact of the VAT on prices paid by households. It is anticipated that, as a consequence of the implementation of the VAT, the CPI will increase in the month in which the VAT is introduced. This then begs the question: *What is the impact of the VAT on the CPI?*

4.27 Unfortunately, this is not a question that can be answered precisely. All of the generally accepted options available to statisticians are essentially accounting exercises in so far as they attempt, in one way or another, to decompose final transaction prices into an 'indirect tax' component and an 'other' component. The 'other' component will comprise the base price net of taxes and includes margins. While the 'indirect tax' component can be deducted, it is not possible to conclude that the 'other' component represents the price that would have been charged in the absence of indirect taxes. Changes in prices, net of the indirect taxes, will therefore include changes in margins. They will also include the flow-on impact of the VAT working through the system.

4.28 Attachment A sets out an option for measuring the impact of the VAT on the CPI. It relies only on observable data on prices and published rates of the VAT. The measure is, at best, limited to measuring the first round effects of changes in indirect taxes. It cannot measure the second round effects associated with changes in consumer behavior. With the above important qualifications in mind, it would be possible to compile an *experimental constant fiscal take measure.* More specifically:

- The experimental constant fiscal take measure would take the form of providing an estimate of the proportion of the change in the published CPI attributable to tax rate changes, rather than an index number.
- The measure would only abstract from the *direct* or *first round* effects of tax changes on the prices of consumer goods and services.
- The constant fiscal take measure would be constructed with reference to the scheduled rates of tax prevailing at the time of the introduction of the VAT.

4.29 Attachment A sets out how such an experimental constant fiscal take measure could be compiled.

5. Impact of the VAT on National Accounts Statistics

5.1 The VAT will be a tax on the price of most goods and services, including those that are imported. It will not apply to sales of goods or services that are either exempt (VAT-exempt) or input-taxed. Businesses will charge VAT on goods and services sold to other businesses and to consumers. In most cases, businesses will be able to offset the VAT they pay on acquisitions, such as purchases of intermediate inputs and capital expenditure, against the VAT they collect on their sales. This offset is referred to here as an input-tax credit. Businesses will remit the net amount of VAT collected to the taxation authority. If a business's input-tax credit exceeds the amount of VAT that it has collected on its sales then it will receive a refund for the difference. As such, the VAT will be ultimately paid by the final consumer.

5.2 At the time of writing this Methodological Paper, it is not known which goods and services will be VAT-exempt. Goods and services that are VAT-exempt in other countries include:

- most exports of goods and services (the exception being goods and services consumed by international visitors other than those for which the visitor can claim a refund on the VAT paid)
- basic food
- health, education and eligible child-care services
- supplies of international transport and some related domestic transport and other expenses

Businesses producing VAT-exempt goods and services are generally able to claim an input-tax credit on the VAT paid on their purchases.

5.3 It is also possible that some services will be input-taxed. Businesses producing input-taxed services will be unable to claim an input-tax credit on the VAT paid on the inputs to the production of these services. For example, if residential rents are to be deemed to be input-taxed, and as the purchase of the dwelling is considered an input into the supply of residential rents, there would be no input-tax credit allowed on such purchases.

5.4 The introduction of the VAT will affect the prices of a broad range of goods and services in the economy. The introduction of the VAT has important implications for the national accounts. For example, current price estimates of GDP will increase, although there will be no direct effects of the VAT on the constant price measure of GDP.

5.5 Apart from the Kingdom of Saudi Arabia, which uses an updated version, the GCC countries compile their national accounts in accordance with the United Nations *System of National Accounts, 1993* (SNA 1993)[5]. Both the SNA 1993 and the later SNA 2008 describe the appropriate conceptual treatment of value added taxes. Two basic approaches are described: the gross and net methods of recording. To quote the SNA 2008:

> ‘‘Under the gross system: all transactions are recorded including the amounts of any invoiced VAT. Thus, the purchaser and seller record the same price, irrespective of whether or not the purchaser is able to deduct the VAT subsequently.’’[6]

[5] Except for Kuwait, which uses the 1968 version of the SNA. The treatment of the VAT in the updated international standard, the UN *System of National Accounts 2008* (SNA 2008) is the same as the preferred method in SNA 1993.
[6] SNA 2008, paragraph 6.59. The same words are used in SNA 1993, paragraph 6.210.

5.6 Paragraph 6.60 of SNA 2008 notes:

> "While the gross system of recording seems to accord with the traditional notion of recording at "market" prices, it presents some difficulties. Practical experience with the operation of VAT over many years in a number of countries has shown it may be difficult, if not impossible, to utilize the gross system because of the way business accounts are computed and records are kept. Sales are normally reported excluding invoiced VAT in most industrial inquiries and business surveys. Conversely, purchases of goods and services by producers are usually recorded excluding deductible VAT. Although the gross system has been tried in some countries, it has had to be abandoned for these reasons. Further, it can be argued that the gross system distorts economic reality to the extent that it does not reflect the amounts of VAT actually paid by businesses. Large amounts of invoiced VAT are deductible and thus represent only notional or putative tax liabilities."

