Estimating Tourism Direct GDP with limited data*

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1. Introduction

Tourism has an impact on the economy, the natural and built environment, the local population at the places visited and the visitors themselves. Owing to this range of positive and negative impacts and the wide spectrum of stakeholders involved, there is a need for a holistic approach to tourism development, management and monitoring. Increasingly, in tourism and beyond, stakeholders are also concerned with how tourism may support or deter efforts towards sustainable development more broadly. Indeed, the Sustainable Development Goals (SDGs) have three Goals (Goal 8, 12 and 14) that explicitly mention sustainable tourism (under targets 8.9[†], 12.b[‡] and 14.7[§]). Yet the available data on tourism is largely economic.

To close this gap, UNWTO, together with leading countries and in partnership with international organizations like UNDESA-UNSD and ILO, launched Measuring the Sustainability of Tourism[**] (MST). The aim is to develop a statistical framework to measure the impacts and dependencies of tourism on the economy, society and the environment, at both the national and sub-national levels. MST is the framework recognized by the UN Statistical Commission for monitoring the contribution of Tourism to the SDG Agenda.

As part of the process of developing indicators for monitoring progress towards the SDGs, the indicator that has been established for monitoring target 8.9 is tourism direct gross domestic product (TDGDP) which is used to measure progress on the economic dimension. Target 8.9 has several dimensions and indicator 8.9.1 caters to the core intention of the target which calls to *"promote sustainable tourism*". While sustainable tourism is multidimensional in itself (with

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† By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products

‡ Target 12.b: Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

§ Target 14.7: By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.

** World Tourism Organization (n.d), On Measuring the Sustainability of Tourism: MST, online available at: https://www.unwto.org/tourism-statistics/measuring-sustainability-tourism [01-12-2022].

economic, social and environmental aspects), the economic contribution of tourism captured by this indicator, and (relative) increases or decreases in it, indicates the degree to which tourism is being successfully promoted.

TDGDP is useful for policy on tourism at international, national level and the level of sub-national regions as it provides a measure of the economic contribution of tourism which can be compared over time, across countries, to total GDP and to the GDP contributions of other economic activities. Tourism Direct GDP includes the contributions from all forms of tourism—inbound tourism, domestic tourism and outbound tourism—in line with the International Recommendations for Tourism Statistics 2008 (IRTS 2008). The indicator has been found especially useful in raising awareness of the economic importance of tourism and making the case for a more proactive, sustainable management of a sector that is often overlooked in policy agendas at all levels.

TDGDP is a measure of the contribution of tourism activity to overall economic activity. It is measured using the conceptual framework of Tourism Satellite Accounts (TSA) that has been adopted by the UN Statistical Commission and is described in the Tourism Satellite Account: Recommended Methodological Framework, 2008 (TSA:RMF) (UN, 2008). The TSA framework is described in conceptual alignment with the System of National Accounts (SNA) (EC et al, 2009) which provides the conceptual basis for the measurement of gross domestic product (GDP) as measured in all countries.

While the conceptual framework for the compilation of TSA and the derivation of TDGDP is well-established and represents a conceptually refined approach, in practice, the implementation of TSA at national level has been limited by real and perceived complexities in measurement including a lack of data. Common issues concern the capacity to distinguish international and domestic visitors, the lack of industry and product detail and the overall cost of additional data collection and account compilation. Notwithstanding these challenges, according to the UNWTO Tourism Statistics Database[††], 80 countries have conducted a TSA exercise in the period between 2016 and 2020 and it has proved a useful tool to advance the recognition of tourism as a key economic sector and to underpin analysis relating to tourism investment and growth.

Unfortunately, especially from the perspective of monitoring SDGs which requires reporting from all countries, there is a general perception that the TDGDP indicator can only be suitably derived if TSA are well established. The measurement challenges just noted with respect to TSA thus emerge as a significant barrier to reporting on TDGDP.

This paper describes an approach that might be used in the short term to compile estimates of TDGDP using the conceptual framing of the TSA using the most commonly available data but not requiring the full compilation of TSA. In this regard, the proposed approach is intended to provide a starting point for countries that can then move towards the compilation of TSA and the more complete measurement of TDGDP. It should not be seen as providing a measure of as high a quality as would be derived were TDGDP to be derived from fully compiled TSA.

