THE CANADIAN TOURISM SATELLITE ACCOUNT: A CASE STUDY OF A NEW TOOL FOR MEASURING TOURISM' ECONOMIC CONTRIBUTION

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Abstratc. The measurement of tourism's economic impact is of vital importance to governments and industry members alike. Governments throughout the world are under increasing pressure from the tourism industry to recognize and give support to its potencial. A major plank of the argument is that tourism has the capacity to create employment and income faster and more effectively than other industries. It therefore meets many declared economic policy aims of government spokespersons, and it is thus worthy of support grants, subsidies and public-sector promotion. In Canada, the production of a Tourism Satellite Account—basicly, a means of using established principles of national income accounting to measure the economic significance of tourism so that in can be credibly compared as an «industry» amongst other industries in Canada's economic structure—is an important first step in refining measurement techniques. While the importance of tourism to the Canadian economy is clearly established in this analysis, the Canadian approach produces some estimates that are substantially at odds with (and a good deal smaller than) those produced by others. This presentation summarizes the approach adopted, the basic concepts, methodological challenges, the results obtained and their uses, discusses how the approach differs with others, such as the OECD's Tourism Economic Accounts, and discusses how the technique will be adopted and expanded in the future to provide a vital tool for the tourism industry and for governments.

I. INTRODUCTION

In October of 1994 Canada, released the first results of a new analytical tool for the tourism industry, a Satellite Account on tourism.

This note describes the Canadian Tourism Satellite Account (TSA) and some of its significant features including the approach adopted, the basic concepts, methodological challenges, the results obtained and their uses.

It also discusses how the approach differs with others such as the OECD's Tourism Economic Accounts (TEA), and how the

technique will be adopted and expanded in the future to provide a vital tool for the tourism industry and for governments.

II. PURPOSE AND BACKGROUND

In its basic form this new tool has the ability to measure the economic activity generated by tourism in a country — the demand for commodities created by tourism in that country and the production required to meet that demand.

Canada's interest in this new tool dates back to 1984 when it first emerged as an idea

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proposed during the examinations of the Canadian National Task Force on Tourism Data. The final report of the Task Force (March, 1989) describes the original concept and the important characteristics and benefits of a Tourism Satellite Account:

«The Tourism Satellite Account is structured in "layers" of information... Layer 1 is the Core Account Module containing the key monetary measures that provide the link to comparative measures in the System of National Accounts. It is designed to provide an overview of tourism activities in current and constant dollars. In these monetary terms, it establishes the relative importance of identified tourism components to the overall tourism activity and to other economic activities... One of the primary needs of the tourism industry... has been to measure the overall economic contribution of tourism to the rest of the economy.

The benefits of applying the concepts of satellite accounting to tourism were clear: the account demands consistency in data — it must balance in terms of demand and supply... A Satellite Account builds a data base that is comprehensive, internally consistent and balanced. Thus the data become **justifiable and credible.**»

Later, in June 1991 at the International Conference of Travel and Tourism Statistics held in Ottawa Canada, Statistics Canada presented a detailed vision of the full scope of the Canadian concept of a Tourism Satellite Account.

In 1993, the World Tourism Organization the United Nations Statistical Commission adopted this visionary Canadian ideal as the recommended model for the future — a distinct comprehensive system of ordered socio-econornic data pertaining to tourism, linked with the System of National Accounts..

With the recent release of results from the initial development of the first core layer of the TSA, industry analysts at last have a chance to examine the results of this new economic tool and assess for themselves the benefits and their significance.

Initial reactions to the recently released results have been positive. It appears that the TSA lives up to its original promise in providing, for the first time, a credible and comprehensive methodology for assessing the economic significance in national economies of a complex hybrid industry such as tourism. It provides a new and credible means for answering questions such as:

– How important is tourism demand for commodities produced by a country and what are the main commodities purchased by visitors?

– Which industries benefit from tourism?

– How much direct and indirect value added is generated from satisfying tourism demand?

– How much taxes does government receive from tourism?

– How much employment depends on tourism?

– How important is tourism in a particular national economy?

Already initial reactions suggest that as this new tool gains recognition it will become the benchmark by which tourism is measured as an economic activity. As a result, international organizations, industry groups and governments are beginning to consider the Canadian TSA as a prototype for other similar assessments at both national and international levels.

III. BASIC CONCEPT

III.1. Tourism Satellite Account (TSA)

The therm "Satellite Account" has taken on a variety of meanings, and it is frequently taken to mean different things by different users of the phrase. Accordingly, it is appropriate to clarify what is meant by a Tourism Satellite Account in the Canadian context.