5.7 SNA 2008, paragraph 6.61 then goes on to state:

> "The SNA therefore requires that the net system of recording VAT should be followed. In the net system:
>
> a. Outputs of goods and services are valued excluding invoiced VAT; imports are similarly valued excluding invoiced VAT;
>
> b. Purchases of goods and services are recorded including non-deductible VAT.
>
> Under the net system, VAT is recorded as being payable by purchasers, not sellers, and then only by those purchasers who are not able to deduct it. Almost all VAT is therefore recorded in the SNA as being paid on final uses, mainly on household consumption. However, small amounts of VAT may be paid by businesses in respect of certain kinds of purchases on which VAT may not be deductible."

5.8 According to both the SNA 1993 and SNA 2008, the VAT is a tax on products, which is part of the aggregate *taxes less subsidies on production and imports*.

5.9 With the introduction of the VAT, the current price value of GDP will increase, other things being equal. This is most evident from the *income* measure of GDP (GDP(I)), of which taxes less subsidies on production and imports is explicitly identified as an aggregate. Clearly, therefore, the increase in taxes on production and imports will lead to an increase in GDP.

5.10 The direct effects of the introduction of the VAT on the *expenditure* measure of GDP (GDP(E) are as follows:

- *Household final consumption expenditure*. The VAT paid by households should be included in the estimates for this aggregate.
- *General government final consumption expenditure*. This aggregate will be largely unaffected by the introduction of the VAT. General government bodies will be able to claim a refund on VAT paid, so general government expenditure will be recorded exclusive of the VAT.
- *Private gross fixed capital formation—dwellings*. Assuming that residential rents are to be deemed input-taxed as is the case in many countries, the VAT paid on new dwellings will not be able to be claimed as an input-tax credit, and hence the expenditure on this aggregate will increase as a result of the VAT's introduction.

- *Private gross fixed capital formation—other components*. Since the VAT paid on these expenditures can be claimed as a VAT credit, this component is likely to show no change in current prices.
- *Public gross fixed capital formation—general government*. This expenditure will be recorded exclusive of the VAT, hence the item is expected to show no change in current prices.
- *Public gross fixed capital formation—public corporations.* For the most part, this expenditure will be recorded exclusive of the VAT, although in those instances where an input-tax credit cannot be claimed there will be an increase in expenditure due to increased prices, all other things being equal.
- *Changes in inventories.* For the most part, these will be recorded exclusive of the VAT as most VAT paid by businesses on inventories will be refundable.
- *Exports of goods and services*. It is expected that most exports of goods and services will not be subject to the VAT. However, overseas tourists will pay VAT on goods and services consumed in their visits to GCC countries. While they may be able to claim refunds in respect of VAT paid on certain goods taken out of the country, the overall effect will be one of an increase in prices paid by visitors.
- *Imports of goods and services*. This aggregate will be unaffected by the VAT, as imports are valued on the basis of prices in the country of their origin.

5.11 In terms of the *production* measure of GDP (GDP(P)), the introduction of the VAT will have the biggest impact on the *taxes less subsidies on products* item, which is added to estimates of industry value added at basic prices to obtain an estimate of GDP at purchasers' prices.

5.12 In addition to the direct effects described above, the introduction of the VAT may well influence the economic behavior of both households and businesses in a variety of ways, and this would have consequential indirect effects on many of the production account aggregates. For example, changes in the relative prices of various goods and services caused by the introduction of the VAT may impact upon consumer behavior, which would therefore affect the various categories of household final consumption expenditure. Such changes in relative prices could also affect expenditure on other aggregates, such as gross fixed capital formation and changes in inventories.

5.13 The introduction of the VAT will have no *direct* impact on constant price measures of GDP and other aggregates. This is because the impact of the VAT on the current price estimates is a price effect and as such it will be removed in the derivation of the constant price estimates. However, there may be significant *indirect* effects on constant price measures for certain aggregates due to changes in expenditure patterns induced by the introduction of the VAT. These changes may also lead to changes in the weights that underlie the compilation of constant price measures of GDP and other aggregates. These weighting effects would likely have only a minor impact on the constant price measures.

5.14 The precise impacts of the indirect effects of the VAT are difficult to predict.

5.15 The introduction of the VAT on prices will also be reflected in the implicit price deflators that can be computed from the national accounts aggregates.

5.16. The increase in nominal GDP attributable to the introduction of the VAT will flow through to the Generation of income account and the Allocation of primary income account, increasing nominal gross

national income. The impact on national saving, however, is less clear as was discussed in paragraph 3.4 above.