[††] https://www.unwto.org/tourism-statistics/economic-contribution-SDG

2. The TSA framework and the derivation of TDGDP

The TSA: RMF provides a complete articulation of economic flows associated with tourism activity. The framework is presented in 10 tables with tables 1-7 generally considered to reflect the core TSA tables. Tables 1-3 present data on tourism expenditure by different forms of tourism (inbound, domestic and outbound), by type of product and by class of visitor (international and domestic). Table 4 combines information on Tables 1 and 2 to provide a measure of internal (to the country) tourism expenditure and also incorporates other components of total tourism consumption (own-account vacation accommodation, tourism social transfers-in-kind and other imputed consumption).

Table 5 is a refinement of standard national accounting production accounts that highlights the economic activity of tourism industries and other industries with respect to products provided to visitors. The key components of this table are measures of output by type of tourism characteristic product for each tourism industry. Importantly, this table does not distinguish as to whether the output is purchased by visitors or non-visitors.

Table 1. Categories of tourism characteristic consumption products and tourism industries

Consumption products	Tourism industries
1. Accommodation services for visitors	1. Accommodation for visitors
2. Food and beverage serving services	2. Food and beverage serving activities
3. Railway passenger transport services	3. Railway passenger transport
4. Road passenger transport services	4. Road passenger transport
5. Water passenger transport services	5. Water passenger transport
6. Air passenger transport services	6. Air passenger transport
7. Transport equipment rental services	7. Transport equipment rental
8. Travel agencies and other reservation services	8. Travel agencies and other reservation services activities
9. Cultural services	9. Cultural activities
10. Sports and recreational services	10. Sports and recreational activities
11. Country-specific tourism characteristic goods	11. Retail trade of country-specific tourism characteristic goods
12. Country-specific tourism characteristic services	12. Other country-specific tourism characteristic activities

This table also presents information on aggregate output, intermediate consumption and value added for all tourism industries and the output of tourism products by non-tourism industries. As presented in the TSA:RMF there are 10 key tourism characteristic products and 11 tourism industries. These are listed in Table 1 (above).

As described in TSA:RMF, Table 6 is the core of the TSA system and reflects the point at which estimates of tourism consumption (tables 1-4) are reconciled with estimates of tourism supply (table 5). The reconciliation of supply and use is a standard feature of national accounting – in short, the value of tourism products consumed should be equal to the value of tourism products supplied.

To provide context for the accounting process, consider the tourism characteristic product of food and beverage serving services. The total expenditure by visitors on this product is recorded in Tables 1-4. Of particular interest in the context of estimating TDGDP is the internal expenditure on these services, i.e. expenditure by inbound and domestic visitors (as aggregated in Table 4). Table 5 records the output (sales) of food and beverage services by all industries with a focus on tourism industries. Thus, for example, it may record output by the accommodation industry, the food and beverage industry and the sports and recreation industry. In Table 5 however, the output recorded will include sales to both visitors and non-visitors.

The aim in Table 6 is to match the total visitor expenditure on food and beverage services (internal tourism consumption from table 4) with the industry output based measures of that product. The first expectation is that the total output for the service (across all industries) is higher than that total visitor expenditure. This being the case then an aggregate tourism ratio for that service can be derived (i.e. visitor expenditure / total expenditure). A tourism ratio can also be established for each industry by allocating the visitor expenditure to each relevant industry. Since the information on visitor expenditure and on tourism industry output will generally come from different sources, Table 6, simply provides a framework for considering all of these data in the same context. Table 2 below provides a stylized set of entries for this example but ignores a range of variables such as imports, and net taxes on products.

Table 2: Stylised entries for food and beverage services

	Tourism industries				**Other industries**	**Total**	
	Accommodation		Food and beverage serving industry				
	Output	of which Tourism	Output	of which Tourism		Output	of which Tourism
Product							
Food and beverage services	90	40	600	350	0	690	390
Non-food and beverage products	410	380	0	0	1000	1410	380
Total output	500	420	600	350	1000	2100	870
Total intermediate consumption	280	na	450	na	600	1330	na
Gross value added	220	na	150	na	400	770	na
Value added ratio	0.44	na	0.25	na	0.40	0.37	na
TDGDP (TDGVA)	na	184.8	na	87.5		na	272.3

Once the estimates of visitor expenditure have been allocated to industry, estimates of tourism direct gross value added (TDGVA) can be derived by multiplying the value added for each industry by the share of its output that has been purchased by visitors, and summing across industries. TDGDP is derived by adding to TDGVA estimates of relevant taxes and subsidies on products applicable to visitor expenditure. (Note that since in Table 2 above no taxes have been included TDGVA will equal TDGDP.)

