VOORBURG GROUP ON SERVICE STATISTICS
12 th. meeting
September 15-19, 1997
Copenhaguen, Denmark

Measuring the tourism impact on employment

Session 3

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FRANCE

The WTO (World Tourism Organization) concept of tourism includes all activities done by persons during their trip and their stay out of their usual environment and for a while shorter than 12 months, for leisure, business or other purposes.

Tourism industry as such is absent from most classifications since the firms involved with this activity, in a country, in a region or in a local area, belong to different classification items which are typically aimed to receive tourists, or which may only run or enlarge their business at tourist season.

Unfortunately, business statistics are produced through a classification whose framework is generally based on criteria which fit more to national and businesses accounts than to any kind of transversal industry like tourism. That is the case at least with ISIC, NACE and NAF, the French activity classification.

One may complain about that, but it is quite obvious that an activity classification is based on elementary categories which have to be taken as building blocks when trying to elaborate a new or a specific approach of business activity. So that the only solutions when trying to elaborate different use of existing classifications is either to aggregate in a different way existing elementary items, or to split up items in order to isolate the parts which belong to new categories of material, technology, or services. The two solutions may be combined, of course.

A good example of re-use of a classification may be taken in France with the NES (nomenclature économique de synthèse - the synthesis classification), which is derived from the detailed activity classification, NAF, in such a way that it fits better the economic analysis needs.

When existing items are viewed as heterogeneous from a transversal point of view like tourism, the splitting solution is not realistic, especially when dealing with tourism. A better attempt has been done by WTO with a classification for tourism activities which is derived from ISIC by double quotation of elementary items, one dealing with tourism industry input, the other tourism industry output. It is certainly an admirable initiative which should preserve a very good coherence with the world activity classification, whereas the geographical dimension of tourism industry needs to be taken in account in such a way that each country must adapt the world quotations to its own local and specific situation.

The purpose of the study presented in the following pages, was not so much to elaborate a new tourism classification but to propose a method for measuring the tourism impact on employment. In other words, the output of the study is not a classification but the method is obviously not independent of the classification used.

Measuring employment in tourism is a difficult task : tourism is a cross activity which interferes with various domains like housing catering, trade, transports.....Tourism indeed means basically a geographical transfer of consumption from one place, where people are resident, to another place where they have decided to spend a few days or weeks, the reason being vacation, health or work.

Here is the first point, when trying to measure the tourism impact on employment : there are many industries affected by tourism; as at first sight, one may consider that most industries should be concerned by.

The second tricky problem is that , when generated by tourism, employment can't always be considered as entirely explained by tourism. Taking example in restaurants in Montpellier (Languedoc-Roussillon), in the city-center, some jobs are undoubtedly rooted in the heavy flow of tourists who daily visit the city, on festival or congress occasions. Nevertheless, Montpellier citizens use to go to restaurant as well, and some restaurants attract people working in their neighborhood at lunch time. So, how could it possible to say precisely which are extra-jobs due to visitors, which are "ordinary" jobs due to residents ?

Lastly, the seasonal employment has a multiplication effect : If tourism flow indeed generates employment, the employees concerned are consumers as well, and contribute to jobs creation.....

1 Traditional approaches for measuring tourism employment

Traditional approaches can't solve the problems mentioned above, as far as they rely on a list of industries which they suppose having "a priori" tourism'charasteristics, and they count the jobs at a certain date as tourism employment for the whole year.

A more elaborated approach consists in expanding the number of activities potentially affected by tourism, and to apply to each a « touristicité rate », that is to say an estimated rate of tourism share in this activity. The employment contribution of each activity is then moderated by its « touristicité rate ».

Another method consists in estimating tourism employment from visitors consumption.

Those methods suffer from several short-comings :

- They limit a priori the tourism impact to a restricted list of industries.
- The activity selection is more subjective than objective.
- They do not care of regional or seasonal tourism aspects, whereas those are some of its main characteristics.

2 A new approach

The research done by INSEE, attempted to base the employment measuring on more exact evaluation of jobs truely generated by tourists living in a place for a given while.