5.17 The capital account will be affected by the impact of the VAT on estimates of saving, gross fixed capital formation, and changes in inventories. The impact on the level of domestically induced national saving will be zero and so the only impact on net lending will be that arising from the (likely) small amount of VAT levied on exports of goods and services purchased by tourists.

5.18 As a result of the changes to the current price aggregates caused by the introduction of the VAT, the ratios derived from these aggregates will also be affected. Among these are the ratios of the balance of payments current account surplus/deficit to GDP, external debt to GDP, inventories to sales, imports to domestic sales, and factor incomes to GDP.

5.19 Much of the source data for the national accounts comes from surveys of businesses. If businesses adopt a net (of VAT) system of reporting in their business accounts, it will align with the national accounting treatment[7]. However, where it will not be practicable for businesses to report in strict accordance with the SNA's net system of reporting, it will be necessary for official statisticians to collect the data in accordance with businesses' accounting practices, and adjust it where necessary for national accounts purposes.

5.20 Because most of the impacts of the VAT on estimates of *movement* will be transitory, users will need to exercise caution in interpreting growth rates in current price aggregates for periods affected by the introduction of the VAT. As the price impact of the VAT will generally be removed in the compilation of constant price measures, the growth rates in constant prices will not be *directly* impacted by the introduction of the VAT. However, movements in these estimates may well be affected by *indirect* impacts, such as those associated with changes in expenditure patterns.

5.21 Movements in the implicit price deflators, which are derived by dividing the constant price measure into the current price measures, will reflect both the "pure" price effect as well the impact of compositional changes associated with VAT introduction.

[7] One exception to the preference for net reporting relates to reporting of turnover by retail and selected services businesses. An important use of these data is to measure components of household final consumption expenditure in the national accounts, where it is appropriate that the measure be inclusive of VAT. The CPI should continue to measure final transaction prices inclusive of taxes on products and hence will reflect the VAT introduction. This aligns with the inclusion of these taxes in household final consumption expenditure. Therefore, the CPI will continue to be suitable for deflating current price estimates in order to compile constant price measures for those components of household final consumption expenditure where the CPI is used for this purpose. The various producer price indices that are used to deflate other current price estimates in order to compile constant price measures, should be compiled on a basis that is consistent with the net system of recording.

6. Impact of the VAT on Other Statistics

6.1 Public finance statistics

6.1 The treatment of VAT in public finance statistics needs to be considered from various perspectives:

- The statistical units that comprise the public sector and their institutional sector classification
- The treatment of the VAT within each type of statistical unit
- Issues around inter-country refunds of VAT

Each of these issues is now discussed.

Statistical units and their institutional sectoring

6.2 The diagram below is an adaptation of Figure 2.3 from the International Monetary Fund, G*overnment Finance Statistics Manual 2014,* accessible at;

http://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf.

It shows the public sector as comprising units that undertake general government activities and corporations that are government owned and/or controlled.

6.3 The statistical treatment of the VAT varies depending on the type of public sector unit. These matters are now discussed.

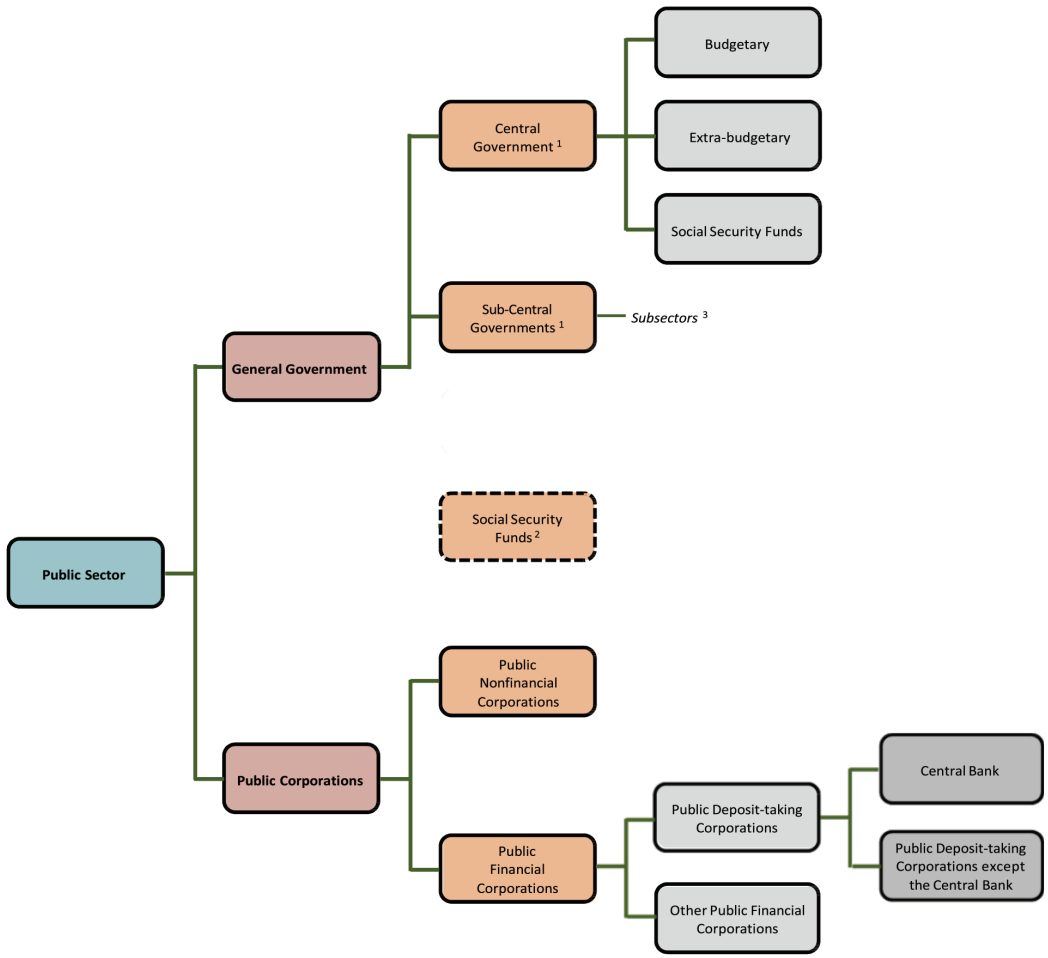
The treatment of the VAT within each type of statistical unit