Since the precise production processes will vary by product and industry, the logic of the approach works best when the compilation takes place at quite detailed industry and product level – i.e. where there is a high degree of homogeneity within the industry and product classes. For a more detailed description of the reconciliation and indicator derivation process see TSA:RMF 4.47-4.61. Where data are available to compile estimates for TSA Tables 1-6, then the derivation of TDGDP is relatively straightforward. Of course it is unlikely that the data available will be ideal but nonetheless the framework provided gives a sound basis for considering the estimation process. It is particularly important that the method is undertaken in the context of the broader national accounts estimates that are generally compiled with a relatively high level of resourcing and are subject to scrutiny from a wide range of external parties.

Beyond these 6 tables, there are four other TSA tables. TSA Tables 7-10 cover employment, gross fixed capital formation, tourism collective consumption and non-monetary indicators (e.g. duration of stay, accommodation capacity, number of tourism establishments). In an ideal data situation the information on these topics would be complementary but not required for the derivation of TDGDP.

However, since these data provide information to support a broader understanding of tourism activity, in cases where the data availability for Tables 1-6 is not complete, the information in Tables 7-10 will be of particular use.

3. Accounting principles and approaches

Before considering the derivation of TDGDP with more limited data, this section considers the relevant accounting principles and objectives. This is needed such that the estimation of TDGDP is completed in an appropriate context. National accounting has a particular approach to estimation that is different in a number of ways to survey based or modeling based approaches although there will appear many similarities to these approaches.

Perhaps the key principle in applying national accounts in practice is recognizing that accounting works "from the outside in". That is to say, it is important that each component and part of the national accounts is seen within a broader context. It is thus not simply a matter of estimating a tourism statistic but rather measuring tourism in the context of the broader economy. The same is true of other industries and economic variables. There is no advantage in having many excellent individual estimates of the components of GDP if, in combination, they cannot provide a coherent picture. Indeed, from a national accounting perspective these would not represent excellent estimates in the first instance. Ultimately then the objective in national accounting is to provide a "single best picture" of economic activity. The estimation of TDGDP should take place with a similar mindset. The strongest starting point therefore must be to consider the current measures of economic activity that are available within a country.

At the same time, there is no doubt that the best measures of economic activity, and of TDGDP, will emerge when there is collection of high quality data on all of the elements. Given the variety of the elements, it is not expected that all of these elements are collected in a single survey or from a single administrative source. Consequently, however high the data quality, techniques must be found to reconcile the different pieces of information. Ultimately, one of the key strengths of national accounting is that GDP can be measured in three conceptually equivalent ways – via measurement of production, measurement of income and expenditure. By assessing the coherence of data through these three measures, ideally using a supply and use or input-output based approach, a single best picture can emerge.

In undertaking coherence, a second important principle is one of materiality or relative significance. While accounting is designed to ensure comprehensive coverage of the reference economy or part of the economy, it is accepted that certain aspects will be more important to focus on than others, i.e. some aspects of the economy are more material than others. The decisions on which aspects are more material is clearly somewhat objective and in many regards is similar to the requirement in modeling to hypothesise significant variables. The difference for accounting is that there is always a clear understanding of what has been excluded since the conceptual measurement boundaries are well defined. It should always be the case that in a national accounting exercise the issues of coverage are well documented. In effect, choices made in deciding to include or exclude certain aspects based on an assessment of materiality reflect measurement assumptions.

The third key principle is that the accounting results reflecting a single best picture must be considered in relation to change over time and also in relation to other information. The measurement of change over time is a fundamental aspect of accounting, national accounts in this sense provide a statistical economic history. Since data sources change over time, methods for estimation must also change but the outcome of measurement in terms of GDP or TDGDP should still reflect a continuous measure of the agreed concept. Put differently it must provide a single best picture over time.

The desire to align with other information is not an accounting requirement per se but represents a general logic of telling a coherent story that meets reasonable bounds of common sense. For example, unless there was strong information to the contrary, one would expect growth in the labour force and growth in economic activity to be related. Similarly, at an individual activity level, positive connections between visitor numbers and expenditure would be expected. Using these types of generally understood relationships is important in utilizing as much information as possible to inform the estimation of the accounts. To the extent that this additional contextual information is not used directly in the estimation then there is no specific methodological statement that is needed. However, it may well be that in limited data situations such additional information can be used to inform a more complete picture. In which case, the relevant assumptions will need to be well described since even generally understood relationships should not be taken for granted and, at the very least, will change over time.