The study starting from a regional approach (France counts 22 regions), aimed to be relevant for most regions in order to allow comparisons between regions, and to be usable at a lower level (infra-regional and local).

Starting from local areas, there is no room for a « touristicité rate », since such rates are derived from surveys on tourism visiting and consumption. Those surveys are not designed indeed for regional uses.

Instead, the new approach is based on two principles :

The tourism season as major characteristic of that industry in most regions.

No a priori selection of activities

The method is based on two main stages :

The first one consists in considering that any activity whose daily curve of employment looks like the curve of the overnights spent by visitors might be an activity on which tourism has some effect. To be more precise, the work was done from data stemming from an administrative file; according to the informations of that file, it is possible to compute the number of employees each day for each industry and so to draw the daily curves of employment for any activity of the NACE classification. Then a regression of these curves on the curve of visitors allows the selection of the activities which are seasonal as tourism.

The second stage is to rank areas in tourist areas and non-tourist areas according to their dwellings, then to compute the ratio « number of jobs per inhabitant » for each of the activities selected as mentionned above both in tourist and non-tourist areas. The extra jobs observed in tourist areas are then considered to be due to tourism, that is to the flow of people observed during a certain time of the year in these areas. In order to rank areas, it is necessary to use a spatial smoothing of the number of dwellings

The following paragraphs will explain the method in greater detail

3 Data sources

Several sources could be used, but, as far as local employment is concerned, it is better to rely on exhaustive ones.

Some exhaustive sources give a picture at a certain date (population surveys, administrative unemployment reports...). There is a great disadvantage, since the seasonal phenomenon is totally rubbed out, and, furthermore, the selected date may correspond to a slack period of tourism visiting.

Hopefully, in France, two exhaustive sources are available which are not pointing at a fixed day of the year. One are the « annual social reports » (in French « Declarations Annuelles de Données Sociales - DADS»), the other, monthly and quarterly social security forms.

The two sources are relevant for reflecting employment seasonal fluctuations.

The DADS are for social and fiscal use. All employers have to report every year on each employee, several informations among which the first and the last working day of every working period within the year, and the corresponding pay. The DADS are available after 15 to 18 months.

The social security forms have not been investigated so far. A contrary to DADS, those forms do include all persons employed, i.e. employees and non salaried persons as well, but the monthly forms are not carried out by all establishments, the smallest (less than 10 persons employed) being allowed to quarterly transmissions. Furthermore, there is no record on work quantity.

4 The three determining factors of tourism employment

There are three criteria for giving a job a tourism label :

the location in a tourist area

the relationship of the activity establishment with tourism

the correlation with tourist season.

For tourism employment estimation, the method will proceed as follows :

Design a three dimensions space (location, activity, seasonal variation),

Position each establishment in that space,

Define for each space box, the specific estimation rule for the tourism part of the employment.

Count box after box the tourism employment.

4.1 First dimension the geographical tourist intensity

At first sight, the location seemed not to be a prior factor, the activity being a major criterion. Nevertheless, it came out in the research that links between tourism and industry were highly depending on where the activity was undertaken. In other words, a tourism label can't be given to an industry, but in relation to areas which are acknowledged as tourist areas, and preferably,

those areas should be "homogenous in the type of tourism"(i.e. same tourism characteristics). In Languedoc-Roussillon, for instance, the same industry could be admitted as full tourism industry if run on the coast, and not much if run elsewhere in the region.

The elementary geographical area used by the method is the district (the French « commune »- There are more than 36.000 « communes » in France). Urban areas have been considered apart from rural districts, the urban districts being being put together as units of 5.000 inhabitants as a minimum.

Each urban unit or rural district is classified accordingly to its tourist intensity, this concept being based on several criteria as explained bellow.