6.4 For each of the statistical units that are treated as *general government* units, the unit should record all of its transactions (revenue, expenses, capital expenditure) as gross values, including the VAT[8]. When consolidated to the level of total General Government, the VAT received and paid by the individual General Government units will net out.

6.5 At the level of the consolidated General Government, the VAT will be classified as a *Tax on goods and services* within the Government Finance Statistics classification of Taxes[9]. Total taxation revenues will increase by the net amount of VAT revenues that are raised. With the consolidation of the individual General Government units, any VAT included in the non-tax revenue of the individual General Government units will be netted out and hence the consolidated total will be recorded exclusive of VAT. A similar situation will apply with expenses, which on a consolidated basis will be recorded exclusive of VAT. With the consolidation of the individual General government units, the items underlying government final consumption expenditure in Government Finance Statistics and in the expenditure-based GDP will be recorded exclusive of VAT.

[8] International Monetary Fund, *Government Finance Statistics Manual 2014,* paragraph 6.30.
[9] See International Monetary Fund, *Government Finance Statistics Manual 2014(GFSM 2014)* , Table 5.1 (page 88).

The Public Sector and Its Main Components



1 Includes social security funds.

2 Alternatively, social security funds can be combined into a separate subsector, as shown in the box with dashed lines.

3 Budgetary units, extra-budgetary units, and social security funds may also exist in state and local governments.

6.6 At the level of the consolidated General Government, current price gross fixed capital formation will be generally unaffected by the VAT since any VAT paid on such expenditures will be netted out.

6.7 At the level of the consolidated General Government, the cash-based surplus/deficit measure will increase/reduce by the net amount of VAT revenue raised, other things being equal.

6.8 For *public corporations,* the VAT should be treated in the same way as for private corporations. Sales of goods and services by these units that are subject to the VAT should be recorded at basic prices, i.e. excluding the VAT. These units will generally be able to claim back any VAT that they have paid on their

expenses and capital expenditure and hence these items should also be recorded net of VAT (see also paragraph 6.11 below).

Inter-country refunds of VAT

6.9 At the time of writing this Methodological Paper it is unknown whether VAT refunds will be required between the GCC countries. This situation could arise, for example, if a business registered in one GCC country makes purchases that are subject to VAT in another GCC country and the business wishes to claim back the amount of VAT that it has paid on such purchases. Depending on the administrative arrangements that are put in place to handle such cases, it may be that VAT refunds may need to be repaid between GCC Member States. Such is the case in the European Union: see, for example, the Irish Revenue site as an example http://www.revenue.ie/en/tax/vat/refunds/unregistered-persons-vat-reclaims-faqs.html . In such cases, at the level of the consolidated General Government such VAT refunds should be netted out of gross VAT receipts so that there is no over- or underestimation of VAT receipts for individual GCC Member States.

6.10 Again, depending on the administrative arrangements, the authorities in a GCC Member State may be able to charge a fee for handling VAT refunds to other Member States, as is understood to be the case in the European Union. Such fees would be treated as non- tax revenues in the country levying the fee and as part of government final consumption expenditure in the country that pays the fee.

6.2 Annual, quarterly and periodic industry surveys

6.11 The National Statistics Offices conduct annual and other economic surveys and censuses, which cover various industry sectors. As a general rule, the VAT should be *excluded* from the turnover and expenses data collected in these surveys. Likewise, the VAT should be excluded from capital expenditure.