An overarching theme for national accounts compilation is the need for integration of data. This being the case then where the requirement is the integration of data from specialist areas, such as tourism, a key factor in the success in measurement will be working with experts across different measurement areas. Establishing appropriate mechanisms for this engagement of experts and discussion of data is an important consideration.

Given the variety of data sources and the methodological challenge of aligning demand and supply side information, the measurement of TDGDP cannot be perfect. This sense is actually quite clear in the TSA:RMF where the discussion highlights the need for assumptions to associate the connection between value added at the industry level and consumption by product. National accounting is particularly suited to this challenge since issues of materiality and context become fundamental in assessing the robustness of the measure. The overall objective then must be to derive the best possible measure of TDGDP based on available data to inform current policy and analysis.

4. A summary method for deriving TDGDP

The derivation of TDGDP described in section 2 has three primary components:

- Estimating the total value of tourism internal consumption expenditure
- Determining which industries are the producers of the different goods and services consumed
- Attributing a value added ratio for those industries

While an ideal approach involves a detailed attribution of the component products of tourism consumption to specific tourism industries, the logic proposed here is to adopt a more stylized, higher level approach. This approach will retain the conceptual intent described in section 2 but

involves some additional assumptions which are described in this section. These assumptions reduce the data requirements but will need to be the subject of discussion among experts and where possible testing with additional investigation.

To provide an overview of the approach consider Table 3 below which is a re-presentation of Table 2 above. No data have been included, rather certain cells have been highlighted to show the order of implementation of the method.

Table 3: Steps in estimating TDGDP

	Tourism industries				**Other industries**		**Total**	
	Accommodation		Food and beverage serving industry					
	Output	Tourism	Output	Tourism	Output	Tourism	Output	Tourism (Internal consumption)
Product								
Tourism characteristic products								
Other products								
Total output	**Step #3**	**Step #2**	**Step #3**	**Step #2**	**Step #3**	**Step #2**		**Step #1**
Total intermediate consumption								
Gross value added								
Value added ratio								
TDGP		**Step #4**		**Step #4**		**Step #4**		**TDGDP**

Step #1 involves the estimation of total tourism internal consumption. The definition of tourism internal consumption is described in the TSA:RMF. For the purposes of this method the focus should be on measuring the total consumption rather than information on a product by product basis although this information will be useful in Step #2. To frame the measurement of tourism internal consumption the following main categories should be areas of focus for measurement. For this method, while the total consumption should be as accurate as possible, estimates for each category of expenditure do not need to be precise and so may be estimated on the basis of shares of overall expenditure. To apply the method it will be useful to identify the consumption of goods since these have a slightly different treatment in the derivation of TDGDP.

Table 4: General categories of tourism consumption

General categories of tourism consumption	
Accommodation	Purchased
	Imputed
Food, restaurants, beverages	
Transport	Air
	Other
Recreation and cultural services	
Tourism specific goods	
Other products	

This information might be collected via a combination of visitor surveys, household surveys or more indirect sources such as from transport statistics and price information. Support for measurement of tourism consumption should also be found in consideration of relevant estimates in the national accounts and balance of payments. This paper does not provide a compilation guide for the estimation of tourism consumption, it is however assumed that there are sufficient data available to provide a good estimate of total tourism internal consumption.

In **step #2**, the total tourism internal consumption is allocated to different industries that are considered the primary source of production. It is not essential that there is perfect knowledge of the connection between supply and demand. The general aim is to make a well-informed connection between the types of consumption and the relevant supplying industries. An important issue is the level of detail with which estimates of supply are available. This method assumes that the level of detail will align with the level of industry detail published in the national accounts for a country. As a minimum it is expected that this would be available at the 1-digit level of ISIC or equivalent. This is likely more aggregated than ideal but will provide a strong starting point for the estimation of TDGDP.

There are two main sources of information to support this allocation – the information on the product composition of tourism internal consumption (from step #1) and other information on the structure of the demand and supply of products, i.e. ignoring the issue of whether the products are purchased by visitors. Information on economic structure might be obtained from current or past supply and use or input-output table or from comparisons to other similar countries (as per Bannerjee, 2016). The key in the allocation process is to ensure that all tourism internal consumption is allocated to an appropriate industry, it will be the relative share of the industry that is most relevant to the accuracy of the TDGDP measure.