In its broadest form, the TSA is envisaged as a comprehensive multilayered information system which collects, orders and interrelates statistics describing all significant statistical aspects of tourism. Thus, it brings together economic flow data, employment data, quantity supply and use data (such as capital employed and occupancy rates and load factors), as well as a host of related statistics. It is called a Satellite Account because it is an extension with some modification of the System of National Accounts (SNA).

The Canadian Tourism Satellite Account, as developed by Statistics Canada, has used the Canadian Input/Output tables as the basis for the development of the TSA. The Input/Output tables were used because they provide the greatest articulation of the

Canadian economy, providing industry intermediate inputs and gross output by commodity, as well as final demand and primary inputs of GDP. The Input/Output framework allows for a confrontation of demand and supply of commodities by industry and user.

In the SNA, industries are defined as collections of producing units engaged in similar types of activities in relation to similar types of goods and services, irrespective of the purchaser of the output. The «tourism industry» does not exist in the SNA as it is not an industry in the "normal" meaning of the term: it is defined by its end use (for example, the restaurant industry's output can be consumed by both tourists and non-tourists, but the output —the meals— are the same irrespective of the user); furthermore, tourism consumption cuts across various individual industries such as accommodation, transportation, food services, etc. A Satellite Account is required to allow for a meaningful analysis of tourism's economic contribution in a way that it can be credibly compared as an "industry" amongst other industries in Canada's economic structure.

The TSA provides, for the first time, a tourism dimension to the Input/Output framework of the SNA. It extracts the «tourism» dimension of the output of tourism-related industries, such as the restaurant industry, and combines it with the «tourism» dimension of non-tourism industries, such as retail sales.

In doing so the TSA provides the ability to examine both the supply and demand sides of tourism within a balanced accounting system.

III.2. The Economic Activity of Tourism

The most important concept used in developing the Account is that of "tourism" itself. Here the TSA turns to the demand side definition adopted by the World Tourism Organization (WTO) and the United Nations (UN) Statistical Commission in 1993 as follows... "the activities of persons travelling to and staying in places outside their usual. environment for not more than one consecutive year for leisure, business and other purposes." This definition is more inclusive than merely leisure travel. It includes travel for business purposes, to visit friends and relatives or for personal reasons such as health treatment. Excluded, on the other hand, are commuting, travel for study purposes, travel to obtain employment in a new location, and travel by migrants, diplomats and armed forces on military assignments.

Secondly, the definition of tourism comprises several different types in relation to a particular country of study. In Canada, where the TSA has been developed, "domestic tourism" refers to travel by Canadians within Canada. "Inbound tourism" refers to travel by non-residents in Canada and "outbound tourism" refers to that by Canadians in another country.

Lastly, in Canada, the "usual environment" for domestic travel is taken as being within 80 kilometres (or fifty miles) of home. Any travel to a Canadian location less than that distance is not considered "domestic tourism" in the TSA.

Tourism Expenditures

The next most important concept of the TSA is that of tourism expenditures. Following from the WTO/UN definitions of tourism again, the TSA defines total tourism expenditures as the sum of goods and services purchased by visitors before, during and after a trip. This includes is both same-day visitors, and tourists (overnight visitors), as well as business and government employee travellers. This again excludes certain types of travel expenditures such as travel expenditures by diplomats, military and inmigrants.

The TSA includes only direct current personal expenditures plus business and government employees' travel expenditures. In accordance with WTO/Un definitions. The TSA does not include investment expenditures on tourism capital or government expenditures on tourism services and public infrastructure capital as part of tourism expenditures. However, the TSA will make this supplementary information available at a later stage of development (but not as part of tourism expenditures).

III.3. Tourism and Non-Tourism Commodities

Given these broad definitions of tourism activity and tourism expenditures, the TSA then further specifies both tourism and non-tourism commodities as well as tourism and non-tourism industries. It then uses Input/Output tables to allocate the interlocking flows of commodities to tourism and non tourism industries.

In the TSA, a good or service is referred to as a "tourism commodity" if a significant part of its total demand in Canada is by tourists and same-day visitors. One example is

accommodation because a substancial proportion of its demand comes from tourism. Commodities with low tourism consumption rates are referred to as "non-tourism commodities". However, two exceptions exist in the definitions of tourism commodities included in the Account: urban transit and parking. The TSA includes these as tourism commodities even though the total demand accruing from tourism is not significant because many tourists and same-day visitors use these services, especially in major urban areas. Without these commodities, tourism to many major urban areas would be significantly reduced.

III.4. Tourism and Non-Tourism Industries

Similarly, a "tourism industry" is defined as an industry which relies on tourism for a significant part of its revenue. Thus a "tourism industry" is defined within the TSA by two criteria: it would cease to exist without tourism, or it would continue to exist only as a significantly reduced level of activity. Respective examples include air transportation and food and beverage services.