There is no reference to any kind of official or administrative zone. The only criteria used are taken from specific indexes on the unit or the district:

For urban units

Overall accommodation capacity
Seasonal employment intensity
Available accommodation types
Number of jobs in restaurants

For rural districts

Second home density
Seasonal establishments proportion
Average value and standard deviation of the tourist intensity
(from a specific district survey)

As a result, the geographical dimension is graduated with 7 degrees

Highly tourist urban units
Highly tourist rural districts

Tourist urban units, tourist resort oriented
Tourist urban units, tourist passing oriented
Tourist rural districts

Non tourist urban units
Non tourist rural districts

As a beginning, the research has been done on four regions in France :
Languedoc-Roussillon, a typical region for holidays on the seaside,
Rhône-Alpes, where mountains are prevalent (winter and summer skiing, hiking, climbing),
Centre, with very limited tourist sites (historic castles along the river Loire),
and Poitou-Charente where a famous « futuroscope » is located.

The four regions were complementary enough to represent the 22 regions, so that the classification may be used by any other region in France, but, for very specific cases, other indexes could be implemented in addition.

4.2 Second dimension the activity

The basic idea is that tourists passing through or staying in one place at a time will generate consumption in that place or in the neighboring. By supplementing the residents'consumption the tourist may generate new jobs or preserve existing ones.

The activities under tourism influence, should then show daily employment variations in correlation with tourist seasons.

Disposing on dataset with, for every employee, the first and the last day of each work period, it is quite easy to draw a daily employment curve by activity. Hopefully, the employer activity code is given through DADS on 4 digits, i.e. 700 classes.

Then comparing those activity curves with the tourism one, a tourism influence will be supposed when the curbs are similar enough. The technical means for measuring that resemblance are linear regressions.

Two questions yet

? *A unique list of tourism activities or one list by area of homogenous tourism* ?

A list by homogenous areas would obviously fits a region profile in all its peculiarities, but specific lists would scarcely preserve a common core of thresholds for inter-areas comparisons.

A unique list guarantees a clear common ground for such comparisons, but a unique list can't be relevant to every peculiar area.

The research team opted for a unique list since the first four regions they started from, could be accepted as a rather good sample of French regions from a tourism point of view. Moreover, that first sample will be progressively completed by the 18 other regions and so the initial list will be tested and amended with the help of the coverage extension. In other world, each time the method will be used, the accuracy of the activity list will be reinforced.

? *Where could data on daily tourist visiting be taken from* ?

In France, the data available on tourist visiting are from monthly surveys which are carried out at regional level. The aim of those surveys is to collect statistics on arrivals and overnight stays, by hotels and camping categories. There is no statistical coverage of non categorized hotels, collective accommodations, seasonal renting, second homes, family or friend dwellings. Unfortunately the last three accommodations represent more than 75 % of the tourism visiting !

Daily records on traffic road are done at the borders of some regions, but preparing an implementation in 22 regions, the method can't rely on so scarce data collection.

A better idea was to approximate the tourist visiting curve from daily employment curves in collective accommodations (hotels without restaurant, camping, and other collective accommodations) . The argument was first, that tourists choosing private accommodations and tourists opting for collective accommodations should go for holidays at similar periods, and, second, that the employment variations of collective accommodations are closely related to tourist flow variations. That idea were confirmed by a positive test in Languedoc-Roussillon.

The resulting lists of activities by degrees of tourism integration

After linear regressions on the four above mentioned regions, the selected activities were all having , globally or partly, a meaningful regression with the employment curves from the three sectors already mentioned:

hotels without restaurant
camping
other accommodations

Among the selected activities there were still some like removal or fruit preserving industries having similar season periods but nothing to do with tourism. Those were manually rubbed out.

The result led to 6 activity categories in relation to tourism. Codes bellow are taken from NACE (the european activity classification) and NAF (the French one)

100 % TOURIST ACTIVITIES

(highly correlated activities in all toutist areas)

NACE	55.12	Hotels and motels without restaurant	
NACE	55.21	Youth hostels and mountain refuges	
NACE	55.22	Camping sites	
NAF	55.2E	Other provision of tourism lodgings n.e.c	incl. in NACE 55.23
NAF	60.2C	Mountain and ski lifts	incl. in NACE 60.21
NAF	93.0K	Hydrotherapy	incl. in NACE 93.04

One activity on the edge was NACE 63.30 (travel agencies and tour operators), but since their business consists partly, if not mainly, in organizing trips and stays abroad for domestic customers, those agencies can't be considered as 100 % tourism where they are located.