In the standard TSA situation, the output of each industry would be valued at basic prices. In this method, by allocation tourism internal consumption to industry the valuation that is being used reflects purchasers' prices. Since TDGDP is measured in purchasers' prices this is not a specific concern here but it should be clear that the intermediate results internal to this method are not consistent with standard TSA entries.

In **step #3** value added ratios are estimated at the same level of industry detail as used for the allocation in step #2. Since this level of industry detail comes from the published national accounts then it is reasonable to assume that estimates of value added should be available at that level of detail. Estimates will also be needed of output at the same level of industry detail. Because both of these pieces of data should be available from the standard national accounts they will both be measured in basic prices rather than in purchasers' prices as in step#2. However, since it is a ratio that is being estimated then this should have more limited impact.

In **step #4** the value added ratios from step #3 are applied to the allocations to industry from step#2 and then summed across all industries to provide an estimate of TDGDP. Note that because the value added ratios are applied to estimates measured in purchasers' prices, this method does not support derivation of TDGVA which is measured in basic prices.

The conceptual logic of this approach is consistent with the TSA:RMF. The main difference is that it is not expected that the level of detail of information by tourism product and industry is the same nor that there is a full balancing of supply and demand. It is important that the estimate of tourism internal consumption is as accurate as possible as this defines the overall scale of the TDGDP estimate.

As for the standard TSA:RMF description of the estimation of TDGVA and TDGDP, there will be a link between the accuracy of the estimate and the level of industry detail at which the value added ratios can be calculated and applied. An area for testing this method should be in countries where fine and more aggregate level of industry detail are available such that the general sensitivity of estimates to the degree of industry detail can be assessed.

It is noted as well that while the use of a finer level of industry detail is likely to improve the accuracy of the absolute value of TDGDP, provided that the relative structure of the tourism industry remains stable within the overall economic structure, then the use of a more aggregated approach should still provide good estimates of the rate of change in TDGDP which may be a useful indicator in its own right. For example, it may be compared to the overall rate of change in GDP to obtain a sense of relative performance or, on its own it can be used to indicate the direction of growth for tourism activity (ideally when adjusted for price change).

To give additional context to the application of this approach, a similarly motivated study but one focused on the estimation of the economic structure and contribution of tourism was described in Bannerjee et al (2016). In their work, they developed a computable general equilibrium model to estimate the impacts of tourism investment in Belize. Belize is a relatively data poor country but effective modeling was put in place through the use of various national accounting principles and ratios and linking relevant data sets within a broader input-output structure.

5. Implementation

Consistent with the national accounting principles described in section 3, the objective is to establish plausible and defensible measures of TDGDP based on available data. It is not the expectation in using this method that the results will generate an ideal measure that could be derived if the data available were more complete and of higher quality. However, the results should be robust and considered meaningful in the context of understanding the level and growth of tourism activity in a country.

Importantly, while the concepts of the TSA framework are being used in this method to underpin the measurement of TDGDP, it is not expected that the underlying data would constitute a publishable TSA although many of the various pieces of information will have been brought together. The analogy would be to the estimation of GDP using a supply and use table where all economic variables are confronted and the estimation of GDP in stand alone fashion using a more limited set of data. Both approaches are conceptually consistent but the former is likely to be of higher quality and will support a more detailed interrogation of the data. Thus, application of this proposed method will provide an initial estimate of TDGDP but will not provide the more complete set of advantages that would be obtained if a complete TSA was compiled.

In terms of implementation of the method, five key stages are envisaged. Each of these stages is described briefly below noting that the intent is not to replicate a compilation guide for tourism statistics or TSA. The five stages are:

i. Assessment of available data
ii. Evaluation of similar countries
iii. Organization of data and population of basic tables
iv. Derivation of TDGDP
v. Testing of assumptions

Assessment of available data

The first stage involves the assessment of available data. For the purposes of the method described here the following data sources are considered to form a base dataset. Ideally, the information should be available for a common reference year at a national level but if not then adjustments may be made to bring all of the information to a common comparison point.