"Non-tourism industries", such as the retail food stores industry would continue to exist without tourism or would exist without a significant reduction in their level of activity, even though food purchases by tourists and same-day visitors are important for this industry, especially in certain locations.

Several important implications emerge here in the way that the TSA views the economic activity associated with the consumers of tourism. First, not all goods and services purchased by tourists and same-day visitors are tourism commodities. In addition to passenger air transportation and accommodation, visitors also purchase clothes and groceries. Conversely, many tourism commodities, such as meals, are also purchased by non-visitors.

Again, from an industry perspective, many tourism industries also supply non-tourism commodities. For example, the accommodations services industry also produces revenues from the sale of goods and equipment. In this case too, the converse also applies. Meals are supplied to visitors by cafeterias in retail stores as well as in licensed restaurants and hotels.

IV. METHODOLOGY

What the Account provides is a methodology by which demand side data from expenditure surveys (eg. household surveys on travel) are brought together in special tourism specific Input/Output tables with data from supply side surveys from the industries producing "tourism" commodities, such as accommodation, transportation, food and beverage services, etc. Only in this way can a proper balance be achieved between supply and demand relating tourism in the economy. Similarly, only through this process can tourism GDP (value added) be calculated.

The derivation of the Canadian TSA from the I/O framework starts with the demand side data, because tourism output, unlike other industries, is determined by the purchaser's activity - tourism. Because the

"tourism industry" and "tourism" are fictions —in normal economic statistics— the "industry" must be created from other industries. This involves first determining what commodities visitors purchase. In Canada's case, this is primarly done through a domestic household survey —the Canadian Travel Survey— but other sources of data are also used including four interrelated border surveys of Canadians travelling outside of Canada and non-residents travelling in Canada.

In this way, the TSA provides separate estimates of personal expenditure disaggregated by commodity and industry for the three basic forms of tourism identified in the UN/WTO classifications: domestic tourism, inbound tourism and outbound tourism.

Once the commodity detail has been determined, the supply side must be addressed, as it is from the supply side that industry GDP is determined in the I/O tables. However, most industries do not produce just one product, nor are tourism commodities produced solely by one industry, or even all "tourism industries" identified in the Account. For example, visitors may purchase meals from any and all of restaurants, hotels, chip wagons, and retail stores. Similarly, meals are produced by canteens as well as restaurants, hotels etc., but it is very unlikely that visitors will purchase meals from a canteen. In addition while restaurants and hotels sell alcoholic beverages as well as meals and accommodation, alcohol may also be purchased in stores. All have different input structures.

Accordingly, to the extent that the data permit, industry output for "tourism"

industries has to be purified of non-tourism output. Similarly, to the extent possible inputs that are not related to tourism output have to be separated. For non-tourism industries producing tourism products, the same process is involved —to identify that portion of their outputs and inputs that is directly related to sales for tourism demand. Once the data have been "cleaned" of non-tourism aspects, the supply and demand of tourism products can be brought together.

In this way, the features of tourism demand —in part final demand, in part intermediate consumption— are confronted with tourism supply. The demand for each tourism commodity is assessed against the supply of each commodity, produced by both tourism and non-tourism industries.

Through these calculations the TSA provides internally consistent and balanced tourism data. Thus, all estimates are cross validated several times. The TSA requires a balance between the supply and demand for every commodity as well as between the inputs and outputs of every industry. The TSA specifically states that: "The total supply of each tourism or non-tourism commodity must equal the sum of its tourism and non-tourism demand. Similarly, for each tourism and non-tourism industry, gross output, which corresponds to the sum of all revenues, must equal the sum of all inputs or production costs, including returns to both labour and capital."

The use of the I/O framework provides the additional computational tool, and elements necessary to derive tourism value added or GDP for Canada — the removal of inputs for non-tourism outputs in each industry. Simply put, this amounts to:

Tourism GDP for industry n =

Total supply by industry n,

Less non-tourism supply by industry n,

Less inputs into industry n not related to tourism output.

V. DIFFICULTIES AND CHALLENGE

As with all statistical exercises that require balancing data from different sources and surveys, there are inevitably problems. To try and overcome these difficulties, statisticians must analyze the data at a very detailed level to impute values for those areas where data are incomplete, misleading or merely wrong. For example, the Canadian Travel Survey asks Canadians for their travel expenses over the previous period (usually a month or a quarter) by type of expenditure, for several commodities, such as travel, accommodation, food. Frequently, however, the traveller is unable to answer all the details and provides a total, whereas in some instances, not even a total is provided. In cases where data are incomplete, similar characteristics of travellers are found in the data base and used to impute values for those empty or apparently incorrect cells.

In other instances, available expenditure data indicated a substantially lower proportion of total output than might be expected from the supply data. In these cases further adjustments are necessary.