HIGHLY TOURIST ACTIVITIES

(highly correlated activities with tourism, in all most tourist areas and nowhere else.)

NACE	55.11	Hotels and motels with restaurant	
NACE	55.30	Restaurants	
NAF	55.4B	Bars without tobacco sales	in NACE 55.40
NAF	15.1F	Pork butcheries	in NACE 15.13
NAF	15.8C and 15.8D	Bakeries	in NACE 15.81
NAF	52.1B	Grocery stores	in NACE 52.11
NACE	52.22	Retail sale of meat and meat products	
NACE	52.24	Retail sale of bread, cakes, flour and sugar confectionery	

NACE 52.26 Retail sale of tobacco products
NAF 52.4E Retail sale of footwear in NACE 52.43
NAF 52.6D Retail sale of food via stalls and markets in NACE 52.62

MODERATELY TOURIST ACTIVITIES

(robust correlation but for one region only)

NAF 15.8A Industrial manufacturing of bread and fresh pastry in NACE 15.81
NACE 15.84 Manufacture of cocoa; chocolate and sugar confectionery
NACE 50.50 Retail sale of automotive fuel
NAF 52.1C , 1D, 1F mini, super and hyper markets in NACE 52.11
NACE 52.21 Retail sale of fruit and vegetables
NACE 52.23 Retail sale of fish, crustaceans and molluscs
NACE 52.31 Dispensing chemists
NACE 52.42 Retail sale of clothing
NACE 52.47 Retail sale of books, newspapers and stationery
NAF 52.4W Retail sale of sports and leisure articles in NACE 52.48
NAF 52.4Z Other retail sale in specialized stores in NACE 52.48
NAF 55.4A Café-tobacconists
NAF 61.1B Coastal water transport in NACE 61.10
NACE 63.30 Travel agencies and tour operators
NAF 65.1C, 1D Banks in NACE 65.12
NACE 71.40 Renting of personal and household goods n.e.c
NAF 90.0B Refuse disposal in NACE 90.00
NACE 92.33 Fair and amusement park activities
NAF 92.3H Balls and discotheques in NACE 92.34
NACE 92.52 Museums and preservation of historic sites and buildings
NACE 92.61 Operation of sports areas and stadiums
NACE 92.62 Other sporting activities
NACE 92.72 Other recreational activities n.e.c
NAF 93.0B Retail washing and dry-cleaning in NACE 93.01
NAF 93.0D Hairdressing in NACE 93.02

SLIGHTLY TOURIST ACTIVITIES

(Weaker correlation)

NAF 15.8B Bakery goods cooking in NACE 15.81
NACE 36.61 Manufacture of imitation jewelry
NACE 51.31 Wholesale of fruit and vegetables
NACE 51.34 Wholesale of alcoholic and other beverages
NAF 51.3S Wholesale of fishes, crustaceans and molluscs in NACE 51.38
NACE 51.42 Wholesale of clothing and footwear
NAF 52.1J Other retail sale in non-specialized stores in NACE 52.12
NACE 52.27 Other retail sale of food, beverages and tobacco in specialized stores
NAF 52.4F Retail sale of leather goods in NACE 52.43
NACE 52.50 Retail sale of second hand goods in store
NACE 52.71 Repair of boots, shoes and other leather articles
NAF 55.5D Traitors, reception organizers in NACE 55.52

NAF	60.2A	Urban and other scheduled	
NAF	60.2B	passenger road transport	in NACE 60.21
NACE	60.23	Other land passenger transport	
NACE	61.20	Inland water transport	
NACE	63.21	Other supporting land transport activities	
NACE	63.22	Other supporting water transport activities	
NAF	65.1E	Saving banks	in NACE 65.12
NAF	70.2A	Accommodation letting	in NACE 70.20
NACE	70.31	Real estate agencies	
NAF	70.3C	Residential buildings agencies	in NACE 70.32
NACE	74.70	Industrial cleaning	
NACE	74.81	Photographic activities	
NAF	85.1K	Medical laboratories	in NACE 85.14
NACE	92.13	Motion picture projection	
NACE	92.22	Operation of art facilities	
NACE	92.53	Botanical and zoological gardens and nature reserve activities	

Finally, some generally non-tourist activities may marginally inflate their staff on tourist season. That's the case of

NACE 75.11 General public service activities : municipalities may hire temporary workers at tourist season for refuse collection, security.....