6.12 The exception to the general rule set out in the previous paragraph relates to turnover in the retail trade industry and for those service industries selling direct to households (e.g. hairdressing establishments). Turnover for these industries should include the VAT, which is not refundable to the final consumers.

6.13 Changes in economic behavior by businesses and households associated with the introduction of the VAT, including the timing of purchasing decisions, could impact on many of the data items collected in these surveys. These impacts will likely vary between industries, and cannot be predicted precisely.

6.3 International trade and balance of payments

6.14 In these series, imports of goods should continue to be recorded at Customs value, which is before the imposition of Customs duty and the VAT. Similarly, imports of services should be recorded before the imposition of the VAT. Exports of most goods and most services are not expected to be subject to the VAT.

6.15 The only significant direct effect from the introduction of the VAT on these series will be the impact of price changes on travel credits, that is, on the consumption within a GCC country by non-resident visitors. The imposition of the VAT should see the prices of goods and services consumed by visitors within a GCC country rise. The prices of goods purchased by visitors to take home from a GCC country to their home countries are also expected to rise, but will be partly offset by any VAT refund claimed on goods taken out when the non-resident departs.

6.16 There may also be indirect impacts. The changes in prices associated with the introduction of the VAT may affect the demand for both imports and exports.

6.4 Household income and expenditure survey

6.17 The household expenditure survey was discussed in some detail in Chapter 4 above in regard to its use for CPI weighting purposes.

6.18 As previously noted, household expenditures should be collected inclusive of the VAT since the aim is compile the statistics at purchasers' prices. There will therefore be direct effects on expenditures on various goods and services in the household expenditure survey following the introduction of the VAT, reflecting changes to prices and real incomes as a result of the VAT introduction. Additionally, changes in relative prices will probably influence consumer spending patterns.

6.19 Issues around the timing of the conduct of the household expenditure survey following the introduction of the VAT were discussed in Chapter 4 above. The critical issue is that any changes to spending patterns associated with the introduction of the VAT should be allowed to "settle down" before the survey is undertaken to ensure that a "steady state" is reached so that the spending patterns revealed will be robust for CPI weighting purposes.

6.5 Other statistical series

6.20 Some GCC countries conduct tourist accommodation surveys. The VAT should be included in the takings from accommodation and other services (such as food services) since this series should be compiled at purchasers' prices.

7. Opportunities to Use VAT Administrative Data for Statistical Purposes

7.1 Introduction

7.1 The administrative data that will be generated from the VAT system can be very helpful in the compilation of official statistics. Official statisticians should be proactive in working with the taxation authorities to ensure that the data sets and the administrative processes can be used for this purpose. Clearly, the requirements of the taxation authorities must be paramount; the important point here is that the needs of the statisticians will not conflict with the needs of the taxation authorities. In fact, quite the contrary is the case: the arrangements that will be most helpful for official statistical purposes will also support the effective administration of the VAT.

7.2 This chapter discusses how a VAT administrative system can be used by official statisticians to compile important statistical series. It first discusses the important pre-requisites that will need to be in place if the statisticians are going to use the VAT-sourced data for official statistics purposes.

7.2 Business registration

7.3 At the time of preparing this Methodological Paper, it is not clear what the process will be for businesses and other organizations to register for VAT purposes. All organizations will, however, need to be assigned an unique reference number that will be used for VAT purposes. This number will need to appear on all invoices and receipts issued by the businesses.

7.4 It may be that the existing business registrations and reference numbers will be used. On the other hand, a new registration process may be needed. In any case, any organizations that are not currently registered, but will wish to seek reimbursement for VAT that they have paid on their purchases, will need to register.

7.5 As an aside, it has been argued that the introduction of a VAT reduces the cash economy because businesses that wish to buy and sell with other VAT-registered businesses must themselves be VAT-registered. This may trigger a flurry of new business registrations.

7.6 Organizations that are registered for VAT purposes can be either natural persons (in the case of sole trader or partnership businesses) or registered legal entities. In statistical terms, these units are referred to as “enterprises”. Official statisticians will be interested in having these VAT-registered entities classified to an industry[10] and also to institutional sector[11].

[10] The current international standard industry classification is the United Nations International Standard Industrial Classification of All Economic Activities, Rev.4 (ISIC Rev.4), accessible at http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27

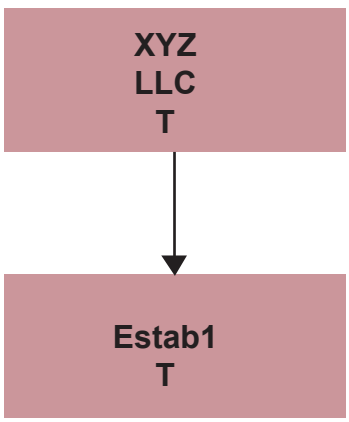
[11] See SNA 2008, paragraphs ***4.24 – 4.32***.