In other cases, no equivalent supply data existed; such as, when we found $166 million of tourism expenditures from the demand side on private cottage and recreational property rental with no corresponding balance from data on domestic supply. In this case the total demand was adjusted downward, until a means of estimating imputed rents for cottages and recreational properties can be included in the Account.

Other difficulties with supply side data emerged because the commodity produced is rarely, if ever, 100% purchased by visitors or the data on the commodity supplied are not "clean". Here again adjustments to the data are required to remove non-tourism commodities, as far as possible. One typical example in rail and air transportation involves removing the data on shipments of freight.

One area of particular difficulty is package tours. How are these totals allocated across commodities that are "wrapped" into one package? How are airfares separated from accommodation costs or food services, or other commodities? The approach taken by Statistics Canada was to find in the demand side data travellers with similar characteristics (destination, time away, etc.) who had been able to identify separately these costs and substitute their commodity shares. This assumed that the costs to the operators are the same, regardless of the type of traveller. This might not be strictly true, but it is nevertheless a reasonable working assumption.

Other difficulties emerged in the process of examining the inputs into the various producing industries to derive the GDP of tourism. Again, this process required additional assumptions and imputations. Not all the input data for the various industries were as "clean" as would be liked. That is for several industries the data for tourism commodities were not readily separable from non-tourism, and the same applied for non-tourism industries that provided outputs purchased by visitors.

A further set of assumptions were necessary with regard to the production functions of the tourism and non-tourism parts of the component "tourism" industry. The remaining inputs, both primary and intermediate were assumed to be proporcional between the tourism and non-tourism outputs. That is, if 30% of the output of and industry has been identified as tourism, then all the remaining inputs (after having removed the non-tourism features) are assumed to have 30% attributable to tourism. Again this is a reasonable assumption for the most part. Restaurant input structure, for example, will be the same whether the output is tourism or non-tourism. But, in other instances such as rail transport it may be more questionable.

Another challenge arises from the questionable timeliness of the reference year data in the Account. The current set of TSA results pertain only to 1988. That was the latest year for which all the required sources of data were available when development work was initiated to build the new Account. Given that the data in question are now seven years old, are they still relevant?

Obviously, in 1995 the data appearing in the first version of the Account already appear dated. However, more current updates are expected in the near future. Now that the initial core Account has been constructed updates are a much simpler exercise.

VI. SELECTED DETAILED RESULTS

Table 1 shows the resulting TSA estinates of travel-related expenditures made by Canadian and non-resident visitors on domestic commodities in 1988. The first significant result that stands out is the total tourism demand in Canada. The TSA indicates that the total of all tourism purchases made in Canada amounted to $30.3 billion dollars in 1988. This figure is even larger than the largest previous official estimate of $24.2 billion for that year.

Out of this $30.3 billion, $3.7 billion were commodity taxes, constituting seven percent of all commodity taxes levied by all levels of government in Canada in 1988.

In the sixth column of Table 1, the commodity distribution of this $30.3 billion shows that over 40 percent of these tourism dollars were spent on commercial and private transport, 13 percent on accommodation, 19 percent on food and beverage services, 8 percent on other tourism goods and services (commodities) such as recreation, entertainment and travel agency services, and 16 percent was spent on commodities such as groceries, souvenirs, clothing, camping equipment and such things. A few noteworthy findings are:

– Domestic air transportation services were purchased for the most part by visitors (92% of the total domestic supply) and accounted for 20% of total tourism demand (and nearly half of all tourism expenditures on transportation).

– Accommodation services were also heavily tourism supported, with about 90% of all tourism supply of this commodity being tourism purchases, but as proportion of total tourism expenditures accommodation was about one eighth.

– Tourism expenditures on meals (from restaurants and hotels, etc.) accounted for one

Table 1
Tourism expenditure by commodity, Canada, 1988

Commodities	(1) Domestic Demand	(2) Exports	(3) Total Tourism Demand in Canada	(4) Total Domestic Supply	(5) Tourism Share In Total Domestic Supply	(6) Distribution of Total Tourism Demand in Canada
	Millions of Cdn$				Percent	
Passenger Air Transport	4,968	1,077	6,044	6,566	92,1	19,9
Owned Vehicle	4,673	650	5,324	20,557	25,9	17,5
Other Passenger Transport	1,319	606	1,925	4,249	45,3	6.3
All Transformation	10,960	2,333	13,294	31,372	42,4	43.8
Accommodation	2,824	1,051	3,875	4,131	89.8	12.8
Food and Beverage	4,186	1,499	5,685	22,206	25.6	18.7
Other Tourism Commodities	1,919	637	2,556	7,889	32.4	8.4
Other Commodities	3,915	1,014	4,930	–	–	16,2
All Commodities	23,805	6,535	30,340	–	–	100.0
Of Which Taxes	–	–	3,713	–	–	–

– Figures not appropriate or not applicable.
Source: Tourism Satellite Account, Statistic Canada.

fifth of total tourism expenditures. Meals purchased from restaurants by visitors was a relatively high 26% of total domestic supply, while accommodation services' sales of meals to visitors was slightly over half.