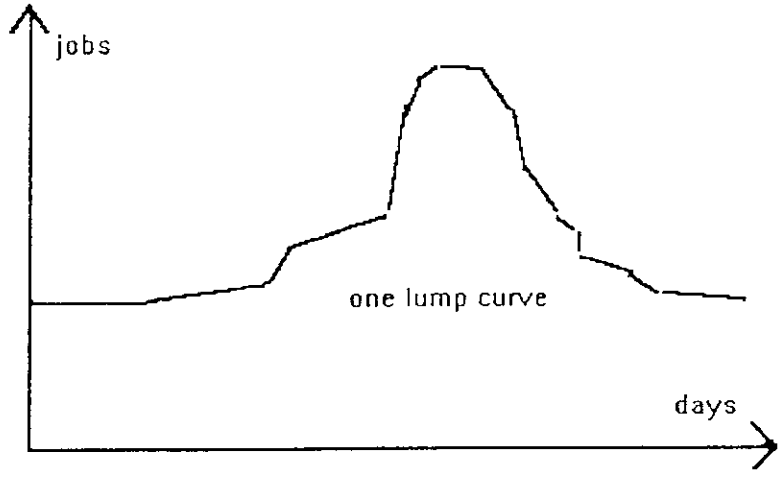
NACE 85.11 Hospital activities (spa included)

Missing activities in the four lists above were either non-correlated or absent from the four testing regions.

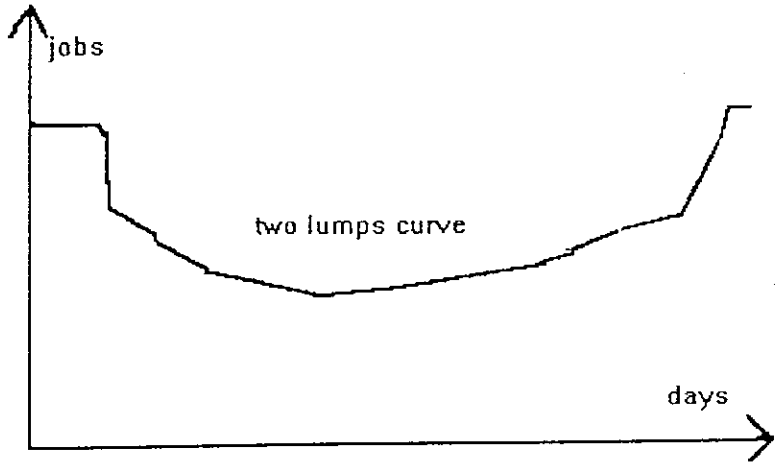
4.3 Third dimension the seasonal profile

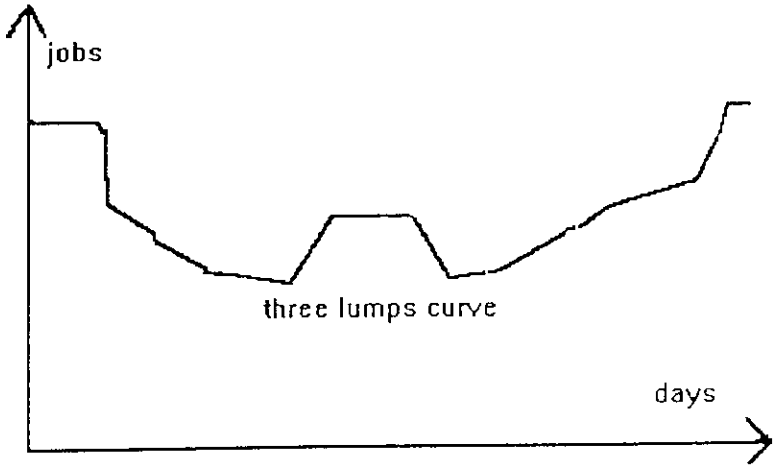
There are only two terms : the establishment has or hasn't a seasonal profile.