- National accounts data on value added by industry, potentially only at higher levels of aggregation, e.g. ISIC division level. Key industries will be accommodation, restaurants and transport.
- National accounts data on Household final consumption expenditure by type of consumption product. Some component may be based on household income and expenditure surveys.
- Data on visitor movements including international visitors and length of stay
- Data on visitor expenditure either total or average daily expenditure by main tourism product
- Balance of payments data on travel related exports of services
- Data on accommodation nights and expenditure
- Data on passenger movements, especially air transport
- Listing or register of businesses including the number of businesses by industry and by size
- Information on employment by industry
- Population census information showing levels of income per capita
- Consumer price information on tourism related products

Evaluation of similar countries

In establishing TDGDP estimates it is very appropriate to consider the methods and results from other countries, especially those that might have similar economic, geographical and tourism activity structures. For example, countries in a similar region, with similar climate and geography (e.g. area of country, features (mountainous, island, etc.)) will be more likely to have similar industrial structures and potentially similar types of tourism industries. Relevant variables to make the comparison would thus be

- Location and size of country
- Population
- Value added by major industry types
- GDP per capita
- International visitor numbers

Where similar countries can be identified then if one of those countries has already completed estimation of TDGDP and associated components, this will provide a useful setting of context for the country without TDGDP estimates. Even where estimates for a similar country cannot be identified it will be useful to understand the relative size of different components of TDGDP in other countries to give a starting point for the estimation work.

In effect, this initial process of evaluating similar countries provides a starting point for the assessment of materiality – in effect trying to highlight the most significant areas of tourism activity for a given country. This framing and context setting should be seen as an important part of a national accounting approach.

Organisation of data and population of tables

This step will involve bringing data together to provide information on the two key variables, tourism internal consumption and value added ratio by industry. Estimates of tourism consumption may be developed in the framing provided by TSA Tables 1-4 noting that the level of detail and accuracy possible is likely less than would be expected for the completion of a TSA. Estimates of value added ratios by industry should be taken from the published national accounts. Where necessary data gaps will need to be filled using relevant assumptions and taking advantage of the full range of data sources such that a coherent picture can be established.

Derivation of TDGDP

Ultimately, the data should be summarized into a table structured along the lines of Table 3 (above). This will allow the derivation of TDGDP as described in section 4.

Testing of assumptions

During the implementation and estimation process it will be necessary to continually assess the meaningfulness of the results. As for the population of data gaps, using all of the information in the various data sources. The key aim in applying a national accounting approach is to look for meaning in relationships between different variables in the framework – do the estimates pass a reality check. This assessment process would be very usefully informed by discussion with analysts and tourism industry operators.

By way of example, it may be relevant to check relationships such as the:

- Implied per visitor expenditure
- Ratio of expenditure to visitor nights
- Share of visitor expenditure relative to HFCE categories
- Share of relevant industry output/sales

The application of a national accounting approach also suggests the development of a time series of estimates. In which case, there should be an ongoing process of review and assessment of past estimates as new data comes to light, potentially with respect to time periods for which estimates have already been made. The ongoing process of revision and maintenance of meaningful time series of data is a key feature of national accounting that makes accounting data a core information resource for economic and other policy makers.

6. Conclusions

This paper describes an approach to the measurement of TDGDP, a key indicator of tourism for sustainable development. The perception is that since TDGDP is defined in the context of the TSA, and because the compilation of TSAs is relatively data intensive, this implies that the data requirements for estimation of TDGDP are high. As a result widespread reporting on TDGDP, especially in the context of the UN SDGs will be some time away.

The method described here shows how the national accounting principles underpinning the TSA and TDGDP can be applied to derive estimates of TDGDP using more limited data but following the same conceptual logic. The resulting estimates will not be of as high a quality but should be suitable for obtaining a good indication of the relative size of tourism activity in a country and the direction of growth.

To take forward this method, further discussion is needed to confirm the conceptual merits. More importantly, testing in countries is needed. This testing should involve countries with established TSAs and measures of TDGDP to assess the sensitivity of the TDGDP measure to the use of different derivation methods. Second, testing is needed in countries without TSA to understand more clearly the available data and hence the feasibility of the proposed method in those countries.

An important feature of the method is that it is based on the full TSA framework and hence provides a base for improvement in the quality of the estimate of TDGDP as resources permit. Indeed, an interesting test would be to check whether this approach provides a suitable indicator for TDGDP when connected to a benchmark TSA which could in turn support the measurement of more regular and more current estimates of TDGDP which can then be rebased every 3-5 years on the basis of a more complete study and compilation of TSA.

Finally, it is noted that the use of this approach should support improvements in the measurement of parts of the core national accounts and balance of payments. Commonly it is assumed that satellite accounts and related information simply exist as derivative from these core macro-economic datasets. While this is true to some extent, it is also the case that by focusing effort on improving measurement in a particular area of economic activity the corresponding estimates of that area in the core accounts should also improve. In countries where tourism is an important and potentially growing sector in the economy, macroeconomic and development policy people should be particularly interested in supporting methodological and measurement work in this area.

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