7.7 While the VAT administration applies to enterprises, official statisticians are interested in compiling industry statistics in respect of "establishments" or "kind of activity units"[12]. It is in this context that statisticians should work closely with the VAT administration authorities to develop practical compromises to ensure that the VAT source can be used for statistical purposes. Two examples illustrate the issues.

Case 1 Single establishment enterprise

7.8 In this hypothetical example, we have an enterprise that has one establishment that is engaged in the transport industry. The enterprise will also be industry classified to the transport industry.

Case 1: Single establishment enterprise



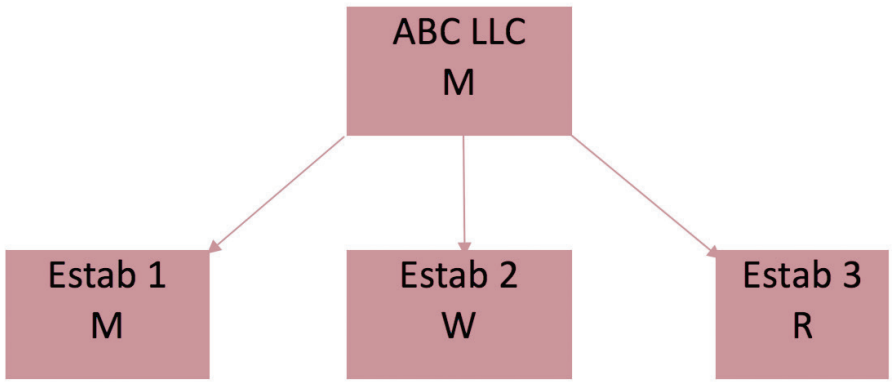
7.9 It does not matter in this case that the VAT data are collected at the enterprise level. The enterprise is classified to the same industry as its establishment and hence industry statistics will be recorded correctly.

Case 2: Multi-establishment enterprise

7.10 In this hypothetical example, we have an enterprise that has three establishments: one engaged in manufacturing activity, one engaged in wholesaling activity and one engaged in retail activity. The establishment that is most significant is the manufacturing establishment and hence the enterprise is classified to the manufacturing industry.

[12] See SNA 2008, paragraphs 5.12 to 5.17 for discussion on production units including kind of activity units and establishments.

Case 2: Multi-establishment enterprise



7.11 In this case, if the enterprise is the unit that is registered for VAT purposes, then all of the economic activity of the three establishments will be classified to the manufacturing industry. This would be a different result to statistics that have been compiled in respect of the three establishments. If the enterprise is statistically *insignificant*, it probably does not matter much that its economic activity is being attributed to only one industry. However, if the enterprise is statistically *significant*, then this would be a matter for concern. In these cases, the official statisticians should be encouraging the tax authority to register this business for VAT purposes along business lines associated with its three establishments.

7.12 The key point is as follows. If the data collected for VAT administration purposes are going to also be used for statistical purposes, it matters a lot what the VAT unit represents. Official statisticians should seek to work with the taxation authorities to ensure outcomes that will be sympathetic to the needs of official statistics, while at the same time, of course, ensuring that the integrity of the VAT administrative system is not compromised.

7.3 Content of the VAT form

7.13 It will be apparent from Chapter 2 above that the range of accounting data that the taxation authorities will need to collect from businesses and other organizations for VAT administration purposes may be very useful to statisticians in compiling official statistics. The sorts of data could include:

- Turnover
- Intermediate consumption
- Capital expenditure[13]

7.14 The derived item, Industry value added, is calculated as Turnover minus Intermediate consumption. These data will be of considerable interest to statisticians in compiling industry statistics and the national

[13] In the European context, the VAT reporting form includes information about supplies, output VAT, input VAT, tax due, VAT period, imports, acquisitions, exports, dispatches and removals. This means that turnover and purchases subject to VAT, by VAT rates and not subject to VAT, are available.

accounts as will be explained below. However, for the data to be most useful for statistical purposes, it is important that:

- All turnover be reported, not just turnover on sales of goods and services subject to VAT;
- Operating expenses be separately reported to expenditure on capital purchases (so that we have a "pure" measure of intermediate consumption)
- We must know whether turnover, operating expenses and capital expenditure are being reported gross or net of VAT

7.15 Within the turnover item, it will also be very helpful if:

- Export sales, which are usually VAT-exempt, are separately reported. If this is the case, the VAT data could be a very useful source of information on exports of services (from businesses classified to service industries) as well as being a useful source of data on exports of goods (from businesses classified to goods producing industries) as a check against the data on goods exports coming from the Customs authorities.
- Other sales not subject to VAT are included in the turnover item so that we have total turnover.