A summer seasonal profile will be identified when the daily average employment level will be higher in July, August or September, than in any of the nine other months of the year. The corresponding employment curve is marked with one "lump".



A winter seasonal profile corresponds to a daily average employment level higher in February than in May, and higher in the last fifteen days of December than in November. As the concerned establishments might have both a winter and a summer profiles, their employment curve might show two or three "lumps".





4.4 Decision rules and employment calculation

To sum up what has been said above, there are three factors represented as three axes of a three dimensions space.

There are 2 terms on the season axis,

6 on the activity axis

3 on the tourism intensity axis

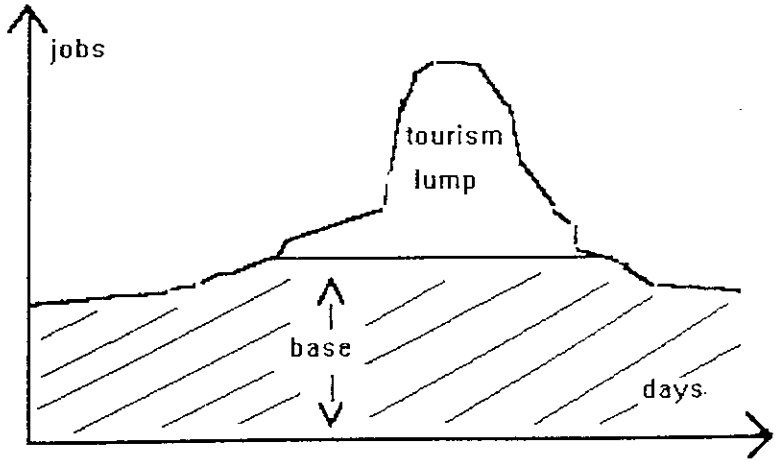
Then the remaining problem to be solved is the calculation of the tourism employment part of each box of the space :

100 % TOURIST ACTIVITIES,

the entire employment (seasonal and permanent) is tourism allocated.

HIGHLY TOURIST ACTIVITIES

In the following diagram, the "lump" is the seasonal part of employment, the base, the permanent employment, and the base-part, the part of the permanent employment which can be considered as generated by tourism.



tourist area	highly	moderately	non
seasonal establishment	lump + base	lump + base-part	zero
non seasonal establishment	base	base-part	zero

Calculation of the lump

The bottom line of the lump joins the lowest employment level
between January 15th and March 30th and the lowest employment level in November.
The employment lying under that line is the base (the permanent employment)

Calculation of the base-part

Tourism may cause permanent employment in at least two circumstances. There is a permanent minimum flow of tourists all along the year, or the flow is so important at tourist season that it generates a permanent employment.
A realistic method for estimating the tourism base-part is nevertheless still to be found, so that the estimation result is a range one : between 100% and 0% base .
In NACE 55.11(Hotels with restaurants),the employment is estimated as equally shared by hotel and restaurant. Hotels being 100% tourist activities, the estimated base-part is then between 100% and 50% base.

MODERATELY TOURIST

tourist area	highly	moderately	non
seasonal establishment	lump + base-part	lump-part	zero
non seasonal establishment	base-part	zero	zero

The above conclusions on base-part estimation are still relevant for moderately tourist activities, and, furthermore, they applied to lump-part estimation too.

In such moderately tourist areas, seasonal establishments may recruit additional employees or merely substitute some temporary workers at tourist season. The border between the two is not easy to draw.

SLIGHTLY TOURIST

tourist area	highly	moderately	non
seasonal establishment	lump	zero	zero
non seasonal establishment	zero	zero	zero

Employment calculation

The outcome of the method is not a precise total employment for a region, but twofold.

An estimation range with 100% lump and base parts as maximum and 0 or 50 %(hotels with restaurants) as minimum.

Precise information on employment season profile (time period and duration). Possible additional information may be taken from the DADS (part-time, qualification, age, salaries..).