Table 2 shows TSA estimates of the value added of both tourism and non-industries from performing tourism economic activities, that is supplying the commodities shown previously directly to visitors.

Overall, in 1988 tourism generated $13.4 billion of direct value added in the Canadian economy, of which $1 0.0 billion came from the tourism industries, and $3.3 billion from the non-tourisrin industries.

he second column of this table shows that this $13.4 billion in direct value added resulted in 467,000 full time equivalent jobs in the Canadian economy.

Column four shows that tourism activities in all industries averaged about 29,000 dollars of GDP per full-time equivalent job. The industry breakdown of this average ranges from a high of 54,000 dollars for the transportation industry to a low of 16,000 dollars for the food and beverage services industry. In comparison, non-tourism activities in all industries averaged about 49,000 dollars of GDP per job.

Table 3 shows another output of the

Table 2
Tourism GDP and Employment by Industry, Canada, 1988

Industry	(1) GDP at Factor Cost	(2) Persons Employed	(3) Labour Compensation Per Person Employed	(4) GDP Per Person Employed
	Millions of Cdn$	Thousands of FTE*	Cdn$	Cnd$
Tourism Activities:				
Transportation	4,141	77.3	34,600	53,600
Accomodation	2,717	129.0	15,700	21,100
Food and Beverage	2,026	123.6	13,400	16,400
Other Tourism Industries	1,155	32.0	21,700	36,400
Total Tourism Industry	10,039	361.6	19,500	27,800
Other Industries	3,338	105.5	23,000	31,600
Total Tourism Activities	13,377	467.1	20,300	28,600
Total Non-Tourism Activities[2]	430,497	8,704.3	31,100	49,500
Total Business Sector	443,874	9,171.4	30,500	48.400

* FTEs stands for "full-time equivalents".
Source: Tourism Satellite Account, Statistics Canada.

new Tourism Satellite Account, the composition of tourism and non-tourism GDP by industry. One notable feature here is found in the comparison of line seven with line eight in this table. The labour income portion of the GDP attributable to tourism activities is about twenty-two percent, higher than the corresponding figure for non-tourism activities is about twenty-two percent higher than the corresponding figure for non-tourism activities —66 percent for tourism activities versus 54 percent for non-tourism industries. This twelve percentage point differential indicates the more labour intensive character of tourism economic activity.

This output of the TSA also reveals that the twelve percentage point differential in the returns to labour is gained at the expense of returns to capital, shown in the "other operating surplus" category which is equivalent to the combination of corporation profits, interests, dividends and any depreciation charges.

Column four of Table 3 reveals another result of the new TSA, the relative importance of tourism activity for each of the tourism industries.

One surprising finding here is that in 1988 in Canada only 30 percent of all GDP

Table 3
Composition of Tourism and Non-Tourism GDP, Canada, 1988

Industry	(1) Total Labour Income	(2) Net Income of Unincorporated Business	(3) Other Operating Surplus	(4) Total	(5) Tourism Share of Industry's GDP
	Percentage				
Tourism Activities:					
1 Transportation	62,8	1,7	35,5	100.0	30.5
2 Accomodation	67.9	6.6	25.5	100.0	66.6
3 Food and Beverage	76.2	5.4	18.3	100.0	23.2
4 Other Tourism Industries	51.6	8.0	40.5	100.0	23.9
5 Total Tourism Industry	65.6	4.5	29.9	100.0	32.0
6 Other Industries	69.2	3.6	27.2	100.0	–
7 *Total Tourism Activities*	66.5	4.3	29.2	100.0	–
8 *Total Non-Tourism Activities*[2]	54.3	8.5	37.2	100.0	–
9 Total Business Sector	54.7	8.4	36.9	100.0	–

– Figures not appropriate or not applicable.
Source: Tourism Satellite Account, Statistics Canada.

generated by the tourism industries comes from supplying commodities to Canadian and non-resident visitors.

As one would expect, not all tourism industries benefited equally from tourism. In this instance, the food and beverage services industry has only 23 percent of its GDP attributable to tourism, while the accommodation industry results show a much larger percentage of 67 percent.

Two reasons lie behind the low thirty percent tourism share of all GDP generated by tourism industries in Canada. First, as noted just previously, a substantial portion of the output of tourism services, such as food and beverage services, is purchased by-non-visitors. This result was also found earlier in the fifth column of Table 1. Second, as was also mentioned earlier during the discussion of basic definitions underlying the Account, many tourism industries produce, and gain substancial revenues from, non-tourism commodities. One very significant instance in Canada is freight transportation in the air transport industry.