7.16 Again, official statisticians will need to be proactive in working with the taxation authorities to ensure that the data content of the VAT administrative form will be suitable for statistical purposes. The data items of interest to the statisticians as set out above will also be of interest to the taxation authorities in the effective administration of the VAT.

7.4 Frequency and timing of VAT reporting

7.17 Again, at the time of preparing this Methodology Paper, it is not clear what the timing arrangements will be for reporting to the taxation authorities. The **frequency** of VAT reporting by businesses is also critical from a statistical perspective.

7.18 In some countries that have VAT systems in place, reporting is as follows:

- "Large" businesses – monthly
- "Medium" businesses – quarterly
- "Small" businesses – annually (but many choose for cash flow reasons to report quarterly)

The definition of what is "large", "medium" and "small" varies by country.

7.19 From a statistical perspective, ideally, we need "most" of the business population to report at least quarterly so that we can use VAT-sourced data for:

- Compiling quarterly economic indicator statistics
- Compiling quarterly national accounts

Statisticians also need to know what proportion of businesses has reported at least quarterly, so that estimates can be made for the remaining business population.

7.20 Statisticians should be seeking to influence the frequency of business reporting for VAT purposes. It is also important that the timing of lodgment of VAT forms to the taxation authorities be considered. For example, if the VAT source is going to be used for compiling the quarterly national accounts, the VAT data will need to be available within those timing needs. Again, it is expected that the frequency and timing needed for statistical purposes would not in any way be inconsistent with the needs of the taxation authorities.

7.5 Use of VAT-sourced data in compiling statistics

7.21 As already noted, the VAT data source can be very helpful to statisticians in compiling economic statistics. If set up in a way that is sympathetic to the needs of official statisticians, the VAT register of businesses and other organizations can form the basis for a statistical business register from which sample surveys can be drawn to compile business statistics. The VAT data themselves can also be very useful for directly compiling statistics about industries.

7.22 The VAT source can also be very useful in compiling quarterly and annual national accounts:

- Production-based GDP (GDP(P)) is calculated as the sum of *Industry Value Added plus Taxes less subsidies on products.* With some qualifications, value added can come from the VAT source. The VAT itself is a tax on products. Clearly, much of the source data needed for compiling GDP(P) can be available from the VAT administrative source, providing that the issues discussed above have been adequately addressed.
- Some of the source data needed to compile expenditure-based GDP (GDP(E)) can also be generated from the VAT administrative source. GDP(E) is calculated as *Final Domestic Expenditures plus Exports less Imports of Goods and Services.* The VAT source, if set up appropriately from a statistical perspective, could provide useful source data on:

- ✓ Household final consumption expenditure
- ✓ Gross fixed capital formation of businesses
- ✓ Exports of goods (a check against the Customs data)
- ✓ Exports of service*s*

7.23 In the European context, the official statisticians also use the tax audit information in their exhaustiveness quality control checks on the national accounts.

7.24 Clearly, the VAT source has important potential benefits for official statisticians in terms of a very cost-effective source of information for compiling important official statistics. Indirectly, businesses can also derive benefit: to the extent that statisticians can use data that businesses have to provide anyway for tax administration purposes, it lessens the likelihood that they will need to provide similar data in economic surveys. Good collaboration between the tax administrations and the official statisticians can result in a “win-win-win” for the taxation authorities, the official statisticians and businesses.

8. Measuring the Impact of the VAT

8.1 In some countries, National Statistical Offices have been requested by policy makers to inform on the impact of the introduction of the VAT. Examples include:

- What was the inflationary impact?
- What was the effect on household spending patterns?
- What was the impact on GDP growth rates?

8.2 It is important that statisticians gear up to be able to meet these important demands. The experience of other countries can be very helpful here.

8.1 Impact on inflation

8.2 This matter has already been discussed quite extensively in Chapter 4 and a possible option for informing on this matter is presented in Attachment A.

8.3 It has been suggested that it would be possible to compile an *experimental constant fiscal take measure.* More specifically:

- The experimental constant fiscal take measure would take the form of providing an estimate of the proportion of the change in the published CPI attributable to the introduction of the VAT, rather than an index number.
- The measure would only abstract from the *direct* or *first round* effects of tax changes on the prices of consumer goods and services included in the CPI.
- The constant fiscal take measure would be constructed with reference to the scheduled rates of tax prevailing at the time of the introduction of the VAT.

8.2 Impact on household spending patterns

8.4 Again, this matter has been covered in some detail in Chapter 4. The reality is that it is impossible for official statisticians to answer the question: *What is the impact of the introduction of the VAT on household spending patterns?* Statisticians measure household spending patterns through the conduct of Household Income and Expenditure Surveys. Putting to one side the costs and practical difficulties of conducting such a survey immediately before and immediately after the introduction of the VAT, a comparison of the results could not isolate the impact of the introduction of the VAT. There could be a range of reasons why spending patterns might change between the two periods, including changing consumer tastes, introduction of new products, changes in underlying relative prices, and changing household incomes.