Table 4 introduces yet another set of outputs from the new Satellite Account for tourism, estimates of the relative importance of tourism in the total business sector of the economy, both in terms of GDP and employment.

Table 4
Share of Tourism and Non-Tourism Activities in Total Business Sector GDP and Employment, Canada, 1988

	Industry	(1) GDP at Factor Cost	(2) Employment
		Percentage	
	Tourism Activities:		
1	Transportation	0.9	0.8
2	Accomodation	0.6	1.4
3	Food and Beverage	0.5	1.3
4	Other Tourism Industries	0.3	0.4
5	Total Tourism Industry	2.3	3.9
6	Other Industries	0.8	1.2
7	*Total Tourism Activities*	3.0	5.1
	Non-Tourism Activities[4]	2.6	5.1
8	Agriculture	2.6	5.1
9	Fishing and Trapping	0.3	0.5
10	Logging and Forestry	0.8	0.6
11	Mining and Oil Wells	4.6	1.6
12	Manufacturing	23.6	20.9
13	Construction	8.2	8.3
14	Transportation and Storage	4.2	4.3
15	Communications	3.3	2.3
16	Other Utilities	3.9	1.2
17	Wholesale Trade	6.3	6.5
18	Retail Trade	7.3	15.5
19	Finance Ins. and Real Estate	18.7	7.2
20	Businesss and Personal Services	13.3	20.9
21	*Total Non-Tourism Activities*	97.0	94.9
22	Total Business Sector	100.0	100.0

Source: Tourism Satellite Account, Statistics Canada.

In this table, line seven showing "Total tourism activities" indicates that tourism activities in the business sector account for 3 percent of all GDP generated in the economy by that sector. Moreover, other results in the same table show that 5 percent of all

employment in the business sector is attributable to tourism. Or, in other words, we can say that 5 percent of all employment in the business sector exists because of tourism in Canada.

As indicated, here and elsewhere in the Account results, tourism activities tend to be more labour-intensive than non-tourism activities.

VII. SUMMARY OF MAIN RESULTS

Aside from the particular detailed results described above, the most important general findings were as follows:

– The tourism GDP of tourism industries was 2.3% of the Canadian business GDP at factor cost. The tourism GDP of non-tourism industries (mainly retail) was a further 0.8%.

– Domestic tourism expenditures by households (part of final demand) amounted to 3.8% of Canadian GDP at market prices.

– Exports of tourism were 4% of Canadian total exports, but 37% of Canadian exports of services.

– Canada is a net importer of tourism, with imports amounting to over 50% more than exports.

VIII. OTHER APPLICATION

The recent release of these first results of the new Canadian Tourism Satellite Account demonstrates that the concept of a Satellite Account for tourism is no longer merely an abstract theoretical construct. The results just shown are both significant and relevant to the long standing need for comprehensive statistical estimates describing the otherwise fragmented economic activity of tourism.

As time series of tourism estimates from the Account become available, it will be possible to study the evolution of tourism related industries with a precision never previously possible.

It is quite possible that the internal structure of the industry has changed significantly since 1988. A number of new conditions have emerged in the interval that could lead to significant changes in tourism production functions. For example, while as yet no definitive evidence exists, the structure of tourism related industries in Canada has likely been affected by both the Free Trade Agreement with the United States in 1989 and the North American Free Trade Agreement of 1993. Furthermore, other evidence from econometric forecasting models suggests that the structure of North American tourism demand has been significantly affected by the recession of the early 1990's, the introduction of a Canadian value added tax in 1991 and major exchange rate fluctuations since 1993. Successive versions of the TSA result will provide for the first time a comprehensive and consistent basis for examining such structural changes.

A second major application question relates back to the original primary benefits of the Account —how do the tourism industry's results from the Account compare on an industry-by-industry basis with other sectors of the economy. Further work in progress indicates that this important

potencial benefit of the Account is indeed feasible.

Such cross-industry comparisons will provide specific details on the relative importance of the Canadian synthetic tourism industry on a range of key economic variables. Some currently being examined include gross output, exports, labour income, net income of unincorporated businesses, other operating surplus, value added, persons employed, labour compensation per person employed and value added per person employed.

Initial results of this Canadian cross industry comparison suggest that the synthetic Canadian tourism industry is one of the largest and most important industries in Canada. In particular, this new synthetic industry ranks in the "top ten" in terms of total revenues, exports, total labour income and employment.

Furthermore, for most economic variables, the synthetic tourism industry ranks ahead of many leading manufacturing industries in Canada, such as motor vehicles and primary metals, and ahead of all resource sector industries agricultura, fishing, mining, logging and forestry, and petroleum and natural gas.

IX. COMPARISONS WITH OTHER APPROACHES AND ESTIMATES

As mentioned at the outset, one óf the primary long standing needs of the tourism industry has been to measure the economic contribution of tourism to the rest of the economy, and to do so in a way that is recognized as justifiable and credible.

Within Canada, tourism has now achieved this goal! The development of a National Accounts as an extension of the Canadian System of National Accounts and the publication, by Statistics Canada, of the resulting estimates for its first layer provides that credibility.

Despite this recent progress, divergent industry figures continue to pose credibility challenges. Usually these figures on the volume and economic significance of tourism in Canada, or similar statements for selected sectors such as accommodation or food services, emerge from other independent industry sources such as research institutes, industry associations and lobby groups. Sometimes, however, the divergent figures emerge from international organizations' treatment of Canadian base data.

The emerging OECD Tourism Economic Accounts (TEA) represent one such potential source of contradictory estimates of tourism GDP. In general terms, however, the apparent conflict is indirect, since as yet, the TSA and the TEA do not produce directly comparable results. Furthermore, where direct comparisons can be derived, such as in calculations of tourism related, GDP, the TEA provides much cruder estimates than those derived from the TSA.

There are five tables to the TEA but for comparative purposes only tables 1 and 2 are relevant. Table 1 provides data on the supply and demand of a number of tourism characteristic products at the 2-, 3- and 4-digit level. Supply is from both domestic production and imports. Demand is for personal, business and government as well as for non-residents.

In cases such as Canada's, where all or most data are provided, a reasonable indication of total supply and demand for toutism products is possible for some outputs such as accommodation, transportation and meals. While supply of many of these products will be for more than tourism purposes, total tourism supply can be determined by the commodity detail from the demand side. However, tourism GDP cannot be determined from this table by itself.

Instead, Table 2 of the TEA provides data on gross output, intermediate consumption and gross value added (GDP) —with returns to capital and labour— for those industries which produce the tourism characteristic products of Table 1. However, as these industries produce more than one product and as some of their output is purchased by non-visitors, deriving their tourism GDP is not possible without making some very heroic assumptions.

Nonetheless, where all the required data are available, the following can be estimated. From table 1 the characteristic tourism output for each product is determined from the demand side. The proportion of that gross output that is tourism related could then be assumed to be the same across all industries producing that output, and so applied to the value added for those tourism industries in Table 2.

Compared with the more disaggregated TSA approach, this method is very crude, because as has been mentioned previously there is rarely, if ever, a one to one relationship between an industry and a commodity in tourism. Most industries produce more than one product, and most

tourism products are produced by more than one industry. As a result, production function for these different industries vary substantially. Moreover, even within one commodity, such as accommodation, there is a vast difference between the production function for the provision of hotel accommodation and that for camping sites. The importance of this distinction is dependent on the importance within each country of the relative weights of the different products within each commodity grouping.

An indication of the disparities that emerge from the results of this approach can be obtained by comparing the Canadian numbers for the TEA with those for the TSA.

In the case of this comparison of the treatment of tourism supply using the two different approaches the results are very close in the case of accommodation. For the other three, however the results are quite different although the relative magnitudes and direction of difference are consistent, and may not therefore fundamentally affect the overall picture that emerges.

In the case of difference in definition and estimation of GDP between the TSA and the TEA, however, the differences are clearly more substantial.

One obvious difference here is that in the TSA, the GDP figure is related to passenger rail transportation for tourism only whereas in the TEA the estimate is much more inclusive representing all rail transportation including all passenger types (tourism and non-tourism) and freight.

Similar differences can be found in

comparing "tourism ratios" - the tourism share of domestic supply) from Table 1 in both the TSA and the TEA.

One further problem between the TEA and the TSA is their respective treatment of package tours. In the TEA, there is a strong preference for package tours to be treated on a gross basis, whereas for the TSA they must be included on a net basis only, as the output of the industry is considered to be the packager' margins rather than the individual components of accommodation, meals, etc.

Currently, investigations and discussions are between Canada and OECD are attempting to specify and explain these difference. The resulting knowledge and understanding gained will hopefully result in improved reports for the future, that acknowledge and reference for all readers the differences, their causes and their significance.

X. FUTURE DEVELOPMENT

The work reported to date from the Canadian Tourism Satellite Account is only the first product of this long term development project. To date only the first layer of the core Account has been developed. A number of further improvements and expansions are planned or foreseen in the future:

– One immediate priority for the next year is to update the Account for 1990 and 1992. The output data need to be more timely.

– As part of the Satellite Account release, Statistics Canada also announced the work in progress in developing a Tourism Input/Output Impact Model associated with the Account. This supplementary tool will provide a means of measuring the indirect economic effects associated with tourism, while still remaining within the same economic framework as the TSA. This, forthcoming new product of the Account will applied in the near future to ongoing industry decisions.