8.3 Impact on economic growth rates

8.5 As discussed in Chapter 5, other things being equal, the introduction of the VAT will increase the level of current price GDP going forward. In the period in which the VAT is introduced, the *growth rate* in current price GDP will be artificially inflated. It will be impossible to determine how much of this growth rate has been due to the introduction of the VAT and how much has been due to changes in underlying economic conditions.

8.6 Because the level of current price GDP will be higher than it otherwise would have been in the absence of the VAT, all ratios that use current price GDP in their calculation will be impacted. Examples would be exports to GDP, government surplus/deficit to GDP, health spending as a proportion of GDP, etc.

8.7 Assuming that the price indices used for deflation purposes have correctly treated the VAT in accordance with the international statistical standards, then the growth rate of constant price GDP and its components will *not be directly* impacted by the introduction of the VAT. However, there could be some indirect impacts at play due to changes in economic behavior of businesses and consumers. In the absence of sophisticated economic modelling, it will be impossible to discern these indirect impacts.

8.4 Impact on household income

8.8 As previously noted, the introduction of the VAT will increase the CPI. In the absence of any compensation to households for this permanent increase in prices for the goods and services to which the VAT applies, real household incomes will be less than they otherwise would have been had the VAT not been introduced. Using the method that has been suggested to isolate the first round effects of the VAT on the CPI, it may be possible to calculate a first round impact of the VAT on real household incomes.

8.9 Of course, it is quite likely that households will, over time, adjust their spending behaviors to try to preserve the real purchasing power of their incomes. It will not be possible to compile statistics that can demonstrate that this is happening.

Attachment A: A Possible Option for Assessing the Impact of the VAT on the CPI

A.1.The Consumer Price Index (CPI) measures final transaction prices, inclusive of indirect taxes, of which the Value Added Tax (VAT) is one. As such, the introduction of the VAT will have a direct impact on the CPI.

A.2. There may be considerable policy and community interest in official statisticians providing an answer to the question **What is the impact of the introduction of the VAT on the CPI***?* This Attachment suggests a possible approach to answering this question, which unfortunately is one that cannot be answered precisely by statisticians.

A.3. Ideally, one would want to construct a measure of price change that was totally free of the effects of the tax change (which would enable the impact of tax change to be calculated by deduction). However, all of the generally accepted options available to statisticians are only able to provide a measure of the direct, or first-round, effects of the introduction of the VAT on the CPI. None of the options can measure the second-round and subsequent (or flow-on) effects on final consumer prices of, for example, consumer substitution from relatively higher priced goods and services to relatively lower priced items.

A.4. Of those options generally available to statisticians, the *constant fiscal take measure* (CFTM) provides the best measure of price change abstracting from the introduction of the VAT (notwithstanding its inability to take account of the impact of second-round effects). Compiling this measure requires an estimate of the monetary amount of tax in each price.

A.5. The option involves constructing a measure that keeps the amount of tax collected constant. No adjustment to base period prices is required. Comparison period prices are adjusted to reflect the amount of tax collected, if any, in the base period (i.e. the amount of tax collected in the comparison period is subtracted, and the amount of tax collected in the base period, if any, is added).

A.6. A measure of this type provides a consistent means of decomposing price change at the individual commodity and the aggregate index level. For example, if final prices comprise three elements: production costs, margins and taxes, then a measure that holds one of these elements constant can be compared with the headline measure to derive the relative contribution of the constant element to aggregate price change. A measure of this type can be said to approximately answer the question: *By how much would the CPI have increased if the VAT had not been introduced*? It therefore follows that the difference between this measure and the CPI equals the first round contribution of the introduction of the VAT to the overall movement in the CPI.

A.7. The CFTM method estimates the price that would have been charged if the VAT had not introduced. It is calculated as:

$$P_t^* = P_t - T_t + T_0$$

Where

P_t^* = estimate of price in period **t** with period 0 taxes that did not have the VAT

P_t = observed price in period **t**,

T_0 = the amount of tax in period 0 (assumed to be zero since there was no VAT in that period)

T_t = the amount of tax in period **t** (i.e. including the VAT)

A.6. The measure of price change without the VAT is given by the ratio of P_t^* / P_0. The equivalent CPI measure is given by P_t / P_0. The difference between the two can be seen as being the first round effect of the introduction of the VAT.

9. List of references

1. Advisory Committee to Study the Consumer Price Index (Boskin Report), *Toward a More Accurate Measure of the Cost of Living, Final Report,* December 1996
2. International Monetary Fund, *Government Finance Statistics Manual*, 2014
3. United Nations, *International Standard Industrial Classification of All Economic Activities, Rev.4*
4. United Nations, *System of National Accounts*, 1993
5. United Nations, *System of National Accounts,* 2008
6. Wikipedia, *Value Added Tax*