– Another application under investigation is the development of a series of regularly reported (quarterly) industry performance indicators anchored to the Account.

– Another key requirement is the preparation of documentation of the sources and methods used in developing the account calculations.

– Other future developments include expanding the Account to include the other layers and modules (such as human resources) describes in the original concept paper presented to the World Tourism Organization, and provincial/regional versions of the account.

– Lastly, consideration is being given to the measurement of certain additional components not yet in the TSA such as, quantitative measures and characteristics of tourism activities, imputed rent on vacation homes, depreciation on vehicles used for tourism, fixed capital formation (public and private) attributable to tourism, current government expenditure on tourism and related activities, spending by hosts for their visitors, indirect impacts, expenditures on bank charges, travel insurance, currency exchange and commissions, and further desegregation and identification of expenditures on recreation and entertainment.

As more products emerge from the Canadian Tourism Satellite Account and similar projects in other countries, we will no doubt gain new knowledge of the tourism industry and discover many new applications. At the moment our situation is a bit like that of Galileo and the telescope —the potential is exciting, but only a few of the possibilities can be foreseen at this time.

NOTES

* Whilst this paper is the result of the combined effort of the authors, specific content of sections 2, 3, 4 and 5 is attributable respectively to Federico Di Leo, Susanna Mantegazza, Stefano Pisan and Sandra Maresca.

(1) UN and others (1993).

(2) EUROSTAT (1994).

(3) A more in-depth treatment of this subject may be found in ISTAT (1995) section 4.3, shortly to be published.

(4) The English acronym for *Classification of Individual Consumption by Purpose.*

(5) The English acronym refers to *Classification of Household Expenditure by Purpose.*

(6) This change in perspective may have an impact on the estimate of the tourist industry as will be seen later.

(7) According to the French acronym this refers to *Products de Consommation des Menages* (Products consumed by families).

(8) The OECD (1995) document includes the OECD proposal for a revision of COICOP.

(9) See OECD (1991), page 63.

(10) See UN and others (1993) page 215. Individual consumption also takes into account a part of Government expenditure in other sectors (housing, refuse collection, operations regarding the transport system) which, however, do not affect tourism in a significant manner. The code mentioned in the quote is part of the COFOG classification.

(11) That part of Government expenditure in favour of individuals can be identified within recreational and cultural expenditure of the COFOG. This point is an important consideration inasmuch as it tends to exclude the contribution of expenditure for social well-being and security services in the evaluation of an enlarged view of the tourism sector.

(12) As far as effective consumption is concerned ESA95 makes reference to items 8.1 (Sport and recreation) and 8.2 (Cultural services) of the Classification of the Functions of Government (COFOG) developed at the same time as COICOP.

(13) See ISTAT (1995) section 4.5.

(14) See UN and others (1993) page 233.

(15) See OECD (1991) page 64.

(16) The value of newly-constructed hotels, for example, is reported in the category of non-residential construction together with other constructions destined for entirely different uses.

(17) See OECD (1991) page 35.

(18) See ISTAT (1991).

(19) One of the principal sources for the estimate of capital formation in *Italy is the Annual survey of the economic accounts of business* that is based on data from a large number of businesses which can be identified by business sector to a degree which is adequate for producing en economic account of capital formation for tourism.

(20) See ISTAT (1993).

(21) For a complete review of Italian problems in applying ESA95 see ISTAT (1995).

(22) UAEL coincides with the introduction of SNA93.

(23) From this standpoint ESA95 identifies three types of activity, that is: principal, secondary and ancillary. The first is that activity in which the value added is greater than that of all other activities in the same unit. Secondary activity is an activity carried out within a single local KAU in addition to the principal activity. The ancillary activity is a support activity carried out within a business in order to create suitable conditions for the

pursuance of the principal or secondary activities of the local KAU (it is considered an integral part of the principal or secondary activity).

(24) For an analysis of relationships existing between supply and use tables and symmetrical input-output tables see ISTAT (1 995) section 6.2.

(25) On this subject see Archer (1984) and Costa (1984), for a more recent application in Italy see Costa and Manente (1 993).

(26) With regard to illegal activities, included are those which give rise to an operation (as in the sale of drugs) whereas those acts leading to a redistribution or destruction of assets (such as theft, blackmail and extortion) are not included.

(27) The methodology is based on the procedure outlined in Franz (1985).

(28) See ISTAT (1995).

(29) See SNA93 and ESA95.

(30) See Lapierre J. and Hayes D. (1994).

(31) See OECD (1991).

(32) See Braibant (1994).

(33) See SNA94.

(34) See SNA94.